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Prospects of Ecosystems Development in the Russian Consumer Market

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Abstract

The present paper studies the extent of infiltration of companies considered to be ecosystems into consumer spending pattern of the Russian population. For this purpose we offered a method of ecosystem market share evaluation on the basis of publicly available data of companies and official statistics. We proposed a criterion for dividing ecosystems into advanced and emerging ones. To that end we calculated the index assessing the share infiltration of ecosystems into the consumer market in 2018–2021. Dynamics of implementation of ecosystems in the consumer sector of the Russian Federation is positive but rather low which is indicative of prospects of development.

Keywords: ecosystem, consumer spending, platform economy

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Introduction

Ecosystems are multisector holdings which make a focal product for an end consumer on the basis of individual products and services of the company [1–3]. This characteristic feature constitutes grounds for classifying the company as an ecosystem.

We offer the following ecosystem definition: it is a community of companies with the same shareholder which aspires to dominate in a certain segment of markets in a particular national economy and creates an integral product for the end customer.

The following formal features result from this definition:

1) attribution of only companies or a group of companies but not sociocultural items (such as Silicon Valley) and not production chains (for example, chipset manufacturing partnerships) to the notion of "ecosystem". The first ones cannot be attributed to it because they are subject of social sciences and cannot be subject of formalized financial analysis; the latter ones – due to non-exclusivity of existing partnerships and a consistent nonparallel increment of added value;
2) within an ecosystem companies create a focal product *simultaneously* [4]. A characteristic feature of such product is the ecosystem customer's right to privileges when using certain products and services of the ecosystem. Such products comprise: uniform customer identification systems, loyalty systems, a set of services and goods available only if the customer pertains to the first two systems;
3) optional characteristic features include an umbrella brand, for example, a prefix representing the name of the parent holding and a single development strategy. The ecosystem may intentionally preserve an "alien" brand obtained as a result of company acquisition and at the same time comply with requirements of paragraph 2 (abroad – Whole Foods purchased by Amazon, in the Russian Federation – Kinopoisk bought by Yandex). However, strategy of the group of companies may be a commercial secret or be unavailable in public sources;
4) striving of ecosystems to enlarge the number of verticals in consumer markets up to the spending limits of households, i.e. to provide the most complete presence in the type network of the consumer market. As a result of this procedure revenue grows continuously (as an effect of entering new markets and squeezing competitors out of markets of presence) outperforming growth rates of the consumer market of the national economy in general up to the state of natural monopoly when there is no government regulation.

The focal product is a combination of the service and goods components which culminate in consumption on the basis of the subscription model. Otherwise speaking existence of a subscription service which combines verticals within a common joint-stock structure may be considered to be a feature of an ecosystem.

It is important to note that notions "ecosystem" and "transaction platform" are not identical or synonymous [5; 6]. The false closeness is a result of the practice of integration of, for example, ecommerce platforms and transport-and-logistic services in ecosystems [7].

As long as it is a practical research it is necessary to show a combination of ecosystem characteristic features using companies – objects of study as an example. Yandex has its own identifier Yandex.Passport which identifies a user in any service entered through a uniform identifier, YandexPlus loyalty programme which is distinguished by availability at a fee (so-called subscription), a single Yandex brand represented by a prefix in the service name. Exactly the same ecosystem elements are present in business models of VK Group (VK Connect, VK Combo etc.), Sber (Sber ID, SberpPrime etc.), Ozon, MTS and other ecosystems considered in this paper.

The first three characteristic features above are of declarative nature and are necessary to distinguish ecosystems formally from a range of commercial companies. The fourth feature is more of heuristic nature, i.e., in the first instance, it is an assumption which requires an empirical verification. Consequently, the *objective* of this paper is to establish the extent to which the last of the above features lines up with reality. The research *task* is to calculate the market share (including its dynamics) of domestic ecosystems in the markets of presence in the Russian economics in comparison to dynamics of consumer spendings for the studied period.

The research *objects* are ecosystems of the Russian Federation: Yandex, Sber, VK Group, Tinkoff, MTS, Wildberries, Ozon. The research subject is areas of ecosystems' business units and change of their revenues and (or) turnover. The result of the paper is an analytical calculation of the aggregate market share of ecosystems and evaluation of its dynamics. Below we use the term of *ecosystem index* to designate the aggregate share of household spendings included in the financial result of Russian ecosystems' retail business (except for retail proceeds attributable to foreign markets).

Literature Review

In scientific literature the first scientific publication which introduced the term "ecosystem" in scientific discourse of economic sciences was the one by J. Moore [8] Predators and Prey: A New Ecology of Competition (1993). The Russian translation of the ecosystem definition is as follows: an economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world.

However, the increased popularity of the definition beyond scientific discourse is attributed to the initial public offering of Chinese tech company Alibaba in 2014 and publications of consulting agencies about it which considered the company's business model as an ecosystem of various services. At the same time it should be noted that there

are earlier publications which use the term "technological platform" opposing it against the notion of "cluster" [9]. The former term is considered as something remarkably similar to the notion of "ecosystem" mentioned in the paper while the latter rather belongs to sociocultural items described above. The technological platform from the authors' point of view is nothing more than a community of actors from among commercial enterprises, universities and government managed by a single orchestrator in order to create a focal product simultaneously.

