

BEHAVIOURAL STUDY ON ADVERTISING AND MARKETING PRACTICES IN ONLINE SOCIAL MEDIA

Annex 1.2 Business model identification

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Unit 03 Economic analysis and evaluation

Contact: Unit 03

E-mail: JUST-03@ec.europa.eu

*European Commission
B-1049 Brussels*

Behavioural Study on Advertising and Marketing Practices in Online Social Media

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Annex 1.2.A Criteria for selecting the OSM providers to identify the classifications

In this annex we discuss the selection of OSM providers for classifying their functionality and revenue streams and the basis on which the final short-list was decided.

For identifying the classifications, the top 30 OSM providers in the EU¹ identified in Subtask 1.1 formed the basis of an initial list. From these 30 OSM providers, following 13 OSM providers were selected for identifying classifications on the basis of OSM platform functionality and revenue streams - *Facebook, YouTube, Twitter, Instagram, Reddit, LinkedIn, Pinterest, Twitch, WhatsApp, VK, Xing, Vbox7, and Facebook Messenger*. This shortlist was developed in consultation with the Commission, on the basis of following parameters:

- Functional variations (e.g. social networking, image/video sharing, instant messaging, business networking);
- Operational footprint (national i.e. specific to one EU country/language, regional i.e. EU-wide or specific to a group of EU countries, or international);
- Reported number of registered/un-registered users or visitors;
- Reported revenue;
- Alexa or similar web ranking;
- Possible insights the OSM provider could provide for a balanced analysis of the diversity in existing OSM classifications.

A detailed breakdown of the reasons for which these OSM providers were shortlisted is provided in the following table:

¹ Including the EU Member States plus Norway and Iceland

Table A-1. Reasons for selection/deselection of OSM providers for classifying their functionalities and revenue streams

OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
Facebook	Social network	Y	<ul style="list-style-type: none"> One of the world's largest social networks with more than 2B users (and counting)² Covered as part of a business model canvas framework analysis
YouTube.com	Video	Y	<ul style="list-style-type: none"> One of the world's largest and most popular video sharing/streaming websites Covered through business model canvas framework analysis
Twitter	Social streams	Y	<ul style="list-style-type: none"> One of the world's largest micro-blogging platforms Covered as part of the business model canvas framework analysis
Instagram	Picture	Y	<ul style="list-style-type: none"> One of the most popular image sharing websites Covered as part of business model canvas for Facebook
Reddit	Discussion forum + news/Q&A	Y	<ul style="list-style-type: none"> Self-described front-page of the Internet³ 542M monthly visitors (May-June 2017)^{4,5} 234M unique users (May-June 2017)⁶ Social news aggregation and discussion forum. Provides the ability to understanding advertising and revenue streams in a 'discussion forum' context
Tumblr	Blog/microblog	N	<ul style="list-style-type: none"> Part of the Yahoo cluster of OSM providers Mainly a blogging platform which has consistently made losses i.e. it has never had a clear monetisation strategy or a viable business model⁷

² Zuckerberg, Mark. 2017. Untitled. Available at: <https://www.facebook.com/zuck/posts/10103831654565331>

³ Sjoberg, Lore. 2013. How Reddit Became the Front Page of the Internet. Available at: <https://www.wired.com/2013/04/reddit-2/>

⁴ Alexa Internet. Reddit.com site information. Available at: <https://www.alexa.com/siteinfo/reddit.com>

⁵ Statista. 2017. Combined desktop and mobile visits to Reddit.com from October 2016 to May 2017 (in millions). Available at: <https://www.statista.com/statistics/443332/reddit-monthly-visitors/>

⁶ ibid

⁷ Fiegerman, Seth. 2016. How Yahoo derailed Tumblr. Available at: <http://mashable.com/2016/06/15/how-yahoo-derailed-tumblr/#fIWUk7oYGgqO>

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
			<ul style="list-style-type: none"> In its latest public statement on annual revenue (2016), Yahoo has written down Tumblr as a loss-making asset.⁸ With Yahoo itself up for sale, it is clear that despite the 350M+ registered users⁹ Tumblr as an OSM provider would not provide sufficient insights for this analysis.
LinkedIn	Business	Y	<ul style="list-style-type: none"> One of the world's largest professional networks Covered as part of business model canvas framework analysis
Pinterest	Social network	Y	<ul style="list-style-type: none"> Social network previously billed as Facebook competitor Focuses on sharing ideas through images and pin boards (and thus has a very different functional pivot when compared to Facebook) Relevant for this study as it could present a different business approach than social networks such as Facebook and/or LinkedIn
Twitch	Live video streaming of game-play	Y	<ul style="list-style-type: none"> 4th largest streaming traffic in the US^{10,11} Made live streaming of game-play mainstream¹² Part of the Amazon cluster of services and thus relevant given Amazon's size and scale of online operations

⁸ Yahoo. 2016. Form 10-K annual statement. Available at:

<https://www.sec.gov/Archives/edgar/data/1011006/000119312517065791/d293630d10k.htm>

⁹ Statista. 2017. Tumblr – Statistics and Facts. Available at: <https://www.statista.com/topics/2463/tumblr/>

¹⁰ Alexa Internet. Twitch.tv site info. Available at: <https://www.alexa.com/siteinfo/twitch.tv>

¹¹ DiPetro, Matthew. 2014. Twitch is 4th in Peak US Internet Traffic. Available at: <https://blog.twitch.tv/twitch-is-4th-in-peak-us-internet-traffic-90b1295af358>

¹² Warr, Philippa. 2013. Q&A: Twitch on how game streaming is changing how we play. Available at: <http://www.wired.co.uk/article/twitch-qa>

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
			<ul style="list-style-type: none"> Given rise to other competitors such as YouTube Gaming^{13,14} and Smashcast (originally Hitbox)^{15,16}
Imgur	Picture	N	<ul style="list-style-type: none"> Image sharing-related functionality is already covered as part of the analysis for Instagram Not included despite its popularity^{17,18} so that sufficient number of regional OSM providers could be considered as part of the short-list of 10
WhatsApp	Messaging	Y	<ul style="list-style-type: none"> One of the world's largest instant messaging platforms (1B users and counting)¹⁹ Part of the Facebook cluster, covered as part of the business model canvas for Facebook
Ok.ru	Social network	N	<ul style="list-style-type: none"> Primarily Russian social network Provides functionality similar to Facebook (including browser-based games) Not included due to its Russian origins
Vk.com	Social network	Y	<ul style="list-style-type: none"> Largest European online social network based in Russia

¹³ Andronico, Michael. 2016. YouTube Gaming: What You Need to Know. Available at: <https://www.tomsguide.com/us/youtube-gaming-faq,review-3019.html>

¹⁴ YouTube. 2017. Frequently asked questions about YouTube Gaming. Available at: <https://support.google.com/youtubegaming/answer/6259296?hl=en-GB>

¹⁵ Smashcast. 2017. Home page. Available at: <https://www.smashcast.tv/>

¹⁶ Grill, Scott. 2016. Twitch CEO admits to screw up, Hitbox jumps to acquire disillusioned streamers. Available at: <https://www.inquisitr.com/1399608/twitch-ceo-admits-screw-up-hitbox-jumps-to-acquire-disillusioned-streamers/>

¹⁷ DMR statistics. 2016. Imgur statistics (November 2016). Available at: <https://expandedramblings.com/index.php/imgur-statistics/>

¹⁸ Imgur has 150M users in comparison to 800M users of Instagram. See Bertoni, Steven. 2015. an Imgur Turn Its 150 Million Users Into A Booming Business? Available at: <https://www.forbes.com/sites/stevenbertoni/2015/03/25/can-imgur-turn-its-150-million-users-into-a-booming-business/#a17a685607b2>; and Statista. 2017. Instagram – Statistics & Facts. Available at: <https://www.statista.com/statistics/253577/number-of-monthly-active-instagram-users/>

¹⁹ Statista. 2017. WhatsApp – Statistics & Facts. Available at: <https://www.statista.com/topics/2018/whatsapp/>

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
			<ul style="list-style-type: none"> Facebook's nearest competitor in Europe in terms of number of users^{20,21, 22} and thus relevant to this study Provides functionality similar to Facebook (including browser-based games) and a possible point of comparison for this analysis
Wikia.com	Wiki	N	<ul style="list-style-type: none"> Primarily online encyclopaedias maintained by communities (includes several niche, fandom-driven topics) Seen by some as the commercial counterpart to the non-profit Wikipedia Not included since Wikipedia was excluded from consideration as an part of early discussion with the Commission
9gag.com	Picture	N	<ul style="list-style-type: none"> Image sharing functionality is already covered as part of the analysis for Instagram International website and thus not included to allow regional OSM providers to be considered as part of the short-list of 10
Cda.pl	Video/picture	N	<ul style="list-style-type: none"> Largest video-sharing website in Poland (similar to YouTube if the functionality of video-sharing and streaming is considered) Key aspects of video sharing functionality are already covered as part the analysis of YouTube Limited information available about it which makes it challenging to analysis it

²⁰ Vincos Blog. 2017. World map of social networks. Available at: <http://vincos.it/world-map-of-social-networks/>

²¹ Popkin, Helen A. S. 2013. Meet the four social networks bigger than Facebook (in some countries). Available at: <https://www.nbcnews.com/technology/meet-four-social-networks-bigger-facebook-some-countries-1B7812869>

²² Hitchcock, Andrew. 2017. Important Social Media Websites in Europe and Russia. Available at: <http://daily.unitedlanguagegroup.com/stories/editorials/important-social-media-europe-russia>

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
Gutefrage.net	Online advice market/Q&A/discussion forum	N	<ul style="list-style-type: none"> • Specific to the German-speaking users • Regional player in Germany, Austria, and Switzerland • Primarily a type of discussion forum / Q&A website • Due to the regional nature, there is limited data and literature available on it
Hotukdeals.com	Social commerce	N	<ul style="list-style-type: none"> • Not included since similar deal-finding, sales/auction-based commerce websites such as Amazon or eBay have been excluded from consideration as part of an early discussion with the Commission
Xing.com	Business network or professional network	Y	<ul style="list-style-type: none"> • One of the main competitors to LinkedIn (founded at the same time as LinkedIn, 13 years ago) • Despite its international availability, it has a dominant usage among German-speaking users²³ • Given that 90% of its page views originate in Germany, Austria, and Switzerland (countries with German-speaking populace), it could provide a useful regional comparator to LinkedIn²⁴
Vbox7.com	Video	Y	<ul style="list-style-type: none"> • Largest video-sharing website in Bulgaria²⁵ (similar In functionality in terms of video sharing and streaming to YouTube ²⁶) • As of 2016, it is the 10th most popular website in Bulgaria

²³ Iko system. 2014. LinkedIn against its European Competitors. Available at: <http://www.iko-system.com/wp-content/uploads/2014/02/LinkedIn-vs-competitors.pdf>

²⁴ Koss, Stephen. 2013. Xing versus LinkedIn in German speaking countries. Available at: <https://tbkconsult.com/business-networks-and-the-german-speaking-area/>

²⁵ Vbox had reported 2.1M monthly users in 2016. See Upnetix. 2016. Bulgaria's favorite video sharing platform Vbox7 goes mobile! Available at: <http://upnetix.com/en/news/bulgarias-favorite-video-sharing-platform-vbox7-goes-mobile/59>

²⁶ YouTube has over 1B users. See YouTube. 2017. YouTube statistics. Available at: <https://www.youtube.com/yt/about/press/>; Matney, David. 2017. YouTube has 1.5 billion logged-in monthly users watching a ton of mobile video. Available at: <https://techcrunch.com/2017/06/22/youtube-has-1-5-billion-logged-in-monthly-users-watching-a-ton-of-mobile-video/>

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
			<ul style="list-style-type: none"> Provides a useful comparator to YouTube in the Eastern European context An important caveat is that due to its regional nature, limited data and literature may be available on it
Gyakorikerdesek.hu	Q&A	N	<ul style="list-style-type: none"> One of the top websites in Hungary Its user-base is almost entirely Hungarian which may make it too niche to be considered for this research
Draugiem.lv	Social networks	N	<ul style="list-style-type: none"> Latvian social network Although it functions in Latvian, Russian, and English, its user-base is almost entirely Latvian which may make it too niche to be considered for this research Not included since with Facebook, Pinterest, and vk.com, the most well-known examples of social networks have already been considered In addition, its exclusion allows other types of OSM providers to be considered
Flashback.org	Discussion and forums	N	<ul style="list-style-type: none"> Specific to Swedish-speaking users Regional OSM provider and as one in the discussion forum/Q&A segment, it could complement the analysis done with Reddit and Gutefrage.net, more so since discussion forums are conventionally considered difficult to monetise An important caveat is that due to its regional nature, limited data and literature may be available on it
Skyrock.com	Social network	N	<ul style="list-style-type: none"> Primarily a French-language social network Not included since with Facebook and Pinterest, the most well-known examples of social networks have already been considered In addition, its exclusion allows other types of OSM providers to be considered
Suomi24.fi	Social network	N	<ul style="list-style-type: none"> Finnish social network Not included since with Facebook and Pinterest, the most well-known examples of social networks have already been considered In addition, its exclusion allows other types of OSM providers to be considered

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OSM provider	Type/classification	Include for analysis (Y/N)	Reasons for selecting / not selecting it for analysis
Facebook Messenger	Messaging	Y	<ul style="list-style-type: none"> Covered as part of the business model canvas for Facebook
Soundcloud	Music	N	<ul style="list-style-type: none"> Primarily a music sharing and subscription service with its origins as a European startup (Sweden and Germany) Not included since as part of early discussion with the Commission similar services such as Spotify are not being considered for this research
Snapchat	Picture/video	N	<ul style="list-style-type: none"> International provider and thus not included to allow regional OSM providers to be considered as part of the short-list of 10
Viber	Calling	N	<ul style="list-style-type: none"> International provider and thus not included to allow regional OSM providers to be considered as part of the short-list of 10
Skype	Messaging	N	<ul style="list-style-type: none"> International provider and thus not included to allow regional OSM providers to be considered as part of the short-list of 10

Annex 1.2.B Details of the analytical frameworks

In this annex, we discuss the analytical frameworks that informed the classifications of OSM providers on the basis of functionality, revenue streams, and value propositions.

Data for identifying the classifications of the OSM providers was drawn from information in the public domain as well as by data collected in the study from Subtask 1.3 (Mapping of the commercial practices used in OSM) and Subtask 1.4 (The role of OSM providers in commercial practices).²⁷ In the remaining parts of the document, specific details of the data sourced from the desk research for Subtask 1.3 (Section 4.1) and inputs from the industry survey and mystery shopping exercise (Sections 5.1, 5.2) are referred to, where relevant.

The data thus collected was analysed using the following frameworks

- Business Model Canvas framework;
- Revenue models identified by Enders, Hungenberg, Denker, and Mauch in a 2008 study titled 'The long tail of social networking: revenue models of social networking sites'; and
- Two-sided market theory

Each of these frameworks is discussed in more detail in the next sections. For each framework we identify its relevance to the study and discuss how its use contributed to developing the classifications of the OSM providers that have been summarised in Section 3 as part of the main report.

We conclude the discussion in this annex by summarising how these frameworks have informed the classifications of OSM providers identified in the main report.

B.1. Business Model Canvas framework

B.1.1. Information about the framework and its relevance to this study

The Business Model Canvas is a single reference model that can be used to classify various functional, financial, and operational aspects of a business. It is the combined work of Osterwalder, Pigneur, and Smith along with 470 other practitioners from 45 countries (i.e. it is a now crowd-sourced framework). It utilises the following factors to assess and differentiate the functional, financial, and operational aspects of businesses:

- Key partners;
- Key activities;
- Key resources;
- Value propositions;
- Customer relationships;
- Channels;
- Customer segments;
- Cost structure; and

²⁷ Some of the data collected informed our understanding of the latest developments and trends in evolution of the OSM landscape which are discussed separately in Annex 1.2.D

- Revenue streams.

For each of these factors, there are multiple sub-factors identified by Osterwalder et al., which facilitate a detailed understanding of how a business operates.²⁸

Unlike other methods of analysing how a business operates, the Business Model Canvas framework is designed from bottom-up for businesses in the Internet age. In the context of this study, the Business Model Canvas framework provides a structured, recursive approach to identify how an OSM provider functions by focussing on activities that are core to its operating model and revenue streams. The crowd-sourced nature of the framework lends itself well for analysis of OSM providers in the broadest possible terms – a key advantage given the scope of this study to understand the OSM providers' commercial practices.