There is a layer of studies dedicated to exploring of the definition of a digital ecosystem. Research by O. Valdez-de-Leon [10] may be distinguished from them. It studies the issues of digital ecosystems' creation and functioning, distinguishes the main components of practical foundation. The author defines a digital ecosystem as "loose networks of interacting organizations that are digitally connected and enabled by modularity, and that affect and are affected by each other's offerings". Besides, the research states that non-participation in the digital systems paradigm may result in reduction in growth rate of operating and financial results.

Other researchers V. Godin and A. Terekhova [11] study the digital ecosystem as a new business model. They make the conclusion that digitalization in general has a significant impact on business processes, and ecosystems developed mainly in three fields: as a platform for trade and rendering services, as an alliance of links of the value chain (added value community) and a self-developing organization.

The only paper related to calculation of the share of household spendings in digital ecosystems was written by the research team of PYMNTS [12]. The research studies Amazon's share in total and retail household spendings in the USA on the basis of data provided by the US Bureau of Labor Statistics and the US Census Bureau. The results show that in the observed period of 2014–2020 the share of Amazon increased manyfold. However, they do not specify the reasons for growth of this indicator.

There are a lot of studies dedicated to regulation of digital ecosystems, customers' personal data protection and mergers and acquisitions between large technological companies and small start-ups. For example, B. Kira, V. Sinha and S. Srinivasan [13] raise the issue of importance of competition and data protection policy and its regulation. The authors emphasize that it is important maintain a competitive business environment and protect consumers from large technological companies such as Google, Apple, Amazon and Microsoft which buy small start-ups actively and use clients' data to gain market power.

A. Gautier A and J. Lamesch [14] in their research study 175 purchases of Google, Amazon, Facebook (Meta Platforms), Apple and Microsoft (GAFAM) in 2015–2017. In the majority of cases the product of the taken-over company after the purchase no longer existed under its initial brand. The authors distinguish three main reasons: "the product was not so successful as it had been expected to be, the motive for the purchase was not the product but assets or R&D efforts or elimination of a competitive threat". Finally the authors show that small companies just cease to exist in an embryonic stage as a result of unsuccessful competition with tech giants. Besides as a result of such deals not just potential competitors exit from the market but the share of ecosystems in the market also increases.

In the paper by T. Stuart [15] the issue of importance of big data and regulation of its collection is studied. He shows that absence of such regulation just causes harm to consumers and society in general. Tech giants will keep abusing lack of precision in the legislation in order to enhance their monopoly position.

G. Parker, G. Petropoulos and M. van Alstyne [16] are also concerned with predominance of GAFAM in the market. The research indicates an opportunity of a four-step solution for improvement of competitive conditions degraded by purchases of ecosystems. The solution comprises: "1) a new introductory regulatory and legal framework; 2) renewal of the terms under which a notification of mergers should be obligatory and the burden of proving should be shuffled off; 3) different regulatory priorities in examining of horizontal purchases against vertical ones; and 4) upgrading of competition assurance tools in order to enhance transparency of market data and trends".

Methodology and Calculation of the Index Base

The ecosystem index is indicative of the extent of ecosystem companies' penetration into everyday household spendings. Otherwise speaking, the index shows the share of spendings which Russian consumers "give away" to ecosystems. Inasmuch as due to specific reasons there is a certain set of markets where ecosystems do not render services, for example, housing and communal services, alcohol, tobacco etc. the population's expenditures should be divided into two groups: general spendings and spendings in the markets of ecosystems' presence. Consequently, in further calculations we will show various calculations of the index premised on the calculation base (all markets or just the markets where ecosystems are present).

Now we are going to analyze the formula and data sources necessary for calculations. The index is calculated as a simple proportion:

$$\text{Ecosystem index} = \frac{\text{Total revenue (or) turnover of ecosytems from sale of goods and services}}{\text{Volume of the markets where ecosystems are present}} \cdot 100\%. \quad (1)$$

When calculating the numerator one should bear in mind that in some markets where ecosystems provide intermediary services *turnover* is used instead of revenue. For example, the "ride-tech" market (taxi, logistics, carsharing etc.) or the e-commerce market. Regardless of the fact that in this case ecosystem revenue is generated as a take rate of the rendered service cost or sold goods cost the consumer gives money to the ecosystem (justification of the approach is considered in more detail in the next section). The amount of this effective fee differs from market to market and it is stated on the basis of official statements of a company and (or) its representatives or is calculated in an analytical way as a revenue-turnover ratio.

The main sources for calculation of the numerator are quarterly and annual financial statements of a company on the basis of IFRS standards. If a company is non-public as, for example Wildberries, data from SPARK and open sources is used. Official statements of company representatives are prioritized.

One may use data from mass media or research reports in order to calculate the denominator, however they are not published on a regular basis and do not always provide information for each quarter. Therefore in this research we use information from the web site of the Federal State Statistics Service (Rosstat). The direct consequence of this approach is dependence of index calculation update on frequency of data publishing by ecosystems as well as by Rosstat which is approximately 90-120 days from the date of the end of a quarter.

The basis for calculation of population's gross expenditures with the necessary grouping is provided by Rosstat (for benchmark data see Appendix 1) (Table 1).