B.1.2. Use of the Business Model Canvas framework to inform the functional classifications of the OSM providers

In order to build a classification of the OSM providers' functionality, a business model canvas was prepared each of the 13 OSM providers considered for Subtask 1.2 (listed in Annex 1.2.A). Based on these business model canvases, we entered the information in the form of an attribute matrix to draw out the commonalities on the OSM providers' functionalities.²⁹ We identified two key aspects of the OSM providers' functionality from the perspective of the user (i.e. consumer).

- OSM platforms can vary significantly based on their **primary functionality** or the primary activity users perform on the platform.
- The primary activity is the main reason users join and engage with a particular OSM platform.

Further analysis of this data suggested that the primary activities for the 13 OSM providers considered for this analysis can be differentiated as follows:

- To connect individuals and allow them to interact in the online world.
- To share specific kinds of data or artefacts. The artefacts can be in the form of images, video, or specific data such as end-users location.
- To stream content primarily in the form of video or audio (including 3D videos and game plays)
- To enable information exchange either on a one-to-one basis or one-to-many basis.

The following table provides a mapping of these activities and a description of the proposed classification which has been summarised in Section 3 as part of the main report.

²⁸ Osterwalder, A., Pigneur, Y., Smith, A, and 470 practitioners from 45 countries, 2010, Business Model Generation, self-published. Available at: <http://www.businessmodelgeneration.com/>

²⁹ Further details of the business model canvases of the 13 OSM providers and the attribute matrix are provided as a separate deliverable in a spreadsheet format.

Table B-1. Mapping of primary activities to classifications of OSM providers on the basis of the functionality offered to users

Primary activity	Description of the classification	Examples of OSM providers
To connect individuals and allow them to interact in the online world.	Named Connectors , these OSM platforms are about connecting people in one-to-one or one-to-many, or many-to-many connections. These OSM platforms enable and mimic real-world interactions online (e.g. exchanging messages, images, interesting thoughts, personal updates)	Facebook, WhatsApp, Facebook messenger
To share of specific kinds of data or artefacts. The artefacts can be in the form of images, video, or specific data such as end-users location.	Named Sharers , these OSM platforms are about sharing artefacts in the form of images, video, or specific data such as end-users location.	Instagram, YouTube
To stream content primarily in the form of video or audio (including 3D videos and game plays)	Named Streamers , these OSM platforms are mainly for passive consumption of content but may also enable one-to-one or one-to-many interaction between the platform users.	YouTube, Twitch, Vbox7
To enable information exchange either on a one-to-one basis or one-to-many basis.	Named Informers , these platforms enable information exchange which can be often less dynamic in nature and so the content created in this information exchange acts as a repository of information. The participating users create, monitor, and moderate the content.	Reddit

B.2. Revenue models of OSM providers identified by Enders et al (2008)

B.2.1. Information about the framework and its relevance to this study

In order to analyse the revenue streams of OSM providers, we conducted a Google Scholar search for literature on revenue models of OSM companies. From this search, the top 20 articles were considered for relevance to this study.³⁰ Ranked for relevance, the top 3

³⁰ Full listing of the top 20 articles is provided in Annex 1.2.E

articles focussed on specific aspects of OSM presence such as film finances³¹, brand marketing via social media³², and use of social media in conducting businesses³³. Due to their focus on such specific aspects of OSM providers businesses, these articles were deemed unsuitable for creating a classification of the OSM providers' revenue streams.

The fourth ranked article for relevance was a 2008 study titled 'The long tail of social networking: revenue models of social networking sites' by Enders, Hungenberg, Denker, and Mauch. Enders et al. (2008) discuss at length the value creation achieved by the new types of businesses created with the emergence of OSM providers.³⁴ They observe that few OSM providers relied on a single source of revenue and the prevalence of hybrid revenue models. They suggest that for any OSM provider the main revenue drivers are

1. The number of users,
2. Their willingness to pay, and
3. Trust in the platform.

By analysing the role and relative importance of these three revenue drivers, Enders et al. identify the three revenue models for OSM providers: the advertising model, the subscription model, and the transaction model.

In addition to Enders et al (2008) study, among the publications ranked lower in relevance, van Dijck³⁵, Safko³⁶, and Berman et al³⁷ were considered most relevant to this task. Although van Dijck³⁸ and Safko³⁹ cover some of the more recent OSM providers⁴⁰ and also cover larger OSM providers (in terms of network footprint), most examples were deemed to fit well within the revenue models identified in Enders et al. However, Enders et al's study was originally published in 2008 and considered two OSM providers (i.e. StayFriends and Xing) in a specific national context (i.e. Germany). Recognising that the OSM space has significantly advanced since the publication of Enders et al's article, we conducted forward

³¹ Asur, Sitaram, and Bernardo A. Huberman. 2010. "Predicting the future with social media." Web Intelligence and Intelligent Agent Technology (WI-IAT), 2010 IEEE/WIC/ACM International Conference on. Vol. 1. IEEE, 2010.

³² Michaelidou, Nina, Nikoleta Theofania Siamagka, and George Christodoulides. 2011. "Usage, barriers and measurement of social media marketing: An exploratory investigation of small and medium B2B brands." *Industrial marketing management* 40.7 (2011): 1153-1159.

³³ Qualman, Erik. 2010. *Socialnomics: How social media transforms the way we live and do business*. John Wiley & Sons.

³⁴ Although Enders et al use the term social networking sites (SNS), in the context of this study we continue to use the term OSM. This is to ensure consistent use of the term with the rest of the document.

³⁵ Van Dijck, José. 2013. *The culture of connectivity: A critical history of social media*. Oxford University Press

³⁶ Safko, Lon. 2010. *The social media bible: tactics, tools, and strategies for business success*. John Wiley & Sons

³⁷ Berman, Saul J., Bill Battino, and Karen Feldman. 2011. "New business models for emerging media and entertainment revenue opportunities." *Strategy & Leadership* 39.3: 44-53.

³⁸ Van Dijck, José. 2013. *The culture of connectivity: A critical history of social media*. Oxford University Press

³⁹ Safko, Lon. 2010. *The social media bible: tactics, tools, and strategies for business success*. John Wiley & Sons

⁴⁰ When compared to Enders et al which discussed StayFriends and Xing.

citation analysis of Enders' et al's article in conjunction with a scoping review of grey literature to establish if the study can be still be deemed relevant for today's OSM landscape.

The forward citation analysis via Google Scholar was done to understand the extent to which Enders et al's article has been cited in other academic literature since its publication. As part of this forward citation analysis the top 20 articles that cite Enders et al's study were considered based on the number of citations received by these articles⁴¹. Of the top 20 articles, van Dijck⁴², Diffley et al⁴³, Han and Windsor⁴⁴, Vock et al⁴⁵, Nogueira et al⁴⁶, and Eurich et al⁴⁷ were examined to understand if any significant caveats had emerged to the findings of Enders et al. Most of these articles identify the emergent complexity and rapid change of OSM landscape in detail. Although additional information in terms of different types of value deliverables and critical success factors for user retention⁴⁸ and further classification of revenue streams in terms of attributes such as recurrence and direct/indirect nature of revenue is identified, none of the articles can be deemed to disagree with the core premise of the revenue models described in Enders et al.

A scoping review⁴⁹ of grey literature on revenue models revealed additional revenue models such as affiliate commission⁵⁰, referrals revenue, or revenue charged for specific service such as bulk-emailing or online surveys⁵¹. However, in the grey literature, most of these revenue models were primarily about intermediaries and how they use OSM platforms to earn revenue. In particular specific activities intermediaries undertake on behalf of businesses form an important part of the discussion. Given that these articles

⁴¹ When ranked for relevance, the top-most cited article had 1234 citations and the 20th article had 24 citations. Analysis of additional articles was deemed beyond the scope of this study. Full listing of the top 20 articles considered for forward citation analysis is produced in Annex 1.2.F.

⁴² Van Dijck, José. 2013. *The culture of connectivity: A critical history of social media*. Oxford University Press

⁴³ Diffley, Sarah, James Kearns, William Bennett, and Peter Kawalek. "Consumer behaviour in social networking sites: implications for marketers." *Irish Journal of Management* 30, no. 2 (2011): 47.

⁴⁴ Han, Bo., and John Windsor. "User's willingness to pay on social network sites." *Journal of computer information systems* 51, no. 4 (2011): 31-40.

⁴⁵ Vock, Marlene, Willemijn Van Dolen, and Ko De Ruyter. "Understanding willingness to pay for social network sites." *Journal of Service Research* 16, no. 3 (2013): 311-325.

⁴⁶ Nogueira Cortimiglia, Marcelo, Antonio Ghezzi, and Filippo Renga. "Social applications: Revenue models, delivery channels, and critical success factors-An exploratory study and evidence from the spanish-speaking market." *Journal of theoretical and applied electronic commerce research* 6, no. 2 (2011): 108-122.

⁴⁷ Eurich, Markus, Andrea Giessmann, Tobias Mettler, and Katarina Stanoevska-Slabeva. "Revenue Streams of Cloud-based Platforms: Current State and Future Directions." In *AMCIS*. 2011.

⁴⁸ Nogueira Cortimiglia, Marcelo, Antonio Ghezzi, and Filippo Renga. "Social applications: Revenue models, delivery channels, and critical success factors-An exploratory study and evidence from the spanish-speaking market." *Journal of theoretical and applied electronic commerce research* 6, no. 2 (2011): 108-122.

⁴⁹ As an example of the articles, the most relevant 10 articles (excluding any academic literature and additionally filtered for emphasis on online social media) is provided in Annex 1.2.G

⁵⁰ Loayaza, Jun. 2009. 5 Business Models for Social Media Startups. Available at: <http://mashable.com/2009/07/14/social-media-business-models/#yLW1La7i75qG>

⁵¹ Chaffey, Dave. 2011. 8 Online revenue model options for Internet businesses. Available at: <http://www.smartinsights.com/digital-marketing-strategy/online-business-revenue-models/online-revenue-model-options-internet-business/>

mainly discussed intermediaries and due to the anecdotal nature of the evidence used to identify these revenue models, this analysis, although considered, was not deemed to sufficiently challenge the relevance of Enders et al's findings.

The forward citation analysis and scoping review suggested that despite the rapid developments in the OSM space, the core tenets of the revenue models described by Enders et al (2008) remain relevant when the overall OSM landscape and the scope of this task is considered. On the basis of this analysis, we decided to use the revenue models identified by Enders et al to inform the classifications of the revenue streams of the OSM providers. The discussion by Enders et al. is primarily focussed on users and does not specifically address third-party traders or intermediaries acting on behalf of third-party traders. To address this limitation of Enders et al's revenue models, as part of the discussion in the next section we consider both these groups.

B.2.2. Use of the Enders et al (2008) revenue models to classify the revenue streams of the OSM providers

In this section we discuss each of the revenue models identified by Enders et al to understand how it informed the classification of the revenue streams summarised in Section 3 as part of the main report.

B.2.2.1. Advertising model

In this revenue model, to be profitable the OSM providers require high levels of website traffic and thus the key revenue driver is the number of users.

Enders et al. (2008) suggest that advertising appears to be the foremost form of revenue generation because of the tendency among users to demand free services. Although willingness to pay from the user side does not affect revenues in this model, a certain minimum level of trust in the platform is argued to be necessary to engage the users.

In the context of this study, two types of advertising platforms can be distinguished⁵²:

- Self-service advertising – This refers to the capability of the OSM providers to deliver the ads through their own platform. Notable examples of OSM providers that rely on self-service advertising capability are Facebook, YouTube, and Twitter.
- Advertising through third-party ad networks – Not all of OSM providers have the capability to deliver ads through their own platform. In such a scenario, the OSM providers rely on third-party ad networks. A notable example of a third-party ad network is the Google AdSense platform. Notable examples of OSM providers relying on third party ad networks are Reddit, Vbox7.

In both cases, third-party traders or intermediaries acting on behalf of third-party traders make payments to the OSM providers to run the ad campaigns. These payments can either be for one-off campaigns or campaigns that run over longer durations (i.e. months) and constitute the revenue earned by OSM providers as part of the advertising model. Access

⁵² For a more details discussion on the types of advertising used by OSM providers, please see the findings from the mystery shopping exercise in Section 5.2 as part of Subtask 1.4.

to the metrics of reach and engagement specific to these campaigns are also included as part of these payments.

Whether through a self-service advertising platform or third-party ad network, OSM providers may deliver advertising on the basis of the different kinds of data that they collect, including:

- Anonymous data i.e. user's browser history and cookies;
- Personalised data which includes
 - User's account data including user's profile data (e.g. age, gender, location etc.), preferences, and previous account history;
 - Behavioural data extracted from the users' online habits (including users interests, information gathered via third-party websites connected to the OSM providers' advertising network, data received from third-party data providers, and survey data);⁵³
 - A combination of the above, i.e. a combination of user's account data, browser history and cookies, and behavioural data.

Thus, depending on the type of data used by OSM providers, we can identify two revenue streams in relation to the advertising model

- Advertising based on anonymous data
- Advertising based on personalised data

The following table (B-2) provides a description of these revenue streams which has been summarised in Section 3 as part of the main report. A detailed mapping of the classifications of the revenue streams against the services of the 13 OSM providers considered for this analysis is provided in Annex 1.2.C.

Table B-2. Description of advertising revenue streams

Revenue stream	Description
Advertising based on anonymous data	When the user is not logged into the platform and accesses the platform in a passive, indirect participatory way, the advertising displayed is on the basis of user's browser history and cookies i.e. anonymous data. The dependence on anonymous data restricts the OSM platform's ability to identify the user and also restricts its capability to deliver targeted advertising to the user.
Advertising based on personalised data	This form of advertising revenue is achieved when the user is logged into the platform and actively interacts with other users of the platform, contributing to the platform activity and also data in the form of the account profile data and behavioural data.

⁵³ Further details on the nature of behavioural data extracted by the OSM providers are covered as part of the discussion on the results of the mystery shopping exercise in Section 5.2 and the discussion on targeting as part of Annex 1.4.1 containing the findings from the industry survey.

Revenue stream	Description
	The availability of this personalised data enables the OSM platform to deliver highly targeted reach and engagement as part of the advertising paid for by the third party traders or intermediaries acting on their behalf.

B.2.2.2. Subscription model

In this revenue model, to be profitable the OSM providers need to deliver customer value in the form of content or services unique to the platform, functionalities and incentives to encourage continued user engagement with the platform, and by offering multiple membership packages with different pricing schemes.

Enders et al. (2008) suggest that users are not likely to pay a subscription fee for a service only on the basis of high user numbers for the platform. Although the key revenue driver for this revenue model is maximising the users' willingness to pay, a certain minimum level of trust in the platform and other users of the platform is argued to be necessary to engage users.

In the context of this study, the revenue from subscription model can be fees charged to users, third party traders, or intermediaries acting on behalf of third party traders on periodic basis to access the platform. The following table provides a mapping of the two ways in which subscription fees may be charged to users and third party traders and intermediaries acting on their behalf. This has been summarised as **revenue from subscription fees** in Section 3 as part of the main report.

Table B-3. Description of how the subscription fees are charged to different user groups

User group	How are the subscription fees charged
Users	Charged to access services of the platform e.g. access to ad-free content or access to exclusive content which is not available to users do not pay subscription fees.
Third party traders or intermediaries acting on behalf of third party traders	Charged for marketing services which include access to users' account data, behavioural data, access to data analytics, and conducting public relations and media relations via the platform.
	This does not include payments made by third-party traders or intermediaries acting on their behalf to run ad campaigns on the platform here as such revenue is considered as part of the advertising model revenue in the advertising model (described above). Similarly the metrics of reach and engagement for the ad campaigns are considered separate

User group	How are the subscription fees charged
	from the data or results provided by the data analytics services as part of this discussion.

B.2.2.3. Transaction model

In this model, to be profitable, the OSM provider needs to generate sustainable revenues through enabling or executing online transactions. These transactions can be either in the form of physical or digital goods and services sold by the platform provider (i.e. endogenous transactions) or third party goods and services or content sold through the platform provider (i.e. exogenous transactions).

Enders et al (2008) suggest that in order to create sustainable revenue a critical mass of users is needed along with a minimum willingness to pay. Building on these revenue drivers, the key revenue driver is trust in peers (other users including third party traders).

In the context of study, the revenues from the transaction model are fees charged to the users for transactions enabled by the OSM provider's platform. The OSM providers' platform enables third-party traders to sell or exchange goods and services. The users of the platform make a payment for buying or exchanging virtual or real-world good and services (e.g. Facebook AppCenter⁵⁴, Facebook StickerStore⁵⁵, Twitch game store⁵⁶, and Pinterest Buyable Pins⁵⁷) via the platform either via the OSM provider's own payment platform or a third party payment platform (e.g. PayPal, WorldPay). The platform transfers these payments to the third party. For payments that use the OSM provider's own payment platform, the OSM providers receive a share of the payments made to the third party traders or intermediaries acting on behalf of third party traders (i.e. transaction fees). This has been summarised as **revenue from transaction fees** in Section 3 as part of the main report.

B.3. Two-sided market theory

B.3.1. Information about the framework and relevance to this study

B.3.1.1. Information about two-sided markets

A two⁵⁸-sided market (also referred to as 2SM) is a market in which a firm acts as a platform: it sells two different products (e.g. platform services or forms of connectivity) to two distinct groups, recognising that each group's demand (or willingness to pay i.e. WTP) depends on the others (and possibly *vice versa*). In other words, demands on the two

⁵⁴ Facebook. 2017. App Center. Available at: <https://developers.facebook.com/docs/games/listing/>

⁵⁵ Facebook. 2017. Facebook Stickers. Available at: <https://www.facebook.com/FacebookStickers/>

⁵⁶ Twitch. 2017. Twitch game store. Available at: <https://www.twitch.tv/store/games/>

⁵⁷ Pinterest. 2017. Buyable Pins. Available at: <https://business.pinterest.com/en/buyable-pins>

⁵⁸ The limitation to two sides and the implication that platform users belong exclusively to one side or the other are matters of convenience; recent literature pays more attention to n-sided markets, complex platform architectures and situations where users belong to more than one 'side' or change sides.

sides of the market are linked by indirect⁵⁹ network effects. The platform recognizes the existence of (that is, internalises) these, but the two (or more) ends do not. We note that the use of the term 'market' is not meant to limit attention to commercial interactions, nor to assume that choices are made on the basis of unrestricted choice from a set of 'open offer' alternatives⁶⁰.

More general definitions start with the concept of platforms e.g. as defined in Hagiu and Wright⁶¹, which draws attention to: i) the way platforms "enable direct interactions" among two or more groups, e.g., buyers and ii) the way each group is affiliated with the platform in some manner—typically through "platform-specific investments", which reduces their mobility and concentrates their attention on the platforms and on the counterparties encountered there. Rochet and Tirole⁶² further explain that a market is two-sided if the platform can affect the volume of transactions by charging more to one side of the market and reducing the price paid by the other side by an equal amount; in other words, the price structure matters, and platforms must design it so as to bring both sides on board.

To a large extent the analysis of such markets has been driven by policy concerns, in particular market failures. From this perspective, it is important to consider the boundaries of such markets and the sources and consequences of different types of failure. But this is complementary to an analysis of business model selection, since firms will obviously seek to implement business models that enhance sustainable returns subject to regulatory constraints.

There are various ways to classify such markets, corresponding to different aspects of the business models of the platform providers and of the platform users or inhabitants.

B.3.1.1.1. Transaction vs. non-transaction markets⁶³

In one class of 2SM, there are direct transactions between the two sides of the market. The presence and observability of these transactions allows the platform to impose 2-part tariffs (subscription and use/transaction fees).

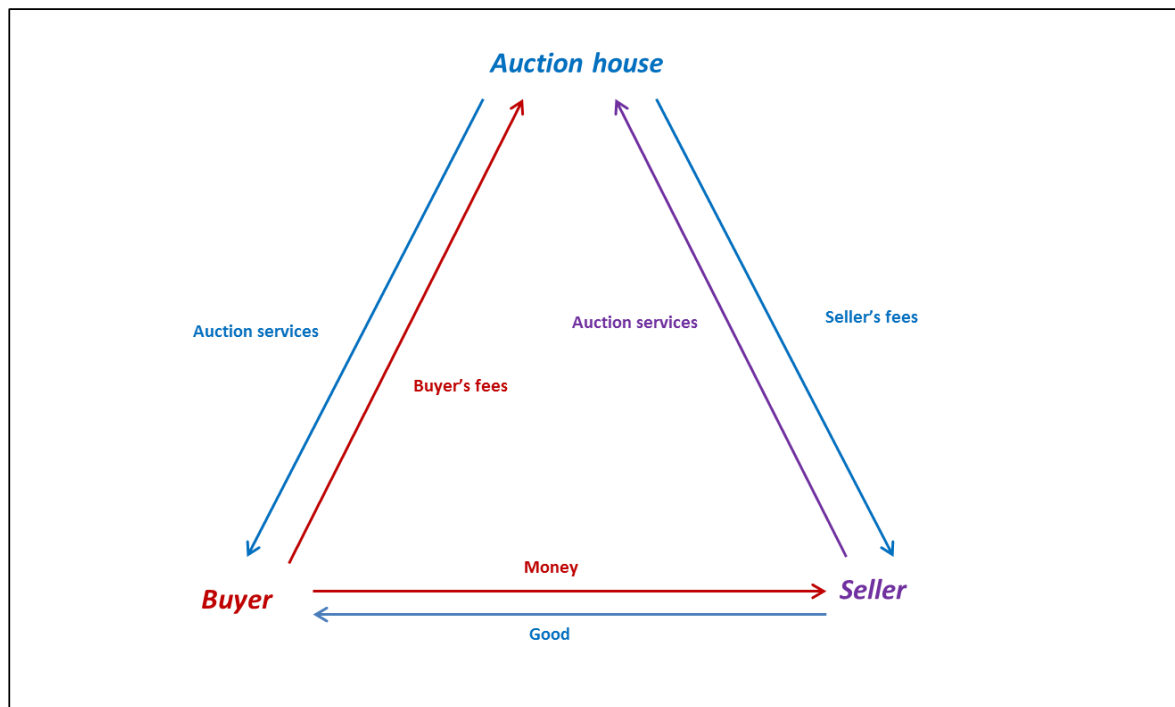
⁵⁹ As distinct from direct network effects where WTP depends on the number of others making the same purchase or using the same service

⁶⁰ Indeed, the early literature on two-sided markets is at pains to distinguish them from markets for complements.

⁶¹ Andrei Hagiu & Julian Wright, Multi-Sided Platforms 4–7 (Harvard Bus. Sch., Working Paper No. 15-037, 2015), <http://www.hbs.edu/faculty/Pages/download.aspx?name=15-037.pdf>.

⁶² Rochet, J.C. and Tirole, J., 2003. "Platform competition in two-sided markets" *Journal of the European Economic Association*, 1(4), pp.990-1029.

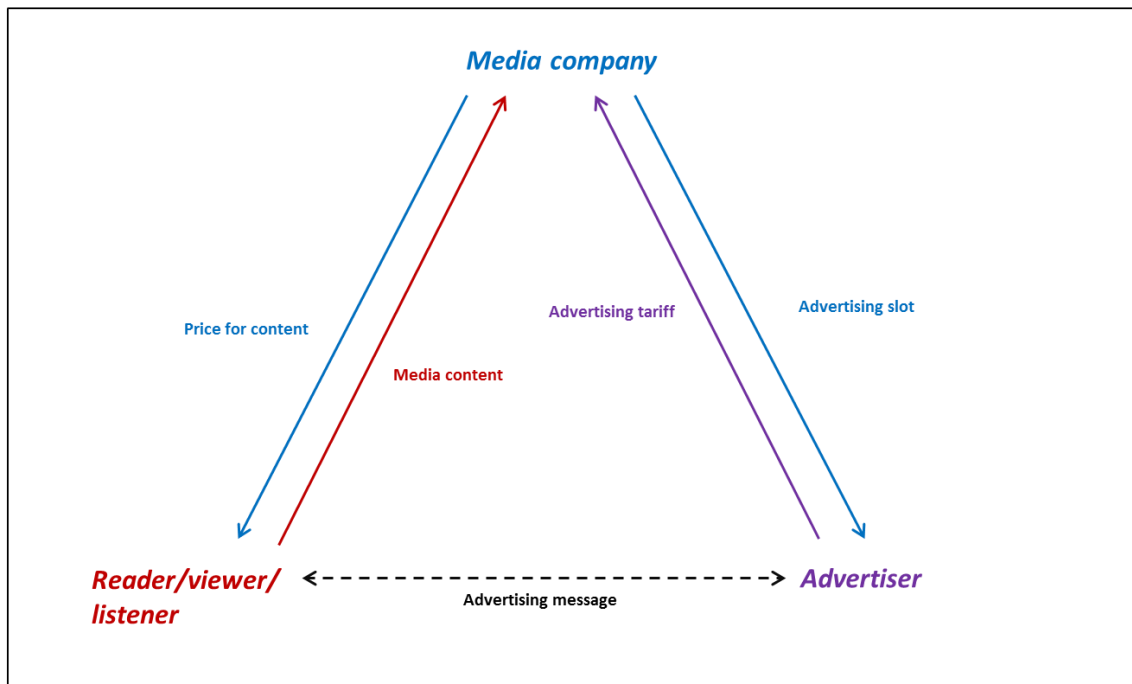
⁶³ Filistrucchi, L., Geradin, D., Van Damme, E., & Affeldt, P. (2014). Market definition in two-sided markets: Theory and practice. *Journal of Competition Law & Economics*, 10(2), 293-339.

Figure B-1. A two-sided transaction market

Source: RAND Europe representation

In another, there are markets where there is no direct transaction or it cannot be observed by the platform. 2-part or per-use tariffs are not possible (or may be ruled out for other reasons). This type of market is often overlooked by competition regulators on the grounds that transactions (and prices in particular) are required for the application of competition law. The consequence is that non-transactions business models may have a comparative advantage in regulated economies.

The following figure illustrates this for the canonical case of advertising-supported access to media content. Similar figures - albeit with more complex architectures - can be drawn for e.g. content access supported by third-party monetisation of user information (replacing the 'advertiser' node with a 'data controller' node, adding a 'flow of information' link from users to data controllers, and possibly adding more parties to the links between data controllers and media companies).

Figure B-2. A two-sided non-transaction market

Source: RAND Europe representation

In still more 'abstract' settings, the only transactions are those connecting the two ends to the platform (e.g. 'pure' social networks paid for by subscription or participation fees) or between the platform and third-parties who use data collected on the platform for off-platform purposes (e.g. to create marketing databases).

This distinction is useful when defining markets and testing the extent of distortions, but also sheds light on the extent to which platform operators may adopt transaction or non-transaction models.

B.2.1.1.2. Matching and linkages across platforms

A second distinction concerns the way one side relates to the other. The geometry may involve different types of user to user connection, linking specific users on one side to

specific users on the other⁶⁴, one user to many on the other side of the market⁶⁵ or many parties on both sides⁶⁶.

Alternatively, the identity of the counterparty may be unimportant and instead the platform connects users on one side to content or services on the other⁶⁷.

Connections may flow through a single platform or an extended pathway (e.g. communications platform + search engine), in which case it is useful to consider both the separate business models of the different parties and the potential for intermediaries or service aggregators to provide more integrated platform services by internalising the negative effects of multi-sided bottleneck power between the various layers.

The value proposition and the form of the offer will also reflect user (on both sides) sensitivities to: imperfect matches (how rapidly demand drops off in the face of 'mistakes'⁶⁸); the overt involvement of third parties (e.g. active platform moderation, surveillance, tracking); and platform limitation (the extent to which effects are felt off-platform).

The platform service itself may involve a range of 'management' strategies such as: the use of exclusive contracts (generally for content provision, payments or certification); bundling of access with complementary services (security, privacy, profiling) offered to one or the other side (or jointly); horizontal diversification (e.g. double-, triple-, quad-play bundles of platform services (content, search, communications,...) and different arrangements for accountability and protection of privacy and security (protecting each side from the other and both sides from third parties).

B.3.1.2. Relevance of two-sided markets to this study

⁶⁴ E.g. Farrell, J., & Klemperer, P. (2007). Coordination and lock-in: Competition with switching costs and network effects. *Handbook of industrial organization*, 3, 1967-2072. Such markets involve the platform providing search, matching, trust-enhancing and related services to improve the value of the transaction, and tend not to involve third parties (for example, online payment services). The specificity of the match means that the two sides are more or less bound together, making the link a durable asset of the platform towards both sides. Here, the platform underwrites a trust relationship and takes a specific transaction fee, generally without advertising or information re-use outside the organisation.

⁶⁵ In this case, the 'broadcaster' side values access to the 'audience' side, which thus constitutes an asset for the platform in negotiating with the broadcaster(s), or with third parties offering services to the broadcaster.

⁶⁶ This is the case with situations that are not exactly 2-sided, like e.g. 'pure' social networks or ubiquitous peer-to-peer content sharing and with cases where the platform supports a dynamic and competitive market, such as an app marketplace, where both sides are highly mobile. The size of the user population (or its expected nature) is a platform asset but closer to a public than a private good.

⁶⁷ An example is the 'paywall' provision of news; the same content can be obtained elsewhere, and the various platforms compete on conditions of access, trading off users' dislike of advertising against advertisers' preference for large and well-targeted audiences.

⁶⁸ It is conventional to assume that WTP increases with closer matches between offers

In the context of this study, we identify two-sided markets as economic platforms with two (or more) distinct user groups that provide each other with network benefits.^{69,70,71} An organisation that creates value by enabling interactions between two (or more) user groups is called a multi-sided platform (MSP).⁷² The advantages offered by platform configurations include reduced search costs (possibly paid for by higher switching costs or reduced variety, but compensated by availability of complementary services (e.g. certification, consumer protection or digital payment services)).

A two-sided network typically has two distinct user groups. Based on the nature of preference exhibited by the two groups to reach other, two types of network effects can be at work:

- When members of at least one group exhibit a preference regarding the number of users in the other group, cross-side network effects are said to be at work.⁷³
- When members of each group have preferences regarding the number of users in their own group, same-side network effects are said to be at work.⁷⁴

In the context of this study, the OSM providers are thus the multi-sided platforms that facilitate interactions between two user groups –

- Individual users⁷⁵ (also ‘users’) of the platform on one side, and
- Third-party traders and intermediaries acting on behalf of these traders on the other side

⁶⁹ Rochet, J.C. and Tirole, J., 2003. “Platform competition in two-sided markets” *Journal of the European Economic Association*, 1(4), pp.990-1029.

⁷⁰ Rochet, J.C. and Tirole, J., 2006. “Two-sided markets: a progress report” *The RAND journal of economics*, 37(3), pp.645-667.

⁷¹ Armstrong, M., 2006. “Competition in two-sided markets”, *The RAND Journal of Economics*, 37(3), pp.668-691.

⁷² Hagiu, A. and Wright, J. (2011). Multi-Sided Platforms, Harvard Working Paper 12-024. Available at: <http://www.hbs.edu/research/pdf/12-024.pdf>

⁷³ An example of this is the preference shown by the businesses engaged in delivering the ads for the consumers who are the target audience. The ability to engage a wider set of consumers and then converts them to the buyers of the goods and services being advertised, determines the success of the ad. Thus cross-side network effects can be argued to be crucial in such a case.

⁷⁴ An example of this is the preference shown by users of instant messaging apps such as WhatsApp for their friends, family, and colleagues using the same app. In the absence of users in their own group, the functionality offered by instant messaging apps has reduced effectiveness, thus same-side network effects can be argued to be crucial in such a case.

⁷⁵ This could include business users who act in personal capacity.

The two sides of a platform business are closely linked, with interdependent prices and outputs and intertwined strategies.^{76,77} Evans⁷⁸ argues that, in practice, two-sided platforms often obtain most of their incremental profits on one side and that they may provide services to the other side at prices below incremental costs in order to increase their profits. In order to build a bigger network, the two possible strategies the MSP can adopt include

- Subsidise adoption of the platform for one of the user groups⁷⁹ , or
- Add innovations to the platform to stimulate the perceived value of the platform.⁸⁰

A decision of which strategy to adopt for building a bigger network depends on the platform's assessment of the user group that should be subsidised (i.e. the subsidy side) vs the user group that should be charged for the use of the platform (i.e. the money side).