Table 1. Taxonomy of expenses by Rosstat

Section	Data
Consumer spending pattern of households according to groups of food and non-food products and services, on a quarterly basis	Shares of expenses by categories
Amount and structure of money income of the population of the Russian Federation according to sources; on an annual basis broken down by quarters; in the section Income, Expenditures and Savings of the Population	Quarterly absolute values of population's income
Structure of use of money income of the population of the Russian Federation; on an annual basis broken down by quarters; in the section Income, Expenditures and Savings of the Population	Quarterly relative data by categories Purchase of Good and Payment for Services and Compulsory Payments, Contributions and Other Expenses
Structure of money income and expenditures of the population of the Russian Federation; on an annual basis; see it on the second page of the Balance of Money Income, Expenditures and Savings of the Population for a Year; in the section Income, Expenditures and Savings of the Population	Share of expenditures for Taxes and Levies and Contributions to Public and Cooperative Organizations

Source: the authors' development.

So, in order to calculate the denominator it is necessary to add together all absolute expenditures by the categories stated in section I. However, Rosstat publishes only relative data. In order to calculate absolute values of expenditures by categories, first, we will find the absolute general gross expenditures of the population. They are calculated by the following formula:

$$\text{Absolute general expenditures} = \text{II} \cdot (\text{III} - \text{IV}), \quad (2)$$

where II – quarterly absolute values of income of the population;

III – sum of relative values of categories of income use: Purchase of Goods and Payment for Services and Compulsory Payments, Contributions and Other Expenditures;

IV – sum of relative values of expenditure categories: Taxes and Levies and Contributions to Public and Cooperative Organizations.

The value of section IV should be subtracted from the value of section III because ecosystems do not render services of taxes' and levies' payment to public organizations. The government does it.

Multiplying of the share of categories from section I by absolute general expenditures and adding them together afterwards provides the value of absolute expenditures in all markets as well as in the markets of ecosystems' presence (see Appendix 2).

Method of Calculation of Ecosystems' Financial Results

At the next stage it is necessary to calculate the numerator or the total revenue (turnover) generated by ecosystems for rendering services and (or) sale of good in the markets of presence. Ecosystems for this research are selected on the basis of the following *characteristic features*:

1) A unified user identificator.
2) Development of three and more consumption

verticals (for example, a marketplace, food delivery, financial services).

3) A single platform, combined sales promotions for goods and services, development of a common loyalty programme.
4) Taking into consideration take rates of the customer base, amount of revenue and rates of its growth as well as dynamics of new services' introduction.

In this research ecosystems are divided into two groups: advanced and emerging ones similar to the approach to categorizing countries by the revenue level. The former ones comprise companies with the monthly number of active customers of at least 50 mln which operate minimum in a half of consumer sectors (11 out of 22) and a quarterly revenue/turnover of at least RUB 200 billion as at the end of the research period (4th quarter of 2021). Meeting the three criteria is grounds for assigning a company to advanced ecosystems. Otherwise, the company is considered to be an emerging ecosystem (see Appendix 3).

On the basis of the limitations above we selected just seven Russian companies classified as ecosystems. We assigned Yandex, Sber and VK Group (former Mail.ru Group) to advanced ecosystems while MTS, Ozon, Tinkoff, Wildberries – to emerging ones.

Further we describe the manner of use of companies' financial data. Before we do so we have to specify the following: in this research the "revenue" and "turnover" indicators are identical. Of course, from the point of view of financial analysis this supposition is not correct, however, it acquires meaning when we analyze the market share of platforms which are a part of ecosystems. Turnover of transport services of ecosystems for calling a taxi may be an example. In this case the ecosystem revenue is the share of the effective take rate of the service turnover which amounts to approximately 7–11% of the turnover. However, this part of transactional flows remains unnoticed by the service consumer, therefore from the point of view of households the spending is attributed to expenditures for goods and services of the ecosystem.

Let us start with Yandex. Yandex generates revenue from households using three services:

- Yandex.Go;
- Yandex.Market;
- media services.

The service Yandex.Go comprises taxi, carsharing and logistic services (ride-tech), food and food products delivery (food-tech). Before the 2nd quarter of 2021 Yandex had not published GMV (gross merchandise value – turnover) for this service. Therefore in order to calculate this indicator we used the effective take rate of 10% mentioned by the head of Yandex.Taxi Daniil Shuleiko[1]. GMV was calculated as the effective take rate to revenue ratio. From the 2nd quarter of 2021 it was no longer necessary because Yandex reports comprised GMV data of Yandex.Go. Yandex.Market is an e-commerce service. Its turnover is also stated in the reports as well as the turnover of Media Services (comprising the revenue of Y.Music, KinoPoisk, Y.Plus and some other consumer services). In spite of the fact that Yandex is an international company and consolidates income from all markets, apart from Russia, in its reports the revenue earned abroad is excluded from the total amount. According to the company such revenue accounts for 6.5% of the consolidated indicator. They draw attention to exclusion of advertising business revenue from retail revenue because advertising is not directly related to the corporate retail ecosystem.