Which market represents the money side and which market represents the subsidy side depends on the critical trade-off between increasing network size (increase adoption) versus growing network value (increase the price charged for accessing the platform).

In the context of this study, we used the concepts of the money side and subsidy side in conjunction with the revenue streams of OSM providers, to identify the following

- Which user groups constitute the money side and subsidy side when the revenue streams of the OSM providers are considered?
- How the data, services, and revenue flow between the two user groups through the OSM providers' platform? and
- What are the value propositions provided by the OSM providers to the two sides (user groups) of the market?

The following section discusses each of the above aspects in the context of this study.

⁷⁶ Evans, David S., Two-Sided Market Definition (November 11, 2009). ABA Section of Antitrust Law, Market Definition in antitrust: Theory and case studies, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=1396751>

⁷⁷ Evans, David S. and Schmalensee, Richard, Markets with Two-Sided Platforms (October 1, 2008). Issues in competition law and policy (ABA Section of Antitrust Law), Vol. 1, Chapter 28, 2008. Available at SSRN: <https://ssrn.com/abstract=1094820>

⁷⁸ Evans, David S., Two-Sided Market Definition (November 11, 2009). ABA Section of Antitrust Law, Market definition in antitrust: Theory and case studies, Forthcoming. Available at SSRN: <https://ssrn.com/abstract=1396751>

⁷⁹ An example of this strategy is Adobe's decision to not charge consumers to create PDF files for free and charge for the premium functions of changing/updating the PDF file format. See Tripsas, Mary. 2000. Adobe Systems Inc (a case study). Available at: <https://hbr.org/product/adobe-systems-inc/801199-PDF-ENG>; and Parker, Geoffrey and Van Alstyne, Marshall W. 2010. Two-Sided Network Effects: A Theory of Information Product Design (September 29, 2010). Management Science, Vol, 51, No. 10, pp. 1494–1504, 2005. Available at SSRN: <https://ssrn.com/abstract=1177443>

⁸⁰ An example of this strategy is Apple's initial strategy of charging consumers who bought Apple Macintosh systems and developers who produced software for the system. See Parker, Geoffrey and Van Alstyne, Marshall W., Two-Sided Network Effects: A Theory of Information Product Design (September 29, 2010). Management Science, Vol, 51, No. 10, pp. 1494–1504, 2005. Available at SSRN: <https://ssrn.com/abstract=1177443>

B.3.2. Use of two-sided market theory to understand the value propositions offered by the OSM providers

B.3.2.1. The two-sides of the market for OSM providers

In conjunction with the revenue streams identified in section B.2, we can identify the users groups that constitute the subsidy sides and money side in the following table.

Table B-4. Two sides of the market for OSM providers

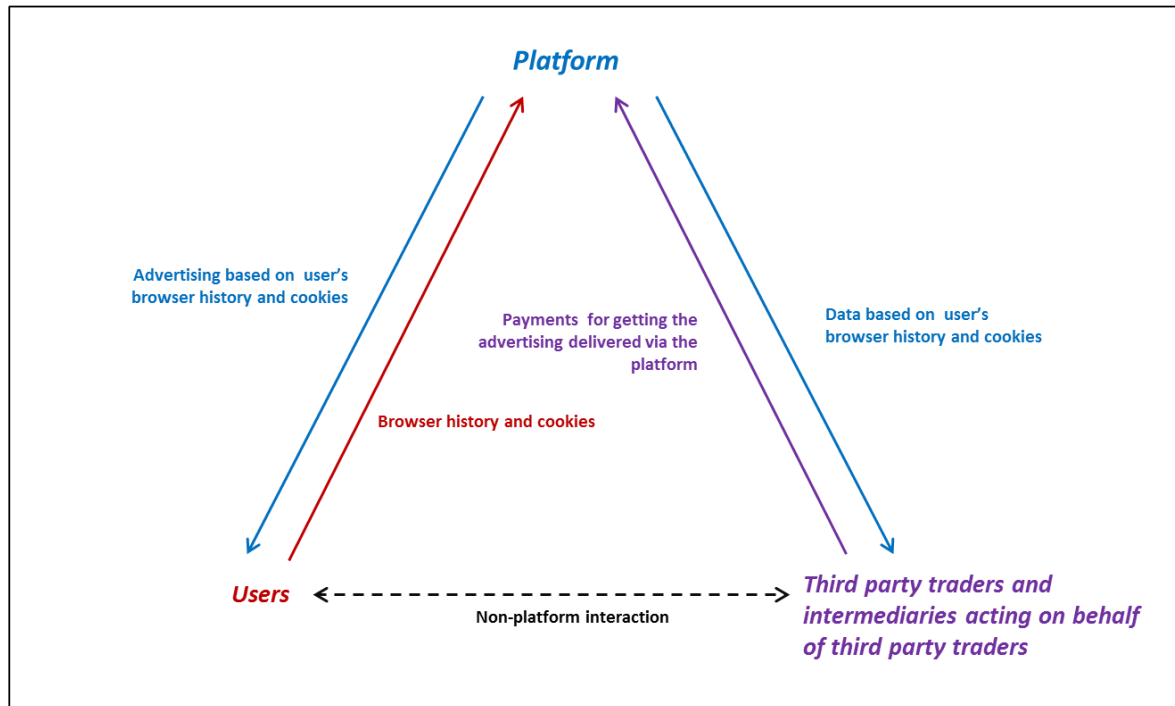
Revenue stream	Subsidy side	Money side	Explanation of the two sides
Advertising based on anonymous data	Users	Third party traders and intermediaries acting on behalf of third party traders	<p>Since the revenue from the advertising paid by the third party traders and intermediaries acting on their behalf enables the user to continue free, unregistered access to the platform.</p> <p>Thus the users represent the subsidy side and the third party traders and intermediaries acting on behalf of third party traders represent the money side.</p>
Advertising based on personalised data	Users	Third party traders and intermediaries acting on behalf of third party traders	<p>The revenue from the advertising paid by the third party traders and intermediaries acting on their behalf enables the user to continue free, registered access to the platform.</p> <p>Thus the users represent the subsidy side and the third party traders and intermediaries acting on behalf of third party traders represent the money side.</p>
Subscription fees	Non-paying users	Paying users and Third party traders and intermediaries acting on behalf of third party traders	<p>The revenue from the subscription fees paid by the paying users and third party traders enables the non-paying user to continue free access to the platform.</p> <p>Thus the non-paying users represent the subsidy side and the paying users and Third party traders and intermediaries acting on behalf of third party traders represent the money side.</p>
Transaction fees	Third party traders and intermediaries acting on behalf of third party traders	Users	<p>Continued purchase of virtual and real-world goods and services by the users enables the third party traders to continue to participate on the platform and sell their goods and services.</p> <p>Thus the users represent the money side and the third party traders represent the subsidy side of the platform.</p>

B.3.2.2. The flows of data, services, and revenue

By drawing on the depictions of two-sided transaction market (figure B-1) and two-sided non-transaction market (figure B-2), we are able to identify the flows of data, service, and revenue between these two sides of the market i.e. the users and the third party traders and the intermediaries acting on behalf of the third party traders.

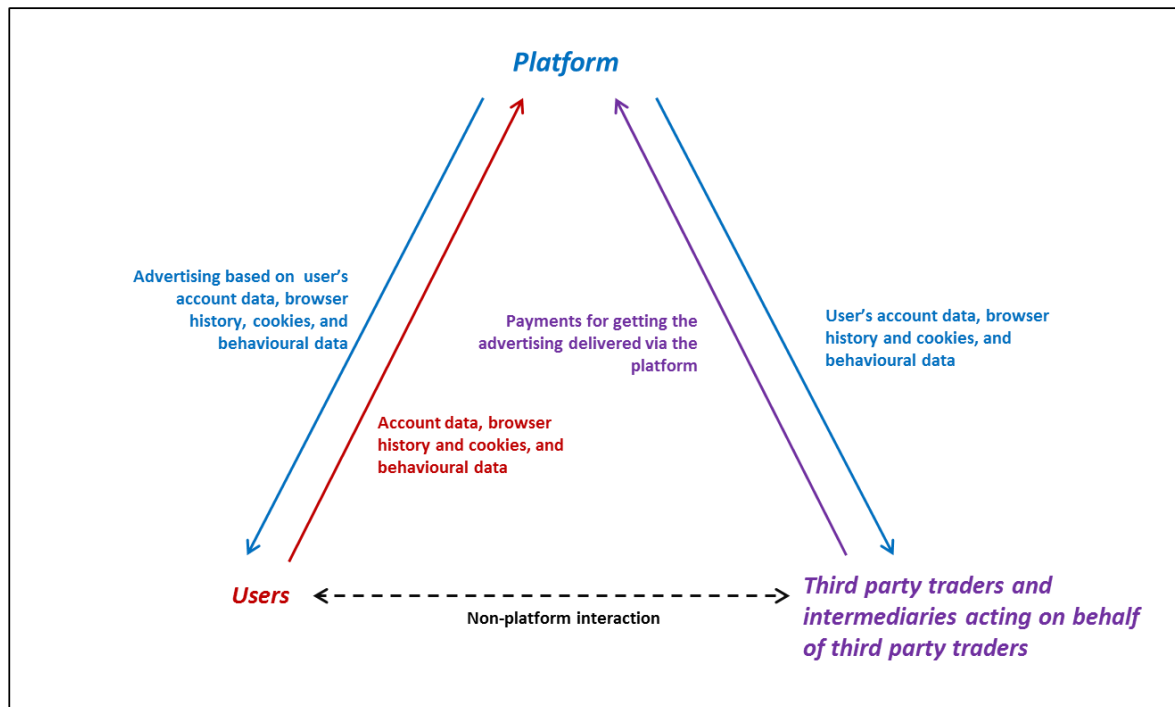
Following figures depict these flows in conjunction with the revenue streams of the OSM platforms identified in section B.2.

Figure B-3. The flows for data, services, and revenue for the 'advertising based on anonymous data' revenue stream



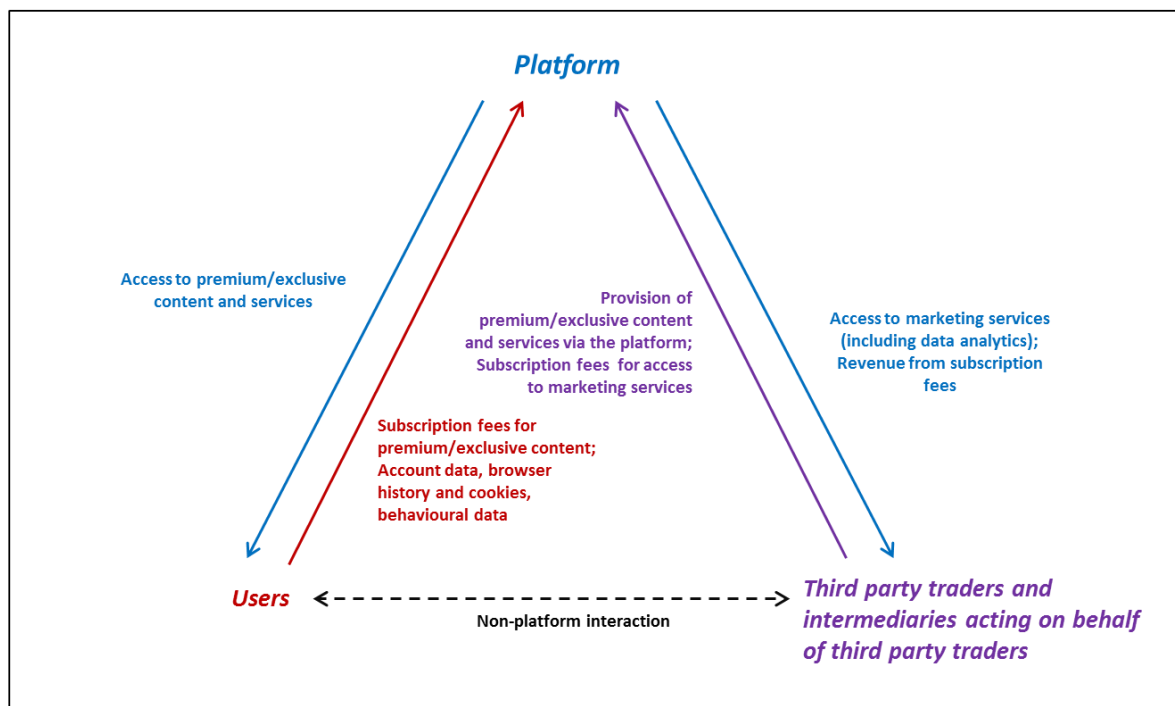
Source: RAND Europe analysis

Figure B-4. The flows for data, services, and revenue for the 'advertising based on personalised data' revenue stream



Source: RAND Europe analysis

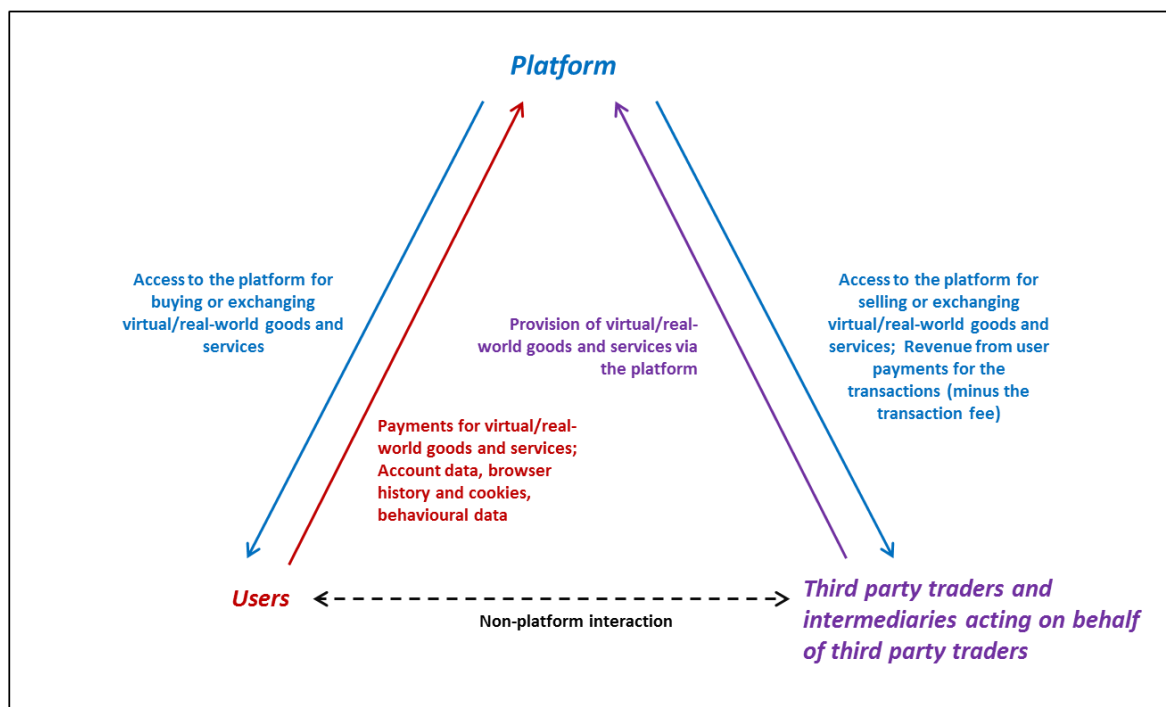
Figure B-5. The flows for data, services, and revenue for the 'subscription fees' revenue stream



Source: RAND Europe analysis

Figure B-6. The flows for data, services, and revenue for the 'transaction fees' revenue stream

Figure B-6. The flows for data, services, and revenue for the 'transaction fees' revenue stream



Source: RAND Europe analysis

B.3.2.3. The value propositions to the user groups

Building on the understanding of the flows of data, services, and revenues between the two sides of the market, the value propositions offered by the OSM providers are identified in table B-5. These are mapped to the revenue streams identified in section B.2

Table B-5. Mapping of revenue streams and value propositions

Revenue stream	Value proposition to users	Value proposition for third party traders and intermediaries acting on their behalf	Description of the revenue flows
Advertising based on anonymous data	Free access to parts of the platform services / content without platform registration	<ul style="list-style-type: none"> Delivering ads based on user's browser history and cookies 	<ul style="list-style-type: none"> Third party traders and intermediaries acting on their behalf pay the OSM providers to get ads delivered either through the OSM provider's self-service platform or third-party ad network
Advertising based on personalised data	Free access to the platform services/content for which platform	<ul style="list-style-type: none"> Delivering personalised ads based on users' account data (including profile data, browser 	<ul style="list-style-type: none"> Third party traders and intermediaries acting on their behalf pay the OSM providers to get their ads delivered either through the OSM provider's self-service

Revenue stream	Value proposition to users	Value proposition for third party traders and intermediaries acting on their behalf	Description of the revenue flows
	registration is required	history and cookies) and behavioural data	platform or third-party ad network
Subscription fees for premium/exclusive content and services, and marketing services	Subscription fee-based access to exclusive /premium services or content for which platform registration is required	<ul style="list-style-type: none"> Delivering exclusive/premium services or content to users Access to users' profile data and behavioural data (anonymised, pseudonymised, or identified) Access to data analytics and marketing services for tactical/strategic decision-making 	<ul style="list-style-type: none"> Users pay OSM provider to access exclusive/premium services and content Third party traders and intermediaries acting on behalf of third party traders pay the OSM provider to access marketing services, data analytics services, and user data (account data and behavioural data)
Transaction fees on sales of goods and services	Buy or exchange virtual/real-world goods and services through the OSM provider's platform for which platform registration is required	<ul style="list-style-type: none"> Sell or exchange virtual/real-world goods and services 	<ul style="list-style-type: none"> The users pay for the virtual/real-world goods and services The OSM providers take a share of the payment (i.e. the transaction fee) made by the users using the OSM provider's own payment platform for buying and exchanging virtual/real-world goods and services through the platform The third-party traders or intermediaries acting on their behalf receive the remaining share of the payment made by the users

The above stated value propositions have been summarised in Section 3 as part of the main report.

B.4. Summary of the discussion

In the following table, we summarise the analytical frameworks and how the frameworks informed the classifications of the OSM providers.

Table B-6. Mapping of revenue streams and value propositions

Analytical framework/theory	How the framework informed the classifications of the OSM providers	Outcome i.e. classification of the OSM providers
Business Model Canvas Framework	<p>Using Business Model Canvas framework we structured the data on the individual OSM providers across a number of attributes to understand their functionality and different aspects of the business.</p> <p>The business model Canvases of the individual OSM providers were used to code the characteristics of the OSM providers in the form of an attribute matrix on the basis of which the classification of the OSM providers' functionality were identified.</p>	<p>We identified following four types of functionalities of the OSM providers</p> <ul style="list-style-type: none"> • Connectors i.e. platforms used by users to connect to other individuals • Sharers i.e. platforms used by users to share information such as images, videos • Streamers i.e. platforms used by users to stream audio/video data • Informers i.e. platforms used by users to exchange information
Enders et al (2008) revenue models	<p>Using the Enders et al (2008) revenue models, we identified how the OSM providers charged the different user groups for the platform services. On the basis of the differences in the way the OSM providers charged for the platform services, we identified the classification of OSM providers' revenue streams</p>	<p>We identified the following four types of revenue streams</p> <ul style="list-style-type: none"> • Advertising based on anonymous data i.e. advertising on the basis of user's browser data and cookies • Advertising based on personalised data i.e. targeted advertising based on user's account and profile and behavioural data • Subscription fees for access to premium/exclusive service and content • Transaction fees for sales of real-world and virtual goods and services
Two-sided market theory	<p>Using two-sided market theory in conjunction with the revenue streams, we identified how the two user groups aligned with the two sides (subsidy and money) of the market and the flows of data, services, and revenue between the user groups. On the basis of this information, we identified the value</p>	<p>We identified the value propositions for the two sides of the market side i.e. the users and the third party traders and intermediaries acting on behalf of third party traders</p>

Analytical framework/theory	How the framework informed the classifications of the OSM providers	Outcome i.e. classification of the OSM providers
	propositions for the two sides of the OSM providers' platforms.	Depending on the revenue stream, the value propositions for the users were free, unregistered/registered access to the OSM platform, access to premium services and content, and the ability to purchase real-world and virtual goods and services via the OSM platform
		Depending on the revenue stream, the value propositions for the third party traders and intermediaries acting on their behalf were getting advertising based on anonymous and personalised data delivered, access to marketing services (including data analytics), and the ability to sell real-world and virtual goods and services via the OSM platform

Annex 1.2.C Mapping of revenue streams and OSM platform services

In the following table we provide a mapping of the revenue streams against the specific services offered by OSM providers to the two sides of the market.⁸¹

Table C-1. Mapping of the revenue streams and services offered by the OSM platforms

OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Facebook	Advertising based on anonymous data	Self-service advertising based on user's browser history and cookies	Depending on user's privacy setting, user's profile information is also available without logging into Facebook	Though Facebook business pages ⁸² third party traders and intermediaries acting on their behalf can interact with unregistered users
Facebook	Advertising based on personalised data	Self-service advertising based on users' profile data, behavioural data	<ul style="list-style-type: none"> • Connect with friends, family, colleagues, and other acquaintances⁸³ • Sharing images, videos, newsfeed⁸⁴ • Streaming (Facebook Live)⁸⁵ 	Facebook marketing ⁸⁶ and Facebook adverts ^{87,88} services are available to businesses to

⁸¹ This table draws on the business model canvases of the 13 OSM providers and the attribute matrix which are provided as a separate deliverable in a spreadsheet format.

⁸² Facebook. 2017. Facebook Pages. Available at: <https://en-gb.facebook.com/business/products/pages>

⁸³ Facebook. 2017. Annual report 2016. Available at: https://s21.q4cdn.com/399680738/files/doc_financials/annual_reports/FB_AR_2016_FINAL.pdf

⁸⁴ Facebook. 2017. How News Feed works. Available at: <https://en-gb.facebook.com/help/327131014036297/>

⁸⁵ Gans. Joshua. 2016. Facebook Live is the Company's Newest Strategic weapon. Available at: <https://hbr.org/2016/04/facebook-live-is-the-companys-newest-strategic-weapon>

⁸⁶ Facebook. 2017. Marketing on Facebook. Available at: <https://en-gb.facebook.com/business/overview>

⁸⁷ Facebook. 2017. Facebook adverts. Available at: <https://en-gb.facebook.com/business/products/ads>

⁸⁸ Facebook. 2017. Announcing new Product Ads on Facebook. Available at: <https://www.facebook.com/business/news/product-ads>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				specify the type and content of their ads
Facebook	Subscription fees	Subscription fees for data analytics and users' profile data	Not applicable	Facebook Analytics ⁸⁹ Facebook Ads API ⁹⁰
Facebook	Transaction fees	Transaction fees for games, apps bought from the Facebook AppCenter	Facebooks enables users to buy games through the Facebook AppCenter ⁹¹	Facebook AppCenter ⁹² enables app and game development companies to distribute apps and games via Facebook platform
Facebook messenger	Advertising based on anonymous data	Not applicable	Not applicable	Not applicable

⁸⁹ Facebook. 2017. Product analytics for driving growth. Available at: <https://analytics.facebook.com/>

⁹⁰ Cohen, David. 2014. Three-Tiered Access to Facebook's Ads API: Development, Basic, Standard. Available at: <http://www.adweek.com/digital/facebooks-new-tools-improves-its-ability-to-compare-social-ads-to-tv/>

⁹¹ Facebook. 2017. App Center. Available at: <https://developers.facebook.com/docs/games/listing/>

⁹² ibid

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Facebook messenger	Advertising based on personalised data	Self-service advertising ⁹³ ⁹⁴ based on users' profile data, behavioural data, and other data	<ul style="list-style-type: none"> • Connecting with friends and family as part of interpersonal communication (including instant messaging and calls)⁹⁵ • Sharing images, messages 	Messenger Bots for Businesses & Developers ⁹⁶ enable businesses to provide instant messaging-based support
Facebook messenger	Subscription fees	Not applicable	Not applicable	Facebook Analytics ⁹⁷ product offers analytics based on the data specific to the messenger platform ⁹⁸ including App Events with Bots for Messenger ⁹⁹

⁹³ Gibbs, Samuel. 2017. Your Facebook Messenger is about to be filled with ads. Available at: <https://www.theguardian.com/technology/2017/jul/12/facebook-messenger-app-adverts>

⁹⁴ Welch, Chris. 2017. Ads are coming to Facebook's Messenger home screen. Available at: <https://www.theverge.com/2017/7/11/15953828/facebook-messenger-home-screen-ads-coming-soon>

⁹⁵ Facebook. 2017. Messenger. Available at: <https://en-gb.messenger.com/>

⁹⁶ Facebook. 2017. Messenger Bots for Businesses & Developers. Available at: <https://messenger.fb.com/>

⁹⁷ Facebook. 2017. Product analytics for driving growth. Available at: <https://analytics.facebook.com/>

⁹⁸ Facebook. 2017. Messenger Platform – Facebook Analytics. Available at: <https://developers.facebook.com/docs/messenger-platform/analytics/>

⁹⁹ Facebook. 2017. App Events with Bots Messenger. Available at: <https://developers.facebook.com/docs/app-events/bots-for-messenger/>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Facebook messenger	Transaction fees	Not applicable	Facebook messenger users can buy stickers through the Facebook Sticker Store ¹⁰⁰	Facebook Sticker Store ¹⁰¹
Instagram	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies	Free access to the images and videos shared by others that are publicly available	Instagram adverts ^{102 103} services enable third party traders and intermediaries acting on their behalf to specify the type and content of their ads
Instagram	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	<ul style="list-style-type: none"> • Sharing images and videos either publicly or to other users in the network¹⁰⁴ • Live feed messages 	Instagram adverts ^{105 106} services enable third party traders and intermediaries acting on their behalf to specify the type and content of their ads

¹⁰⁰ Facebook. 2017. Facebook Stickers. Available at: <https://www.facebook.com/FacebookStickers/>

¹⁰¹ ibid

¹⁰² Instagram. 2017. Build your business on Instagram. Available at: https://business.instagram.com/advertising?locale=en_GB

¹⁰³ Facebook. 2017. Facebook Advertiser Help Center – Instagram ads. Available at: <https://en-gb.facebook.com/business/help/976240832426180>

¹⁰⁴ Shively, Kevin. 2015. The 2015 Instagram Industry Report. Available at: <https://simplymeasured.com/blog/the-2015-instagram-industry-report/#sm.000000n1q3bfebd6fppebodg13dm>

¹⁰⁵ Instagram. 2017. Build your business on Instagram. Available at: https://business.instagram.com/advertising?locale=en_GB

¹⁰⁶ Facebook. 2017. Facebook Advertiser Help Center – Instagram ads. Available at: <https://en-gb.facebook.com/business/help/976240832426180>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Instagram	Subscription fees	Subscription fees for data analytics and users' account data and behavioural data	Not applicable	Instagram Insights ^{107 108 109} services offers analytics to businesses to understand reach/ engagement of their brands and changing patterns of user engagement with their brands
Instagram	Transaction fees	Not applicable	Instagram users can buy real-world goods and services through the Instagram Shopping ^{110 111} initiative	For businesses participating in the Instagram Shopping ^{112 113} initiative, as part of their

¹⁰⁷ Facebook. 2017. Facebook Advertiser Help Center – About Instagram Insights. Available at: <https://en-gb.facebook.com/business/help/1717645641840196>

¹⁰⁸ Facebook. 2017. Facebook Advertiser Help Center – Which insights can I view on Instagram. Available at: https://en-gb.facebook.com/business/help/788388387972460?helpref=faq_content

¹⁰⁹ Griswold, Andrew. 2016. How to access Instagram's powerful analytics 'Insights' right now for free. Available at: <https://fstoppers.com/apps/how-access-instagram-powerful-analytic-insights-right-now-free-141951>

¹¹⁰ Instagram. 2017. Shopping coming to Instagram. Available at: https://business.instagram.com/blog/shopping-on-instagram?locale=en_GB

¹¹¹ Instagram. 2017. A better shopping experience on Instagram. Available at: https://business.instagram.com/blog/a-better-shopping-experience-on-instagram?locale=en_GB

¹¹² ibid

¹¹³ Wallace, Tracy. 2017. Instagram shopping: The future of Mobile Ecommerce + 19 tips to increase conversions now. Available at: <https://www.bigcommerce.com/blog/instagram-shopping/>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				Instagram posts the businesses can embed a 'shop now' feature
WhatsApp	Advertising based on anonymous data	Not applicable	Not applicable	Not applicable
WhatsApp	Advertising based on personalised data	Self-service advertising based on users' account data and behavioural data ¹¹⁴	<ul style="list-style-type: none"> Connecting with friends and family as part of interpersonal communication (including instant messaging and calls) Sharing images, videos 	Facebook ad manager has a Send a Message service for businesses ¹¹⁵ at an early stage of development in relation to WhatsApp
WhatsApp	Subscription fees	Subscription fees for data analytics and users' profile data and behavioural data, and other uses	Not applicable	WhatsApp for business ¹¹⁶ ¹¹⁷ enables larger enterprises to use WhatsApp for internal

¹¹⁴ BBC. 2016. WhatsApp users to receive ads. Available at: <http://www.bbc.com/news/technology-37184651>

¹¹⁵ Constine, Josh. 2017. WhatsApp's first ads appear on Facebook and start convos with businesses. Available at: <https://techcrunch.com/2017/09/08/whatsapp-ads/>

¹¹⁶ WhatsApp. 2017. Building for People, and Now Business. Available at: <https://blog.whatsapp.com/>

¹¹⁷ WhatsApp. Not dated. WhatsApp business accounts. Available at: <https://faq.whatsapp.com/en/general/26000067>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				communication for an annual fee ¹¹⁸ Available evidence suggests that an analytics service for WhatsApp is not currently available. ¹¹⁹
WhatsApp	Transaction fees	Not applicable	Not applicable	Not applicable
YouTube	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies	<ul style="list-style-type: none"> Streaming video content 	Capability to get ads delivered via the YouTube TrueView ads product ¹²⁰ ¹²¹ and Google's AdSense product

¹¹⁸ Constine, Josh. 2017. WhatsApp announces free business app, will charge big enterprises. Available at: <https://techcrunch.com/2017/09/05/whatsapp-business-app/>

¹¹⁹ Olson, Parmy. 2016. WhatsApp is finally inviting businesses onto its massive network this year. Available at: <https://www.forbes.com/sites/parmyolson/2016/01/18/whatsapp-businesses-free-1-billion/#15f9adde6236>

¹²⁰ YouTube. 2017. YouTube Advertising. Available at: <https://www.youtube.com/yt/advertise/>

¹²¹ YouTube. 2017. YouTube video ads. Available at: <https://www.youtube.com/yt/advertise/en-GB/>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				YouTube Partner programme for monetising music/video content ¹²²
YouTube	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	<ul style="list-style-type: none"> • Sharing video content¹²³ • Streaming video content 	<p>Capability to get ads delivered via the YouTube TrueView ads product¹²⁴ ¹²⁵and Google's AdSense product</p> <p>YouTube Partner programme for monetising music/video content¹²⁶</p>
YouTube	Subscription fees	Users - Subscription fees for access to premium/exclusive content and services	YouTube Red ¹²⁷ provides a subscription-fee based service which delivers ad-free content and additional capabilities such as	YouTube Partners can distribute their content without ads via

¹²² YouTube. 2017. YouTube partner programme overview. Available at: <https://support.google.com/youtube/answer/72851?hl=en-GB>

¹²³ ibid

¹²⁴ YouTube. 2017. YouTube Advertising. Available at: <https://www.youtube.com/yt/advertise/>

¹²⁵ YouTube. 2017. YouTube video ads. Available at: <https://www.youtube.com/yt/advertise/en-GB/>

¹²⁶ YouTube. 2017. YouTube partner programme overview. Available at: <https://support.google.com/youtube/answer/72851?hl=en-GB>

¹²⁷ YouTube. 2017. Join YouTube Red. Available at: <https://support.google.com/youtube/answer/6305537>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
		Third party traders - Subscription fees for data analytics and users' account data and behavioural data	offline video views and access to YouTube Red original content YouTube Red ¹²⁸ includes access to other YouTube services such as YouTube Music, YouTube Gaming, and YouTube Kids ¹²⁹	YouTube Red ¹³⁰ and YouTube Music ¹³¹ . YouTube Analytics and Reporting APIs ¹³² enables content creators on YouTube to understand the metrics related to reach and engagement of their products
YouTube	Transaction fees	Not applicable	Users can buy music through the click-to-buy ¹³³ service	Content producers (music and video) earn the revenue through the content purchased by users