Sber has an abundant and wide taxonomy of retail services:

- E-Commerce;
- Entertainment;
- O2O (together with VK Group);
- income fee from individual persons;
- interest income from retail loans.

E-Commerce and Entertainment are a part of non-financial business of Sber which has been added to reports rather recently. As at the end of 2021 E-Commerce segment encompassed the following services: Sberlogistics, SberMarket, Samokat, SberMegaMarket, Sber EApteka, the Entertainment segment comprises OKKO, SberZvuk, Soyuzmultfilm and SberPrime subscription. For E-Commerce they calculate turnover, for Entertainment – revenue. O2O is a joint venture of Sber and VK Group which owns 45% of the company. O2O has the following services: Delivery Club, Local Kitchen, Citymobil, Citydrive and Samokat. The bank reports do not contain the necessary information on O2O therefore we use the presentation for investors of VK Group which indicates GMV of O2O. The fee and interest income are parts of the bank's core business and are stated in the reports.

The last advanced ecosystem is VK Group. VK as well as Sber has five income sources from individual persons.

- MMO games;
- IVAS (paid services and facilities);
- other income;
- Joint Venture AliExpress Russia;
- O2O (together with Sber).

Revenue from MMO Games is indicated in the presentation for investors. It is also necessary to multiply revenue of the segment by the share of Russia. IVAS and other income are stated in the corporate financial reports. The data on turnover of AliExpress Russia is indicated in the presentation for investors. O2O as in the case of Sber is used to calculate the share of VK with the coefficient of 0.45.

Tinkoff has two sources: bank's revenue and Tinkoff Mobile. All data is stated in financial reports of the company and materials for investors.

[1] URL: https://vc.ru/transport/123766-yandeks-taksi-vpervye-rasskazal-o-komissiyah-napryamuyu-servis-poluchaet-menee-10-ot-stoimosti-zakaza

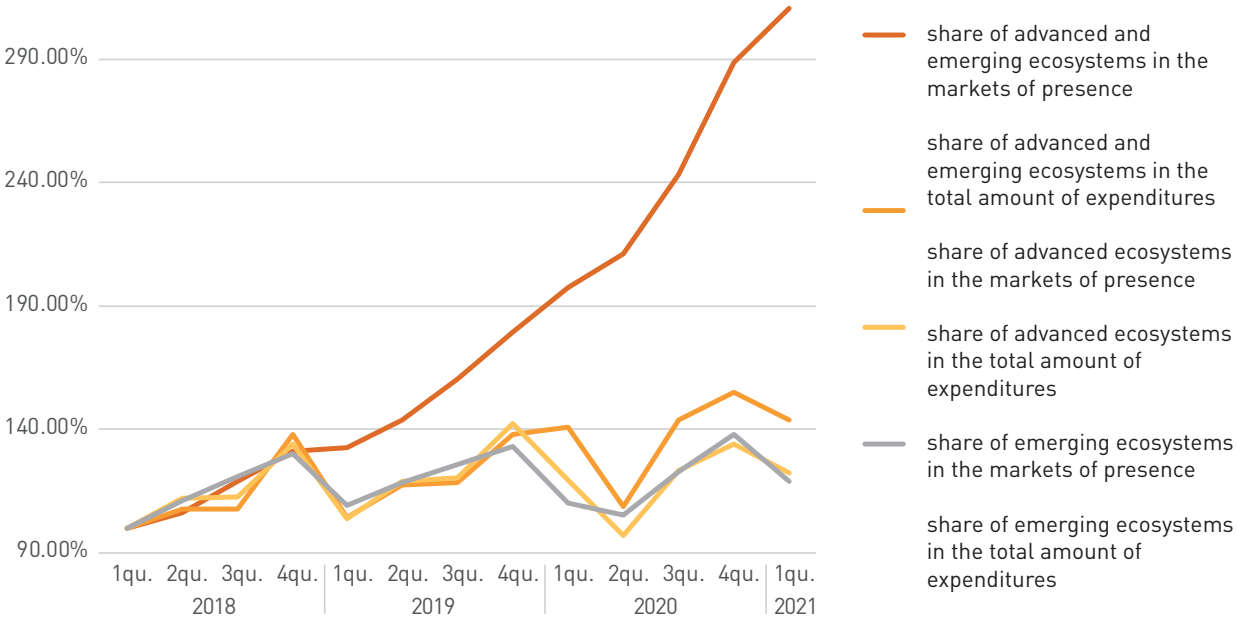
The source of information on Ozon is IFRS and materials for investors. Only company's turnover from the core business is taken into consideration – the ecosystem has relatively recently started a rapid development of its own financial services on the basis of the previously purchased bank and doesn't have a separate segment describing financial results of this business line yet. The same is true for Wildberries.

MTS is a multibusiness company comprising a bank of the same name. Therefore, ecosystem revenue encompasses bank's income from operations with individual persons and revenue from subscribers in the Russian Federation including related services. All necessary information concerning the ecosystem is also indicated in IFRS statements (see Appendix 4).

Results

The method described above allows to visualize the obtained results (Figure 1).

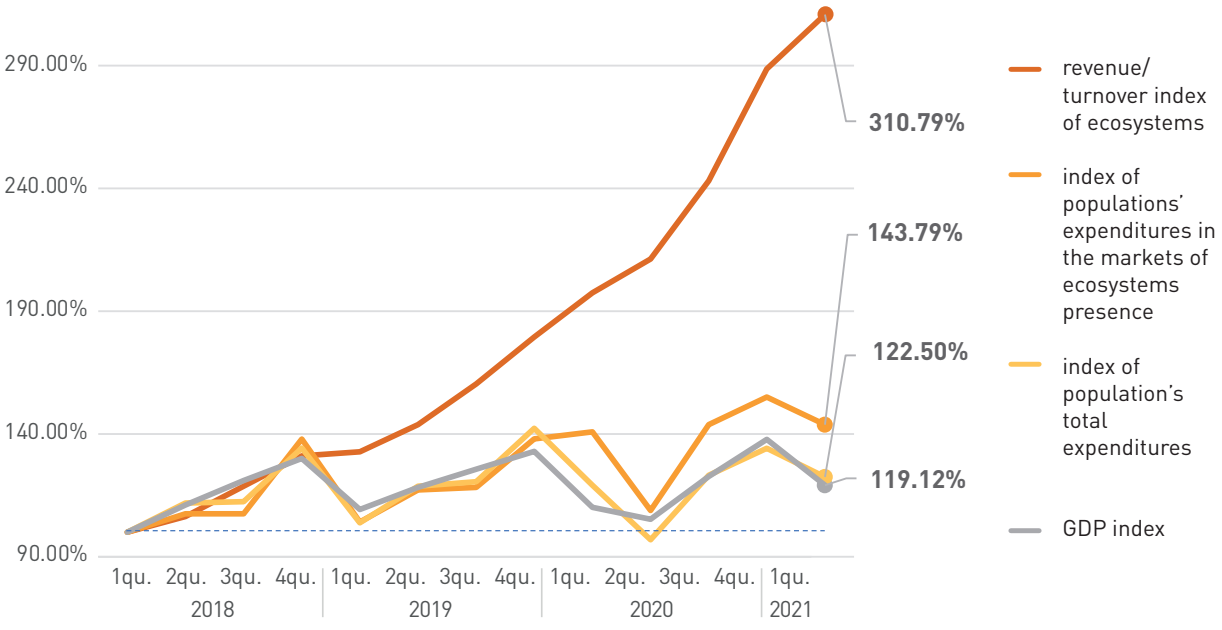
Figure 1. Change of the share of certain groups of ecosystems in consumer markets



Source: the authors' development.

See a table with initial data of the diagram in Appendix 3. It is noteworthy that indicators changed in comparison to the first period (1st quarter of 2018 = 100%), they are represented by the following indices (Figure 2).

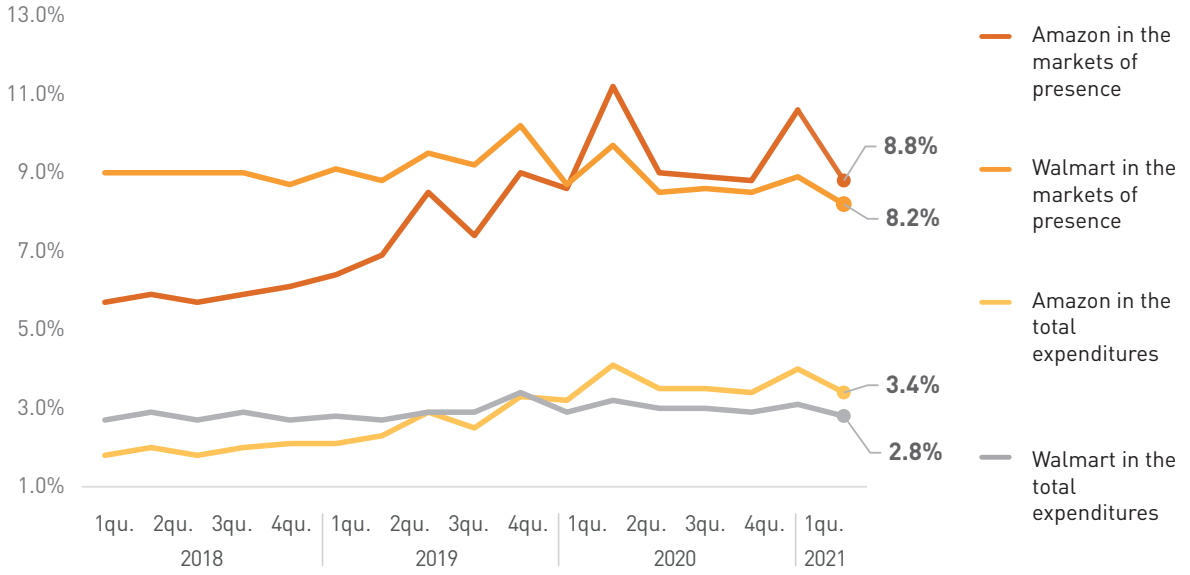
Figure 2. Change of the main macroeconomic indicators related to calculation of the share of ecosystems relative to the base period (1st quarter of 2018 = 100%)



Source: the authors' development[2].

[2] Calculation before the 1st quarter of 2021 due to unavailability of some official statistics' items as at the date of calculation.