¹²⁸ C-Scott, Mark. 2016. *YouTube Red is here, and it breaks the video-on-demand mould*. Available at: <https://theconversation.com/youtube-red-is-here-and-it-breaks-the-video-on-demand-mould-59656>

¹²⁹ ibid

¹³⁰ YouTube. 2017. YouTube Partner Programme – Your content and YouTube Red. Available at: https://support.google.com/youtube/answer/6306276?hl=en-GB&ref_topic=6029709

¹³¹ YouTube. 2017. YouTube partner programme – Your Content and YouTube Music. Available at: https://support.google.com/youtube/answer/6312991?hl=en-GB&ref_topic=6029709

¹³² YouTube. 2017. Get the most out of your data. Available at: <https://developers.google.com/youtube/analytics/>

¹³³ The payments are processed through the Google Play Store. See YouTube. 2009. Watch it on YouTube, the Click-to-Buy. Available at: <https://youtube.googleblog.com/2009/01/watch-it-on-youtube-then-click-to-buy.html>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
			video content through the YouTube Movie Rental service ¹³⁴	via the click-to-buy and movie rental service ¹³⁵
Twitter	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies	View and read publicly available tweets (micro-blogging messages) by Twitter platform users	Establish and maintain online brand, communicate directly with customers, and customer support announcements via Twitter and Periscope ¹³⁶
Twitter	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	Public self-expression and real-time conversation through an online platform in the form of tweets (on	Twitter for Business ¹³⁸ to deliver ads in the form of ¹³⁹ - Promoted Tweets - Promoted Accounts

¹³⁴ The payments are processed through the Google Play Store. YouTube Movies channel has 52M+ subscribers. Please see:

https://www.youtube.com/channel/UCIgrKhTL3_hImCAmdLfDE4g

¹³⁵ The payments are processed through Google Play Store. See <https://play.google.com/artists/>; and Bergen, Mark. 2016. Google is offering app developers the same revenue-sharing terms Apple just announced — with one big advantage. Available at:

<https://www.recode.net/2016/6/8/11889298/google-apple-subscription-app-revenue-share>

¹³⁶ Twitter. 2016. 2016 Annual Report. Available at: https://investor.twitterinc.com/common/download/download.cfm?companyid=AMDA-2F526X&fileid=935049&filekey=05E6E71E-D609-4A17-A8BD-B621324A950D&filename=TWTR_2016_Annual_Report.pdf

¹³⁸ Twitter. 2017. Twitter for Business. Available at: <https://business.twitter.com/>

¹³⁹ Twitter. 2016. 2016 Annual Report. Available at: https://investor.twitterinc.com/common/download/download.cfm?companyid=AMDA-2F526X&fileid=935049&filekey=05E6E71E-D609-4A17-A8BD-B621324A950D&filename=TWTR_2016_Annual_Report.pdf

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
			Twitter) and live video (Periscope) ¹³⁷	- Promoted Trends
Twitter	Subscription fees	Not applicable	Not applicable	<ul style="list-style-type: none"> • Twitter Analytics platform¹⁴⁰ for businesses • For Developers - Tools, public APIs, embeddable widgets • For Data partners - Through the "Gnip"¹⁴¹, Twitter's enterprise API platform, it offers access to data sets not available through the public API
Twitter	Transaction fees	Not applicable	Twitter offered a 'Buy Now' widget which could be embedded by businesses into their Twitter feed to enable users to buy products directly from the businesses ¹⁴²	Twitter offered a 'Buy Now' widget which could be embedded by businesses into their Twitter feed to sell products to their customers ¹⁴³

¹³⁷ ibid

¹⁴⁰ Twitter. 2017. Analytics: Measure and boost your impact on Twitter. Available at: <https://analytics.twitter.com/about>

¹⁴¹ Gnip. 2017. Gnip: Unleash the power of social data. Available at: <https://gnip.com/>

¹⁴² Hubbard, Nathan. 2015. More ways to sell directly on Twitter. Available at: https://blog.twitter.com/marketing/en_us/a/2015/more-ways-to-sell-directly-on-twitter.html

¹⁴³ ibid

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
LinkedIn	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies	Depending on user's privacy settings, individual user's pages are available for viewing	Through LinkedIn company pages ¹⁴⁴ third-party traders or intermediaries acting on their behalf can interact with unregistered users
LinkedIn	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	Connecting users to each other as part of a business network	LinkedIn Marketing Solutions ¹⁴⁵ enable ads to be delivered in the form of Sponsored Updates, LinkedIn Ads, Sponsored inMails, Display Ads, Ads API
LinkedIn	Subscription fees	Users – Subscription fees for unlimited access to LinkedIn	LinkedIn Premium offers ¹⁴⁶ users unlimited access to other LinkedIn profiles	LinkedIn Talent Solutions ¹⁴⁷ provides recruitment tools to professionals recruiters LinkedIn Sales Navigator ¹⁴⁸ provides features such as lead

¹⁴⁴ LinkedIn. 2017. Get Started with LinkedIn Company Pages. Available at: <https://business.linkedin.com/marketing-solutions/company-pages>

¹⁴⁵ LinkedIn. 2016. Annual report 2015. Available at: https://s21.q4cdn.com/738564050/files/doc_financials/annual/2015/LinkedInAnnualReport_2016.PDF

¹⁴⁶ ibid

¹⁴⁷ ibid

¹⁴⁸ ibid

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
		Third-party traders or intermediaries acting on behalf of third-party traders - Subscription fees for data analytics and users' profile data and behavioural data		recommendations and CRM integration to businesses
LinkedIn	Transaction fees	Not applicable	Not applicable	Not applicable
Reddit	Advertising based on anonymous data	Self-service and third-party ad network (Google AdSense) advertising based on users browser history and cookies	User can read what is in the Discussion forum and news/Q&A	Third party traders and intermediaries acting on their behalf can use the Reddit Ads platform ¹⁴⁹ to get their ads delivered.
Reddit	Advertising based on personalised data	Self-service and third-party ad network (Google AdSense) advertising	Users can read and actively participate in the Discussion forums, and News/Q&A features	Third party traders and intermediaries acting on their behalf can use the Reddit Ads platform to get their ads

¹⁴⁹ Reddit. 2017. Advertising 101. Available at: <https://www.reddithelp.com/en/categories/advertising/advertising-101/frequently-asked-questions>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
		based on users' profile data and behavioural data		delivered. The ads platform enables better targeted ads ¹⁵⁰ on the basis of the personalised data (including service known as conversion pixel) ¹⁵¹
Reddit	Subscription fees	Not applicable	Reddit Gold ¹⁵² is a subscription service that delivers an ad-free experience of Reddit in addition to better comment management capabilities ¹⁵³ .	Reddit's in-house platform provides a dashboard/billing capability to understand reach /engagement of campaigns launched through the self-service advertising platform. Third party traders can combine this with Google Analytics ¹⁵⁴

¹⁵⁰ Reddit. 2017. Targeting your audience. Available at: <https://www.reddithelp.com/en/categories/advertising/targeting-your-audience>

¹⁵¹ Reddit. 2017. Installing the Reddit Conversion Pixel. Available at: <https://www.reddithelp.com/en/categories/advertising/advertising-101/installing-reddit-conversion-pixel>

¹⁵² Reddit. 2017. Reddit Gold. Available at: <https://www.reddit.com/gold/about/>

¹⁵³ See <https://www.reddit.com/r/goldbenefits/> for additional information on the features available

¹⁵⁴ Reddit. 2015. Reddit Ads Analytics. Available at: https://www.reddit.com/r/ads/comments/2s9sia/reddit_ads_analytics/?st=j805pgho&sh=0251d9fc

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				To Third-party traders and intermediaries acting on their behalf, Reddit Gold enables their brand to be made more visible on Reddit forums and also host a customer service Reddit ¹⁵⁵ .
Reddit	Transaction fees	Not applicable	Through Reddit Market users can buy physical goods such as t-shirts, dolls, and stickers ¹⁵⁶	Through Reddit Market third-party traders and intermediaries acting on their behalf can sell physical goods such as t-shirts, dolls, and stickers ¹⁵⁷
Pinterest	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies (promoted pins ¹⁵⁸)	Depending on user's privacy settings, individual user's pins are available for viewing. Although Promoted pins are also visible to	For getting the ads delivered, Pinterest provides as Ads manager ¹⁵⁹ service and additional services such as Pin

¹⁵⁵ Page. Vanessa. 2016. How Reddit Makes Money. Available at: <http://www.investopedia.com/articles/investing/093015/how-reddit-makes-money.asp>

¹⁵⁶ Ibid.

¹⁵⁷ Ibid.

¹⁵⁸ Pinterest. 2017. Why Pinterest ads work. Available at: <https://business.pinterest.com/en-gb/why-pinterest-ads-work>

¹⁵⁹ Pinterest. 2017. Pinterest Ads Manager. Available at: <https://business.pinterest.com/en-gb/pinterest-ads-manager>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
			users cannot interact unless they log in	Collective ¹⁶⁰ , Promoted Pins Support ¹⁶¹
Pinterest	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data (Promoted pins)	<ul style="list-style-type: none"> • Sharing ideas through images / pin boards • Companies/brands also share ideas by posting pins • Users can also interact with promoted pins by sharing them or posting them on their own pin boards 	For getting targeted advertising delivered, Pinterest offers tools that enable different kinds of targeting ^{162,163} based on user interests, keyword searches, along with attributes such as age, gender, location etc.

¹⁶⁰ Pinterest. 2017. PinCollective. Available at: <https://business.pinterest.com/en-gb/pin-collective>

¹⁶¹ Pinterest. 2017. Promoted Pins Support. Available at: <https://business.pinterest.com/en-gb/promoted-pins-support>

¹⁶² Pinterest. 2017. Targeting. Available at: <https://business.pinterest.com/en-gb/targeting>. Please also see the discussion in Annex 1.4.1 on the increased importance of targeting practices by OSM providers

¹⁶³ Pinterest. 2017. Targeting. Available at: <https://help.pinterest.com/en/articles/targeting>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Pinterest	Subscription fees for premium/exclusive content and services, and marketing services	Subscription fees for data analytics and users' profile and behavioural data	Not applicable	Pinterest provides services ¹⁶⁴ such as Pin stats ¹⁶⁵ , Pinterest Analytics ¹⁶⁶ , Rich Pins ¹⁶⁷ to provide analytical information on the users interaction with the pin boards, traffic and insights to get more clicks for the businesses Pinterest pins
Pinterest	Transaction fees		Buyable Pins ¹⁶⁸ service allows users to shop for virtual/real-world goods and services on Pinterest	Buyable Pins service ^{169 170} allows third-party traders and intermediaries acting on their behalf to sell for virtual/real-

¹⁶⁴ Pinterest. 2017. Tools for businesses. Available at: <https://business.pinterest.com/en-gb/tools>

¹⁶⁵ Pinterest. 2017. Your Pin stats. Available at: <https://business.pinterest.com/en-gb/your-pin-stats>

¹⁶⁶ Pinterest. 2017. Pinterest Analytics. Available at: <https://business.pinterest.com/en-gb/pinterest-analytics>

¹⁶⁷ Pinterest. 2017. Rich Pins. Available at: <https://business.pinterest.com/en-gb/rich-pins>

¹⁶⁸ This is currently limited to the US only. See Pinterest. 2017. Buyable Pins. Available at: <https://business.pinterest.com/en/buyable-pins>

¹⁶⁹ This is currently limited to the US only. See Pinterest. 2017. Getting started with Buyable Pins. Available at: <https://business.pinterest.com/en/getting-started-with-buyable-pins>

¹⁷⁰ This is currently limited to the US only. See Pinterest. 2017. Selling on Pinterest. Available at: <https://help.pinterest.com/en/articles/selling-on-pinterest>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
				world goods and services on Pinterest
Twitch	Advertising based on anonymous data	Self-service advertising based on users browser history and cookies	Depending on user's privacy settings, the individual user's game-play (and related users' comments) is available for viewing	Twitch enables ads by third party traders (including game publishers) to be delivered via text and video-based ads ¹⁷¹
Twitch	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	<ul style="list-style-type: none"> • Streaming of game-play which could be one-person interactive or multi-player interactive • Forums, chat rooms, and features that allow direct interaction of the users with the gamers 	Twitch offers text and video-based ads as well as native advertising ¹⁷² experience that integrates with streaming game-play ¹⁷³

¹⁷¹ Twitch. 2017. Twitch advertising. Available at: <http://twitchadvertising.tv/>

¹⁷² Please see the discussion in Annex 1.3.1 Mapping of the commercial practices used on OSM, for more details on native advertising and findings from the industry survey in Annex 1.4.1

¹⁷³ Twitch. 2017. Ad Products. Available at: <http://twitchadvertising.tv/ad-products/>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Twitch	Subscription fees	<p>Users -</p> <p>Subscription fee for access to ad-free experience</p> <p>Third-party traders and intermediaries acting on behalf of third-party traders -</p> <p>Subscription fee for getting higher share of revenues and access merchandising opportunities</p>	<p>Twitch Turbo¹⁷⁴ offers an ad-free Twitch experience for monthly subscription fee</p> <p>Twitch Prime¹⁷⁵ offers a combined Twitch Turbo and Amazon Prime offering for monthly subscription</p>	<p>Twitch Partners¹⁷⁶ is an exclusive plan for gamers who broadcast regularly and have regular and concurrent viewership of 500+ and broadcast at least 3 times a week.^{177,178}</p>

¹⁷⁴ Twitch. 2013. Announcing Twitch Turbo: Watch Games, Not Ads. Available at: <https://blog.twitch.tv/announcing-twitch-turbo-watch-games-not-ads-38aaec747579>

¹⁷⁵ Twitch. 2016. Be a boss on Twitch with Twitch Prime. Available at: <https://blog.twitch.tv/twitchprime-458a537a3ae1>

¹⁷⁶ Twitch. 2017. Tips for Applying to the Partner Program. Available at: <https://help.twitch.tv/customer/portal/articles/735127-tips-for-applying-to-the-partner-program>

¹⁷⁷ Schwarz, Noam. Not dated. How does Twitch.tv make money? Available at: <http://hackingrevenue.com/revenue/revenue-spotlight-twitch-tv/>

¹⁷⁸ Twitch. 2017. Partner Application. Available at: <https://www.twitch.tv/partner/signup>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Twitch	Transaction fees	Not applicable	Users can buy games (mostly PC-based) via Twitch games store ¹⁷⁹ and Twitch partner-branded merchandise via Teespring's online store ¹⁸⁰	Game developers can sell games (mostly PC-based) via Twitch games store ¹⁸¹ Twitch partners can sell merchandise with their branding via Teespring's online store ¹⁸²
VK.com	Advertising based on anonymous data	Self-service advertising based on user's browser history and cookies	Depending on user's privacy setting, user's profile information is also available without logging into VK ¹⁸³	VK Business pages ¹⁸⁴

¹⁷⁹ Twitch. 2017. Twitch game store. Available at: <https://www.twitch.tv/store/games/>

¹⁸⁰ Grubb, Jeff. 2014. Twitch teams up with Teespring to help broadcast partners get into merchandising. Available at: <https://venturebeat.com/2014/11/26/twitch-teams-up-with-teespring-to-help-broadcast-partners-get-into-merchandising/>

¹⁸¹ Twitch. 2017. Twitch game store. Available at: <https://www.twitch.tv/store/games/>

¹⁸² Grubb, Jeff. 2014. Twitch teams up with Teespring to help broadcast partners get into merchandising. Available at: <https://venturebeat.com/2014/11/26/twitch-teams-up-with-teespring-to-help-broadcast-partners-get-into-merchandising/>

¹⁸³ Martin. 2014. Using VKontakte for Business Purposes. As of 25 April 2017 <https://www.cleverism.com/using-vkontakte-business-purposes/>