Figure 3. Shares of Amazon and Walmart in retail expenditures of the US economy



Source: PYMNTS (2022) [17], the authors development.

Thus, we can establish that the share of ecosystems in consumer markets in a relative measurement grew most rapidly during epidemiologic limitations (1st–2nd quarter of 2020). The most probable explanation is popularization of electronic payments and remote purchase of goods and services on platforms which belong to ecosystems.

It should also be noted that after epidemiologic limitations had been imposed change of the index was no longer of a pronounced cyclical pattern (decrease of an indicator follows a quarter of its growth etc.).

Growth rates of advanced ecosystems' presence are a sequence higher than indicators of advanced ecosystems. It is due to a larger customer base as well as to surpassing opportunities of entering new markets. Otherwise speaking advanced ecosystems may "grow" intensively and extensively (for example, by means of M&A) while emerging ecosystems prefer investments into existing business lines.

It should be specified that, as stated above, the basis for calculation is not just revenue of ecosystem companies but turnover as well. I.e. the actual share of ecosystems in the markets of consumer expenditures may be somewhat lower. However, even estimate indicators mean that the market is emerging and a long way short of saturation, and they are sufficient grounds for abandoning the assertions related to possible monopolization of the common market of consumer spendings in the Russian Federation.

Comparison to Foreign Markets

We haven't found papers dedicated to similar calculations for consumer markets of foreign countries by now[3] in indices of Scopus and WoS. However, Google Scholar indexed the research by PYMNTS described above which presents a calculation of market shares of largest US retailers Walmart and Amazon [17] as at July 2022. According to calculations of the research authors by the 1st quarter of 2022 both companies accumulated around 6.2% of total US population's spendings (–6 p.p. of the estimate indicator for the Russian economy) and 17% in the markets of presence (+3 p.p. above the similar calculation for the Russian economy).

Nevertheless methodology of the research cannot be verified because neither the initial data, nor the way of calculation have been released to the public. For this reason we do not compare below dynamic indices of similar indicators of the US and Russian economy. However, if we assume that the data represents the actual order of magnitude development of platform companies in the USA is characterized, on the one hand, by a smaller number of "ecosystemic" verticals as compared to Russian companies (for example, there are no medical, banking, telecommunications and transport verticals which comprise a significant part of population's expenditures in both countries); on the other hand, by larger positions in the markets of presence, first of all, food and non-food retail markets as well as media and entertainment markets.

Regulatory Aspect

Currently the notion of "ecosystem" is not enshrined in the regulatory framework of the Russian law. At the same time the Central Bank of the Russian Federation is proactive. Since 2020 it consistently advances its own initiatives, offers public discussions and reports aimed at search for

[3] The assertion is valid in September-October 2022.

compromise ecosystem regulation mechanisms[4]. The result of this process was change of requirements to the so-called dead assets on the banks' balance sheet which comprise participation in equity of legal entities with a negative net income for which increased risk limits are established, consequently, which presence on the balance sheet raises the value of the bank's equity decreasing cost-effectiveness of the core business. The governing motive of the regulator is to ensure safeguarding of depositors' assets by introducing risk limits for investments in ecosystems' development on the basis of banking institutions. For this reason a part of ecosystems (Sber and Tinkoff) described above throughout 2022 changes the business ownership structure which is not embodied in the business strategy (apart from rebranding of some assets which, however, is also a result of sanctions regime toughening). Other regulatory authorities, except for the Federal Antimonopoly Service, did not take active norm setting measures. The Antimonopoly Service holds to the existing antitrust practice, i.e. in the legal sense deals of ecosystems do not differ from M&A of other legal entities. In general the regulatory aspect of ecosystems development is at the initial development stage and requires its own research.

At the same time it should be mentioned that FAS, subject to reservations, does not prohibit consolidation of certain markets to ecosystems (for example, purchase by Yandex. Taxi of call centers of its competitor Vezet or purchase by Sber of e-commerce of Goods renamed afterwards into SberMegaMarket).

Conclusions

Our research provides the following conclusions:

1) The aggregate financial result of ecosystems increases by 11.64% per a quarter; while the market share of ecosystems in the markets of presence grows by 0.61 p.p. per a quarter, in all markets – by 0.53 p.p. As long as the rate of change of population's expenditures in all markets it somewhat lower than in the markets of ecosystems' presence (143.79 against 122.5% based on index points) we can make the conclusions that ecosystems are more successful in getting into occupied markets.
2) The index of population's expenditures in the markets of ecosystems' presence for 2018–2021 is by 21 p.p. higher than growth of the general index of population's expenditures. This calculation confirms the assumption offered in paragraph 4 of formal features of ecosystems: revenue of ecosystem companies in the medium term overtakes dynamics of retail expenditures in the economy.
3) Influence of regulatory innovations is still to be evaluated: ecosystems of the Russian Federation have not been ordained to divide (as, for example, in PRC the government made Alibaba sell its media assets and Tencent had to choose not to make investments in games), change of risk sensitive limits is imposed by the CB of the RF only since 2023. Otherwise speaking the regulatory cap of consolidation of certain sectors has not been determined.

Ecosystem verticals are still not represented in the alcohol and tobacco markets, construction material, heating, housing and communal services markets. Entering the first two markets is hardly likely because not a single legislative initiative of distance selling of these excise duty products was supported on a routine basis. The housing and communal services market is a relatively low-margin one and over-regulated to a certain degree, i.e. economic costs, in all likelihood, exceed the potential profit. However, the construction material market despite the fact that it does not provide daily living needs may in the medium term be covered by ecosystem verticals: some ecosystems have their own subsidiaries in the construction sector and they may be a staging area for entering a new market.

The research did not address the issue of comparing the growth rates of ecosystems and other drivers of consumer spendings. In spite of the fact that population's expenditures in "ecosystem" markets grow quicker than in the markets without ecosystem verticals it is necessary to justify the reasons of this phenomenon with deliberate care. This may be subject for further studies of this topic.

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Appendices

Appendix 1

Table A1. Revenue / turnover of ecosystems and the main macroeconomic indicators

Period	Total amount of population's expenditures, tln. RUB	Index of general population's expenditures, %	Population's expenditures in the markets of ecosystems' presence, tln. RUB	Index of population's expenditures in the markets of ecosystems' presence, %	Ecosystems' revenue, bln RUB	Index of revenue/turnover of ecosystems, %	Amount of revenue / turnover of advanced ecosystems, bln RUB	Amount of revenue / turnover of emerging ecosystems, bln RUB	GDP, tln. RUB	GDP index, %
1 qu. 2018	11 220.62945	100.00	7787.116839	100.00	404.204	100.00	271.63	132.574	22 474.5	100.00
2 qu. 2018	12 552.60467	111.87	8372.587313	107.52	430.0602	106.40	289.2972	140.763	24 969.8	111.10
3 qu. 2018	12 612.2912	112.40	8369.89941	107.48	479.9596	118.74	312.3416	167.618	27 196.8	121.01
4 qu. 2018	15 062.7745	134.24	10 741.96341	137.95	529.881	131.09	334.004	195.877	29 220.6	130.02
1 qu. 2019	11 654.84594	103.87	8107.283805	104.11	536.5795248	132.75	357.3845248	179.195	24 552.1	109.24
2 qu. 2019	13 322.94976	118.74	9125.554279	117.19	581.3570363	143.83	387.3120363	194.045	26 567.5	118.21
3 qu. 2019	13 526.35358	120.55	9206.080922	118.22	648.2943478	160.39	432.8693478	215.425	28 245.5	125.68
4 qu. 2019	15 966.49915	142.30	10 747.19639	138.01	725.4816018	179.48	482.4976018	242.984	29 876.4	132.93
1 qu. 2020	13 370.00646	119.16	10 968.99926	140.86	798.1045664	197.45	541.2095664	256.895	24 756.7	110.15
2 qu. 2020	10 875.97296	96.93	8475.388861	108.84	853.8233894	211.24	571.8973894	281.926	23 661.9	105.28
3 qu. 2020	13 818.16405	123.15	11 197.69563	143.80	982.5560796	243.08	682.5020796	300.054	27 580.8	122.72
4 qu. 2020	15 050.9099	134.14	12 072.52992	155.03	1166.701504	288.64	802.1295044	364.572	30 968	137.79
1 qu. 2021	13 745.53347	122.50	11 197.06321	143.79	1256.207	310.79	895.623	360.584	26 771	119.12
2 qu. 2021	14 975.20596	133.46	12 072.42033	155.03	1414.463	349.94	1005.786	408.677		
3 qu. 2021	16 124.499	143.70	13 080.11597	167.97	1653.43	409.06	1163.804	489.626		
4 qu. 2021	17 240.1382	153.65	13 852.1616	177.89	2071.078	512.38	1415.923	655.155		

Appendix 2

Table A2. General structure of household spendings

Spendings	Group of spendings	Are ecosystems present in the market?	Average share of spendings in 2018-2021, %
I. Consumer spendings	Purchase of goods	Yes	59.2
I. Consumer spendings	Payment for services	Yes	17.6
I. Consumer spendings	Payments abroad for goods and services	Yes	2.9
II. Compulsory payments and various contributions	Taxes and levies	No	6.7
II. Compulsory payments and various contributions	Insurance payments	Yes	1.0
II. Compulsory payments and various contributions	Contributions to public and cooperative organizations	No	0.4
II. Compulsory payments and various contributions	Interest paid by the population for loans (including foreign currency loans) granted by credit institution	Yes	3.5
III. Other expenditures	-	Yes	2.7
IV. Savings	-	-	6

Appendix 3

Table A3. Structure of consumption household spendings

Group of consumption spendings for:	Subgroup of consumption spendings for:	Are ecosystems present in the market?	Average share of spendings in 2018-2021, %
products for table food	-	Yes	32.8
meals out of home	-	Yes	2.2
spirits	-	No	1.7
non-food goods	clothes, shoes, underclothes and fabrics	Yes	7.1
non-food goods	information and communication equipment	Yes	1.8
non-food goods	recreational, sports goods and goods for cultural events	Yes	1.9
non-food goods	vehicles, accessories and petrol, oil, and lubricants	Yes	11.4
non-food goods	furniture, household equipment, homecare goods	Yes	5.2
non-food goods	construction materials	No	1.0
non-food goods	fuel for heating and home lighting	No	0.2
non-food goods	tobacco	No	1.5
non-food goods	medicines, medical and pharmaceutical products	Yes	4.2
non-food goods	personal care products and other non-food products	Yes	2.6
payment for services	housing and utilities services	No	10.3
payment for services	consumer services	Yes	2.1
payment for services	services of recreation and cultural events organization	Yes	2.9
payment for services	educational services	Yes	1.5
payment for services	medical services	Yes	1.7
payment for services	services of destination spa with medical services and health services	No (excluded from medical services)	0.2
payment for services	transportation, postal and courier services	Yes	2.7
payment for services	information and communication services	Yes	2.8
payment for services	hotel services and other accommodation services	Yes	0.4
payment for services	other services	Yes	2.7
Mean value			80.6