¹⁸⁴ Salminen, Joni. 2016. Digital marketing in Russia: Vkontakte. Available at: <http://konvertigo.io/blog/digital-marketing-russia-vkontakte>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
VK.com	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	<ul style="list-style-type: none"> • Connect with friends, family, colleagues, and other acquaintances¹⁸⁵ • Sharing images, videos, newsfeed¹⁸⁶ 	VK offers two types of advertising capabilities – Targeted ads and post-paid marketplace ^{187,188,189}
VK.com	Subscription fees	Not applicable	Insufficient data available	Insufficient data available
VK.com	Transaction fees	Not applicable	Insufficient data available	Insufficient data available
Xing	Advertising based on anonymous data	Self-service advertising based on user's browser history and cookies	Depending on user's privacy settings, individual user's pages are available for viewing	Xing business pages ¹⁹⁰

¹⁸⁵ Houdremont, Guillaume. 2015. Success of V Kontakte in Russia. Available at: <https://www.slideshare.net/guillaumehoudremont/success-of-vkontakte-in-russia>

¹⁸⁶ Martin. 2014. Using VKontakte for Business Purposes. As of 25 April 2017 <https://www.cleverism.com/using-vkontakte-business-purposes/>

¹⁸⁷ Sivertseva, Ekaterina. 2014. All you need to know about advertising on V Kontakte. Available at: <http://www.digitalintheround.com/advertising-on-vkontakte/>

¹⁸⁸ Sivertseva, Ekaterina. 2014. Social media in Russia: what's the best time to post on V Kontakte? Available at: <http://www.digitalintheround.com/social-media-russia-post-vkontakte/>

¹⁸⁹ Konstantin Kanin.com. 2016. Guide to V Kontakte Advertising. As of 25 April 2017: <http://www.konstantinkanin.com/en/guide-vkontakte-advertising/>

¹⁹⁰ Xing. Not dated. Business solutions – Business pages. Available at: <https://faq.xing.com/en/categories/business-pages>

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Xing	Advertising based on personalised data	Self-service advertising based on users' profile data and behavioural data	Connecting users to each other as part of a business network ¹⁹¹	Xing Marketing Solutions ¹⁹² Xing Events ¹⁹³
Xing	Subscription fees	Not applicable	Xing Premium ¹⁹⁴ (for special search and communication options, exclusive online and offline offerings, and an overview of the visitors to the user's profile) Xing ProJobs ¹⁹⁵ (For members who are looking for a job and want to optimize their presentation for this specific purpose)	Xing E-recruiting ¹⁹⁶ for mainly third-party recruiters Xing Talent Manager ¹⁹⁷ for active candidate search and Xing referral manager ¹⁹⁸ for corporate employee referral programmes
Xing	Transaction fees	Not applicable	Not applicable	Not Applicable

¹⁹¹ Xing. 2017. 2016 Annual report. Available at: https://corporate.xing.com/fileadmin/user_upload/XING_AG_results_FY_2016.pdf

¹⁹² Xing. 2017. 2016 Annual report. Available at: https://corporate.xing.com/fileadmin/user_upload/XING_AG_results_FY_2016.pdf

¹⁹³ ibid

¹⁹⁴ ibid

¹⁹⁵ ibid

¹⁹⁶ ibid

¹⁹⁷ ibid

¹⁹⁸ ibid

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OSM provider	Revenue stream	Platform-specific details of the revenue stream	Examples of services offered to users	Examples of services offered to third-party traders and intermediaries acting on their behalf
Vbox7	Advertising based on anonymous data	Third-party ad network-driven advertising based on users' browser history and cookies	<ul style="list-style-type: none"> Streaming video content 	Third-party ad network (Google Ad Sense) –based capabilities to get ads delivered
Vbox7	Advertising based on personalised data	Third-party ad network-driven advertising based on users' profile data and behavioural data	<ul style="list-style-type: none"> Sharing video content^{199, 200} Streaming video content 	Third-party ad network (Google Ad Sense) based capabilities to get targeted ads delivered based on personalised data
Vbox7	Subscription fees	Not applicable	Data not available	Data not available
Vbox7	Transaction fees	Not applicable	Data not available	Data not available

¹⁹⁹ Crunchbase. year unknown. Vbox7.com. As of 25 April 2017: <https://www.crunchbase.com/organization/vbox-ltd-www-vbox7-com#/entity>

²⁰⁰ Wikipedia. 2017. VBOX7. As of 25 April 2017: <https://en.wikipedia.org/wiki/VBOX7>

Annex 1.2.D Latest developments and key trends in the evolution of OSM providers

This section considers the latest developments and key trends in relation to the OSM landscape and their implications for the evolution of the OSM providers. This discussion primarily draws on insights from industry reports^{1,2,3} and commercial market surveys^{4,5,6} and additional grey literature to identify the emerging trends. Since an exhaustive discussion of the latest trends and their influence on the OSM providers is beyond the scope of this study, the following discussion emphasises trends and developments which seem to have the most influence on the revenue streams.

In case of each trend we discuss the nature of development, implications for the revenue streams of the OSM providers, and provide examples where applicable.

D.1. Increased emphasis on native advertising via mobile apps

Native advertising (discussed in more detail in Annex 1.3.1) formats are seen to increasingly gain prominence and along with video ads are deemed to be one of the most popular ad publishing strategies as per a poll conducted by Salesforce encompassing 4,000 marketers⁷. Native ads in the form of promoted posts and updates are often indistinguishable from organic platform content and as a result businesses are expected to spend heavily on native advertising posts to make their content seen⁸. With number of mobile users⁹ and mobile ad revenue expected to grow faster than desktop¹⁰, native ads on mobile apps offer a highly targeted, shareable mechanism which enables businesses to track their returns in terms of views and clicks more effectively than desktop ads.¹¹

This trend has important implications for revenue streams such as *Advertising based on anonymous data* and *Advertising based on personalised data*. As a result of this trend, OSM providers can be expected to prioritise mobile apps as a distribution channel for

¹ Meeker, Mary. 2017. 2017 Internet Trends report. Available at:

<http://dq756f9pzlyr3.cloudfront.net/file/Internet+Trends+2017+Report.pdf>

² Stelzner, Michael A. 2016. 2016 Social media marketing report. Available at:

<https://www.socialmediaexaminer.com/wp-content/uploads/2016/05/SocialMediaMarketingIndustryReport2016.pdf>

³ Casey, Sean. 2017. 2016 Nielsen social media report. Available at:

<http://www.nielsen.com/us/en/insights/reports/2017/2016-nielsen-social-media-report.html>

⁴ Content Marketing Institute. 2016. B2C Marketing content: 2016 Benchmarks, Budgets, and Trends. Available at: http://contentmarketinginstitute.com/wp-content/uploads/2015/10/2016_B2C_Research_Final.pdf

⁵ Wyzowl. 2017. Video Marketing Statistics 2017. Available at: <https://www.wyzowl.com/video-marketing-statistics-2017.html>

⁶ Sproutsocial. 2017. Data – Sprout social index. Available at:

<https://sproutsocial.com/insights/data/>

⁷ Richter, Scott. 2017. The Future Of Native Advertising for Brands and Publishers. Available at: <https://www.entrepreneur.com/article/290186>

⁸ Content Marketing Institute. 2016. B2C Marketing content: 2016 Benchmarks, Budgets, and Trends. Available at: http://contentmarketinginstitute.com/wp-content/uploads/2015/10/2016_B2C_Research_Final.pdf

⁹ Kemp, Simon. 2015. Digital, social, and mobile worldwide in 2015. Available at:

<https://wearesocial.com/au/special-reports/digital-social-mobile-worldwide-2015>

¹⁰ Miller, Jason. 2016. The State of Social Media Advertising Heading into 2017. Available at:

<https://business.linkedin.com/en-uk/marketing-solutions/blog/posts/advertising/2016/the-state-of-social-media-advertising-heading-into-2017>

¹¹ HootSuite. 2017. Top 5 Social Media Trends for Businesses in 2017. Available at:

<https://blog.hootsuite.com/social-media-trends-2017/>

ads.¹² Platforms such as Twitter¹³, Facebook¹⁴, and Instagram^{15,16} are already seen to make a push for mobile ad revenue in the form of native ads. Platforms that rely mainly on advertising revenue such as Facebook^{17,18}, YouTube^{19,20,21}, and Instagram^{22,23,24}, can be expected to provide increased capabilities to enhance, customise mobile and native ad content to third party traders and intermediaries acting on behalf of third party traders.

D.2. The emergence of conversational commerce via social messaging and chatbots

Statistics show that users increasingly prefer private social messaging more than communicating and engaging on social media.²⁵ If worldwide numbers are considered, top four messaging apps²⁶ have more active monthly users than top four social

¹² Meeker, Mary. 2017. 2017 Internet Trends report. Available at:

<http://dq756f9pzlyr3.cloudfront.net/file/Internet+Trends+2017+Report.pdf>

¹³ Miller, Jason. 2016. The State of Social Media Advertising Heading into 2017. Available at: <https://business.linkedin.com/en-uk/marketing-solutions/blog/posts/advertising/2016/the-state-of-social-media-advertising-heading-into-2017>

¹⁴ Peterson, Tim. 2016. Facebook's Ad Volume Has Grown for the First Time in Two Years. Available at: <http://adage.com/article/digital/facebook-q4-2016-earnings/302378/>

¹⁵ A survey by Adweek reported Instagram ads as having higher recall, reach and engagement than comparable platforms such as Snapchat. This is expected to increase business demand for getting ads delivered in Instagram mobile app and in consequence accelerate Instagram's investment in mobile ad capabilities. See Galvin, Christopher. Not dated. Here's What Makes Emerging Mobile Markets Different. Available at: <http://www.adweek.com/sponsored/the-emerging-mobile-markets/>

¹⁶ Constantinides, Panos. 2014. Instagram set to transform native advertising Available at: <http://www.wbs.ac.uk/news/instagram-set-to-transform-native-ads/>

¹⁷ eMarketer. 2015. What's the Future of Facebook Native Video Ads? Available at: <https://www.emarketer.com/Article/Whats-Future-of-Facebook-Native-Video-Ads/1011894>

¹⁸ Newton, Casey. 2016. Native ads from publishers are coming to the Facebook News Feed. Available at: <https://www.theverge.com/2016/4/8/11393868/facebook-branded-content-policy-news-feed>

¹⁹ Oodle. Not dated. The ultimate YouTube advertising guide. Available at: <http://oodle.io/p/ultimate-youtube-advertising-guide/>

²⁰ Marvin, Ginny. 2014. Google's Head Of Ads On Video And YouTube's Rising Influence, Enhanced Campaigns, CPCs, More. Available at: <https://marketingland.com/googles-head-ads-video-youtubes-rising-influence-enhanced-campaigns-cpcs-98153>

²¹ Peterson, Tim. 2015. YouTube's Most Native Ad Yet Puts Shoppable Cards Into Organic Videos. Available at: <http://adage.com/article/digital/youtube-shopping-ads-akin-google-search-ads-pre-rolls/300635/>

²² Smith, Cooper. 2014. Here's Why Native Ads On Pinterest, Instagram, And Snapchat Could Be Huge Moneymakers. Available at: <http://www.businessinsider.com/native-mobile-ads-dominate-social-media-2014-1>

²³ Boorstin, Julia. 2015. Finally! Here comes Instagram's big ad push. Available at: <https://www.cnbc.com/2015/09/08/finally-here-comes-instagram-big-ad-push.html>

²⁴ Nesbitt, James. 2017. Instagram's New Native Advertising Feature: A Necessary Step Toward Transparency. Available at: <http://www.adweek.com/digital/jason-nesbitt-strike-social-guest-post-instagram-native-advertising-transparency/>

²⁵ Velji, Jamil. 2017. 21 Game-Changing Social Media Trends in 2017. Available at: <https://buildfire.com/social-media-trends-2017/>

²⁶ These are WhatsApp, Facebook Messenger, WeChat, and QQChat. See Kallas, Priit. 2017. Top 15 Most Popular Social Networking Sites and Apps. Available at: <https://www.dreamgrow.com/top-15-most-popular-social-networking-sites/>

networks²⁷. Additionally, except messaging apps, a quarter of all the apps are uninstalled after a single use.²⁸ This suggests that OSM use is shifting towards private social messaging. As a result of this trend more businesses are expected to increasingly use private messaging to interact with their customers.²⁹

The emergence of chatbots³⁰ which can guide the customers through an array of simple tasks such as shopping recommendations, step-by-step location guides, or booking flights (to name a few),³¹ further accelerates the shift of sale and customer service functions to social messaging. Chatbots enable quick scaling up of social selling and customer service capabilities, an equivalent of 1:1 service without significant additional investment in human or physical infrastructure resources.³² This use social messaging (whether human-powered or chatbot-powered) in the way third party traders or intermediaries acting on their behalf conduct their businesses is referred to as conversational commerce³³ and is considered one of the key trends in the OSM landscape.^{34,35}

This trend has important implications for revenue streams such as *Advertising based on personalised data* and *Subscription fees for premium/exclusive content and services, and marketing services* in relation to social messaging apps such as Facebook messenger and WhatsApp. Third party traders and Intermediaries acting on their behalf can provide personalised customer support, enable better targeting of ad campaigns, achieve higher returns in terms on engagement on ad spend, and can have access to more identified user data.³⁶

- Through *Advertising based on personalised data*, OSM providers can offer the use of social messaging capabilities to deliver highly personalised, targeted ads to the users. An example of this is the Messenger Conversation capability provided by

²⁷ These are Facebook, YouTube, Instagram, and Twitter. See Kallas, Priit. 2017. Top 15 Most Popular Social Networking Sites and Apps. Available at: <https://www.dreamgrow.com/top-15-most-popular-social-networking-sites/>

²⁸ The Economist. 2016. Bots, the next frontier. Available at: <https://www.economist.com/news/business-and-finance/21696477-market-apps-maturing-now-one-text-based-services-or-chatbots-looks-poised?fsrc=rss>

²⁹ Velji, Jamil. 2017. 21 Game-Changing Social Media Trends in 2017. Available at: <https://buildfire.com/social-media-trends-2017/>

³⁰ Chatbots (also chat bots), shortened description for chatting robots, are computer programmes designed to interact with humans in natural, conversational formats. See Wong, Julia Carrie. 2016. What is a chatbot and should I be using one? Available at: <https://www.theguardian.com/technology/2016/apr/06/what-is-chat-bot-kik-bot-shop-messaging-platform>

³¹ HootSuite. 2017. Top 5 Social Media Trends for Businesses in 2017. Available at: <https://blog.hootsuite.com/social-media-trends-2017/>

³² *ibid*

³³ *ibid*

³⁴ The Economist. 2016. Bots, the next frontier. Available at: <https://www.economist.com/news/business-and-finance/21696477-market-apps-maturing-now-one-text-based-services-or-chatbots-looks-poised?fsrc=rss>

³⁵ York, Alex. 2017. 6 Social Media Trends That Will Take Over 2017. Available at: <https://sproutsocial.com/insights/social-media-trends/>

³⁶ For further discussion on strategies business could adopt, see Rankin, Aaron. 2016. Why Business Chatbots Need to Plot a New Course. Available at: <https://medium.com/sprout-social/why-business-chatbots-need-to-plot-a-new-course-7b99024eb57>

Facebook as part of Facebook ads which facilitates third party traders and intermediaries acting on their behalf to start a new conversation from an ad.³⁷

- As part of *Subscription fees*, OSM providers are likely to offer the use of chatbots hosted on their platforms or scaled social messaging capabilities via subscription fee-based services. High-profile brands such as Hyatt have already started using Facebook Messenger to deliver human-powered 24/7 customer service to high net-worth clients.³⁸ Facebook messenger already has 11000 active Facebook Messenger Bots^{39,40} and these bots accept major vendors such as MasterCard, American Express, and Visa.⁴¹

D.3. Integration of social commerce capabilities into ads and other content

Social commerce (also social ecommerce or social shopping) refers to the purchases (including in-app purchases⁴²) made by users without leaving the OSM providers platform for external ecommerce functionality. OSM platforms are expected to transform into social commerce marketplaces enabling platform users to buy directly from third party traders or intermediaries acting on their behalf.⁴³ Similar findings have been reported by Sprout Social Index⁴⁴, which suggests that 57% of consumers are more likely to buy from a brand they follow and 75% have made purchase because they saw it on social media.⁴⁵ As online presence of a third-party trader's brand is reported by platform users to be the

³⁷ Facebook. 2017. Messenger: Have ongoing conversations that get results. Available at: <https://www.facebook.com/business/products/messenger-for-business>

³⁸ Dua, Tanya. 2015. Hyatt takes customer service to Facebook Messenger. Available at: <https://digiday.com/marketing/hyatt-takes-customer-service-facebook-messenger/>

³⁹ Beese, Jennifer. 2016. How Facebook Messenger Bots Can Impact Your Business. Available at: <https://sproutsocial.com/insights/facebook-messenger-bots/>

⁴⁰ Newton, Casey. 2016. There are now more than 11,000 bots on Facebook Messenger. Available at: <https://www.theverge.com/2016/7/1/12072456/facebook-messenger-bot-growth>

⁴¹ York, Alex. 2017. 6 Social Media Trends That Will Take Over 2017. Available at: <https://sproutsocial.com/insights/social-media-trends/>

⁴² These are purchases made without leaving the OSM provider's platform where the shopping cart, online payment are all integrated in the OSM provider's platform and the user engages with the third-party traders goods and purchases through the OSM provider's platform. See Investopedia. Not dated. In-App Purchasing. Available at: <http://www.investopedia.com/terms/i/inapp-purchasing.asp>

⁴³ Chahal, Mindi. 2016. Social commerce: How willing are consumers to buy through social media? Available at: <https://www.marketingweek.com/2016/03/23/social-commerce-how-willing-are-consumers-to-buy-through-social-media/>

⁴⁴ Sprout Social Index is a report on channel growth, brand responsiveness, and consumer behaviour on online social media by Sprout social, a social media engagement platform. See <https://sproutsocial.com/insights/press/introducing-sprout-social-index/> and <https://sproutsocial.com/insights/data/sprout-social-index-engagement-report/>.

⁴⁵ York, Alex. 2017. 6 Social Media Trends That Will Take Over 2017. Available at: <https://sproutsocial.com/insights/social-media-trends/>

biggest reason to try new products and services, social commerce is expected to become a big trend^{46,47,48} with exponential growth in the coming years.^{49, 50}

This trend has important implications for the *Transaction fees* as a revenue stream as more OSM providers can be expected to integrate the capabilities to enable transactions of virtual and real-world goods and services in their platform. For example, Facebook currently provides a 'buy' button as part of ads which appear in the newsfeed.⁵¹ As the trend for social commerce accelerates, similar 'buy' capabilities can be expected to proliferate as part of ad displays on Facebook and other OSM platforms. As the user engage in more social shopping, the revenue earned by OSM providers through transaction fees is likely to grow further.

Apart from the Facebook 'buy' button, other relevant examples of OSM providers integrating social commerce capabilities which would play a crucial role in the growth of the social shopping trend include Instagram Instant Purchase⁵², Pinterest Buyable Pins⁵³, and the 'Buy Now' button on Twitch.⁵⁴ Additional examples are provided as part of Table C-1 in Annex 1.2.C.

⁴⁶ O'Neill, Megan. 2015. The 2015 Video Marketing Cheat Sheet. Available at:

<https://animoto.com/blog/business/video-marketing-cheat-sheet-infographic/>

⁴⁷ Adlucent. 2015. A look at social media buy buttons for the holidays. Available at:

<http://www.adlucent.com/blog/2015/a-look-at-social-media-buy-buttons-for-the-holidays/>

⁴⁸ Epsilon. 2015. New study from Epsilon reveals impact of social and mobile in deconstructing the shopper journey. Available at: <http://pressroom.epsilon.com/new-study-from-epsilon-reveals-impact-of-social-and-mobile-in-deconstructing-the-shopper-journey/>

⁴⁹ Velji, Jamil. 2017. 21 Game-Changing Social Media Trends in 2017. Available at:

<https://buildfire.com/social-media-trends-2017/>

⁵⁰ Casey, Sean. 2017. 2016 Nielsen social media report. Available at:

<http://www.nielsen.com/us/en/insights/reports/2017/2016-nielsen-social-media-report.html>

⁵¹ Facebook. 2014. Testing a new way for people to discover and buy products on Facebook.

Available at: <https://www.facebook.com/business/news/Discover-and-Buy-Products-on-Facebook-Test>

⁵² Instagram. 2016. Shopping coming to Instagram. Available at:

<https://business.instagram.com/blog/shopping-on-instagram>

⁵³ Pinterest. 2017. Buyable Pins. Available at: <https://business.pinterest.com/en/buyable-pins>

⁵⁴ Twitch. 2017. How to Buy Games on Twitch. Available at:

<https://help.twitch.tv/customer/portal/articles/2771293-how-to-buy-games-on-twitch>

D.4. Proliferation of live video streams

Live video refers to video content which is broadcast live and is often available for viewing in real-time. Live video allows third party traders and the intermediaries acting on their behalf to interact with their audience and customers in real-time.⁵⁵ Notable examples of live video include Facebook Live⁵⁶, YouTube Live⁵⁷, and Instagram Stories.⁵⁸ Facebook Live, in particular is reported to have broken a number of live streaming records as part of new year's eve 2017⁵⁹. Highlighting the popularity of live streams compared to 2016, 43% more businesses indicated interest in investing in interactive live video in 2017 as part of a web survey covering both marketing professionals and online consumers.⁶⁰ Live video streams encourage users to engage in an interactive, relevant, and unfiltered way⁶¹ and as a result are expected to grow in popularity as platforms such as Instagram⁶² and Twitter⁶³ build live video streaming into their platform services.

This trend has important implications for revenue streams such as *Advertising based on personalised data* and *Subscription fees*. Live video is considered to offers a unique opportunity for businesses to raise awareness of their brand and build a community around it in real-time.⁶⁴

- When the *Advertising based on personalised data* revenue stream is considered, live video streaming could enable OSM providers to deliver a better targeted advertising experience on behalf of third party traders and intermediaries acting on their behalf. Live video streams are the closest analogue to traditional TV advertising on OSM providers' platform. As a result, not only are the platform users likely to stay engaged with relevant ad experience during the live stream, but the real-time nature of it is also likely to deliver immediate reach at the time of the broadcast to third-party traders and intermediaries acting on their behalf. Live video streams can thus be an additional source of advertising revenue to OSM providers with large number of users. An example of this is YouTube offering the capability to deliver ads mid-stream as part of live video as part of YouTube

⁵⁵ Velji, Jamil. 2017. 21 Game-Changing Social Media Trends in 2017. Available at: <https://buildfire.com/social-media-trends-2017/>

⁵⁶ Facebook. Not dated. Facebook Live. Available at: <https://live.fb.com/>

⁵⁷ YouTube. Not dated. YouTube Live - About. Available at: https://www.youtube.com/channel/UC4R8DWoMoI7CAwX8_LjQHig/about

⁵⁸ Stec, Carly. Not dated. Instagram Launches Live Video & Ephemeral Messages: Here's What You Need to Know. Available at: <https://blog.hubspot.com/marketing/instagram-live-video-ephemeral-messages>

⁵⁹ Facebook. 2017. The Live Blog: January 4, 2017. Available at: <https://media.fb.com/2017/01/04/the-live-blog-january-4-2017/>

⁶⁰ Wyzowl. 2017. Video Marketing Statistics 2017. Available at: <https://www.wyzowl.com/video-marketing-statistics-2017.html>

⁶¹ Norcross, Natalie. 2017. Five Current Trends In Social Media That Will Only Get Bigger. Available at: <https://www.forbes.com/sites/forbesagencycouncil/2017/08/31/five-current-trends-in-social-media-that-will-only-get-bigger/#3b1573c0132b>

⁶² Stec, Carly. Not dated. Instagram Launches Live Video & Ephemeral Messages: Here's What You Need to Know. Available at: <https://blog.hubspot.com/marketing/instagram-live-video-ephemeral-messages>

⁶³ Periscope. Not dated. Periscope – About Us. Available at: <https://www.periscope.tv/about>

⁶⁴ Anonymous. 2016. 2017 Social Media Trends. Available at: <http://www.smartinsights.com/social-media-marketing/2017-social-media-trends/>

Gaming and YouTube Live services⁶⁵. Facebook is reported to be testing a service to deliver ads as part of live video.^{66,67}

- When the *Subscription fees* revenue stream is considered, working with the third party traders that produce the content, the OSM providers could make specific live video streams exclusively available only to paying subscribers to increase the perceived 'value' of their platform. In this case, the revenue for these live streams would be based on the number of users who watch the live stream as part of their subscriptions. It should be noted however that as of writing this document, notable examples of such an approach could not be located among the 13 OSM providers studied as part of this task.

D.5. Increased availability of expiring content

Expiring content (messages, images, or videos) is known to last only for a short period of time on the OSM platform where it is released. Since this content is only available for a limited time, the content is perceived to become very relevant during the period that it is live, drawing in users during that time.⁶⁸ As a result expiring content is considered to be one of the growing content marketing trends in 2017 and beyond.⁶⁹ Initially pioneered by Snapchat⁷⁰, expiring content is now also available on Facebook messenger⁷¹ and Instagram via the Instagram Direct service⁷².

The development of expiring content is mainly of relevance to the *Advertising based on personalised data* revenue stream. This is because limited availability of the content is perceived to make it 'super-engaging' to its audience⁷³ and thus an effective outlet for advertising.⁷⁴ Similar to live streams, ads could be shown mid-stream in expiring content. Expiring content can thus be an additional source of advertising revenue to OSM

⁶⁵ YouTube. 2017. Monetise your live stream. Available at:

<https://support.google.com/youtube/answer/7385599?hl=en-GB>

⁶⁶ Swant, Marty. 2017. Facebook Is Expanding Ad Breaks for Live and Uploaded Video. Available at: <http://www.adweek.com/digital/facebook-is-expanding-ad-breaks-for-live-and-uploaded-video/>

⁶⁷ Facebook. 2016. Video ad using Facebook Live DURING live broadcast? Available at: <https://www.facebook.com/business/help/community/question/?id=10208484722302951>

⁶⁸ Norcross, Natalie. 2017. Five Current Trends In Social Media That Will Only Get Bigger. Available at: <https://www.forbes.com/sites/forbesagencycouncil/2017/08/31/five-current-trends-in-social-media-that-will-only-get-bigger/#3b1573c0132b>

⁶⁹ Litsa, Tereza. 2016. Eight content marketing trends to think about in 2017. Available at: <https://searchenginewatch.com/2016/11/09/eight-content-marketing-trends-to-think-about-in-2017/>

⁷⁰ DeMers, Jason. 2016. 7 Social Media Marketing Trends That Will Dominate 2017. Available at: <https://www.forbes.com/sites/jaysondemers/2016/11/10/7-social-media-marketing-trends-that-will-dominate-2017/#416c8e83d764>

⁷¹ Hern, Alex. 2016. Facebook launches Snapchat-style disappearing messages, again. Available at: <https://www.theguardian.com/technology/2016/jul/11/facebook-launches-snapchat-style-disappearing-messages-again>

⁷² Stec, Carly. Not dated. Instagram Launches Live Video & Ephemeral Messages: Here's What You Need to Know. Available at: <https://blog.hubspot.com/marketing/instagram-live-video-ephemeral-messages>

⁷³ DeMers, Jason. 2016. 7 Social Media Marketing Trends That Will Dominate 2017. Available at: <https://www.forbes.com/sites/jaysondemers/2016/11/10/7-social-media-marketing-trends-that-will-dominate-2017/#416c8e83d764>

⁷⁴ Litsa, Tereza. 2016. 12 valuable marketing lessons from Snapchat's success. Available at: <https://searchenginewatch.com/2016/04/15/12-valuable-marketing-lessons-from-snapchats-success/>

providers, providing them an additional opportunity to deliver targeted advertising on behalf of third party traders and intermediaries acting on their behalf. The most notable example of ads in expiring content can be found in Snapchat, Instagram Stories and Instagram Direct services. Instagram Direct includes full-screen moving images drawing the eye in a way that standard display ads cannot.⁷⁵

D.6. Increased priority to business features and analytics

Social media trends indicate OSM providers are building more services that meet the needs of third party traders and intermediaries acting on their behalf in relation to data and analytics for marketing insights.⁷⁶ Businesses rely on analytics to understand the effectiveness of their social media campaigns. In consequence, in-depth analytics becomes critical to plan and identify strategies for the social media campaigns.⁷⁷ A 2015 KPMG survey of C-level executives suggested that 72% of the enterprises use social media data to improve customer relationships.⁷⁸ To address this market need OSM providers are expected to offer better insight and analysis to third party traders and their intermediaries.^{79,80}

The main implications of the increased importance attached by third party traders and intermediaries acting on their behalf to social media analytics are in relation to the *Subscription fees* revenue stream. In response to this trend demanding more personalisation, increased accuracy and better prediction increased emphasis on combining algorithmic, machine learning approaches⁸¹ with crowdsourced analysis based on human insights⁸² is likely to be seen in the analytics services and tools offered to third party traders and intermediaries acting on their behalf.

⁷⁵ Similar to expiring content, this type of ad display called 'Direct response ad' was pioneered by Snapchat. See Glenday, John. 2017. Instagram further emulates Snapchat by trialing direct response ads. Available at: <http://www.thedrum.com/news/2017/05/25/instagram-further-emulates-snapchat-trialing-direct-response-ads>; and Hutchinson, Andrew. 2017. Instagram Adds New Direct Response Ad Options Within Stories. Available at: <http://www.socialmediatoday.com/social-business/instagrams-adding-new-direct-response-ad-options-within-stories>

⁷⁶ York, Alex. 2017. 6 Social Media Trends That Will Take Over 2017. Available at: <https://sproutsocial.com/insights/social-media-trends/>

⁷⁷ Velji, Jamil. 2017. 21 Game-Changing Social Media Trends in 2017. Available at: <https://buildfire.com/social-media-trends-2017/>

⁷⁸ Columbus, Louis. 2015. 81% of Enterprises Are Relying On Analytics To Gain Greater Customer Insights. Available at: <https://www.forbes.com/sites/louiscolumbus/2015/07/26/81-of-enterprises-are-relying-on-analytics-to-gain-greater-customer-insights/#6c6565215275>

⁷⁹ *ibid*

⁸⁰ Rimjhim. 2016. Social media analytics – necessity or luxury. Available at: <http://simplify360.com/blog/social-media-analytics-necessity-or-luxury/>

⁸¹ Kloppers, Jean Pierre. 2016. Brave New World: Social Media Analytics Trends for 2017. Available at: <http://digitalmarketingmagazine.co.uk/social-media-marketing/brave-new-world-social-media-analytics-trends-in-2017/3982>

⁸² Kloppers, Jean Pierre. 2016. Human integration key to accurate social media data. Available at: <http://www.bizcommunity.com/Article/196/669/152963.html>

OSM providers such as Twitter⁸³, Facebook⁸⁴, YouTube^{85,86} and Instagram⁸⁷ already offer social media analytics as part of their services. To distinguish their service offerings, the pricing of subscriptions for analytics and marketing services can be expected to become more tiered with further stratification in the nature of analytics services and metrics offered to third party traders and intermediaries acting on their behalf. Detailed examples of analytics services and other value-added capabilities offered by OSM providers are provided as part of Table C-1 in Annex 1.2.C.

⁸³ Twitter. 2017. Analytics: Measure and boost your impact on Twitter. Available at: <https://analytics.twitter.com/about>

⁸⁴ Facebook. 2017. Product analytics for driving growth. Available at: <https://analytics.facebook.com/>

⁸⁵ Beese, Jennifer. 2016. YouTube analytics for social media marketers. Available at: <https://sproutsocial.com/insights/youtube-analytics/>

⁸⁶ YouTube. 2017. Analytics and reporting APIs. Available at: <https://developers.google.com/youtube/analytics/>

⁸⁷ Facebook. 2017. About Instagram Insights. Available at: <https://en-gb.facebook.com/business/help/1717645641840196>

Annex 1.2.E Top 20 articles for revenue models on online social media companies⁸⁸

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⁸⁸ Original Google Scholar search conducted from July 2016 to September 2016. The results identified in this annex are based on an updated search conducted in September 2017. Search string: 'revenue models of online social media companies'

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⁸⁹ Original Google Scholar search conducted from July 2016 to September 2016. The results identified in this annex are based on an updated search conducted in September 2017.

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Annex 1.2.G Examples of articles from the scoping review of grey literature⁹⁰

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⁹⁰ Original Google search conducted from July 2016 to September 2016. The results identified in this annex are based on an updated search conducted in September 2017. Search string: 'revenue models of online social media companies'

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