Appendix 4

Table A4. Financial results of ecosystems: estimate values and values from IFRS

bln RUB	1 qu. 2018	2 qu. 2018	3 qu. 2018	4 qu. 2018	1 qu. 2019	2 qu. 2019	3 qu. 2019	4 qu. 2019	1 qu. 2020	2 qu. 2020	3 qu. 2020	4 qu. 2020	1 qu. 2021	2 qu. 2021	3 qu. 2021	4 qu. 2021	1 qu. 2022
Yandex																	
Yandex taxi (turnover/ GMV)	31.00	41.00	51.00	68.20	76.40	88.10	117.80	144.90	89.29	64.25	108.89	121.16	119.40	161.84	185.22	212.47	167.418
Yandex Market (GMV)						3.81	4.45	7.40	7.83	7.20	6.91	8.66	24.49	35.14	41.83	58.77	64.58
Sber																	
Sber Ecom (GMV)					0.02	0.05	0.08	0.15	0.50	2.15	3.80	7.00	15.10	19.70	28.10	55.30	65.00
Sber Entertainment (revenue)					0.30	0.44	0.50	0.66	1.30	1.68	2.05	2.43	2.80	3.00	4.70	3.90	4.40
SberEapteka (GMV)					0.70	1.30	1.50	2.20	2.00	2.40	2.80	3.80	3.50	3.80	4.10	4.40	4.20
Sber (O2O, GMV)					0.97	1.09	1.20	1.74	20.20	24.50	30.80	40.00	40.60	45.10	48.10	53.40	56.30
Sber (com. income from individual persons)	53.50	53.50	53.50	53.50	54.00	54.00	54.00	54.00	53.10	55.10	55.10	55.00	53.50	64.00	68.40	70.00	69.00
Sber (interest income from loans to individual persons)	181.00	189.00	202.00	206.00	206.00	217.00	225.00	243.00	243.00	245.00	253.00	263.00	263.00	276.00	297.20	320.00	320.00
VK																	
VK (mmo games share in the RF)	1.35	1.36	1.55	1.40	1.46	1.76	5.80	2.26	2.39	2.86	2.48	2.55	2.31	2.89	2.32	3.13	2.99
VK (IVAS)	3.84	3.45	3.02	3.58	3.72	3.90	3.95	4.19	4.52	4.46	4.11	5.12	4.89	4.53	4.43	4.54	4.89
VK (other revenew)	0.94	0.99	1.27	1.32	1.34	1.50	2.35	2.29	1.70	2.34	2.35	4.16	2.25	2.53	2.33	3.39	2.25
VK (AliExpressRussia, GMV)					11.50	13.27	15.04	17.96	48.67	52.21	58.41	69.91	59.00	63.00	70.30	113.70	100.00
VK (O2O, GMV)					0.97	1.09	1.20	1.74	20.20	24.50	30.80	40.00	40.60	45.10	48.10	53.40	56.30
Tinkoff																	
Tinkoff (revenue)	24.26	25.49	27.36	32.11	32.42	37.16	38.79	37.56	40.98	43.37	42.74	45.3	49.93	57.45	63.16	70.00	74.00
Tinkoff (SME)	1.77	2.11	2.58	2.99	2.70	2.93	3.21	2.31	2.64	3.50	4.02	2.59	3.35	4.09	5.23	6.50	7.00
Tinkoff (acquiring)	0.83	0.89	0.97	1.30	1.42	1.47	1.40	3.63	2.12	1.37	1.54	5.05	3.69	5.15	6.30	7.50	6.40
Tinkoff mobile	0.02	0.05	0.07	0.10	0.20	0.25	0.30	0.39	0.35	0.41	0.60	0.83	1.00	1.20	1.40	1.60	1.80
Ozon																	
Ozon (GMV)	6.53	7.44	10.22	17.71	14.70	15.90	19.50	30.70	31.60	45.80	44.20	75.80	74.20	89.00	108.29	176.81	177.45

bln RUB	1 qu. 2018	2 qu. 2018	3 qu. 2018	4 qu. 2018	1 qu. 2019	2 qu. 2019	3 qu. 2019	4 qu. 2019	1 qu. 2020	2 qu. 2020	3 qu. 2020	4 qu. 2020	1 qu. 2021	2 qu. 2021	3 qu. 2021	4 qu. 2021	1 qu. 2022
MTS																	
MTS (revenue)	99.90	105.53	116.93	120.50	108.65	113.46	121.35	123.54	116.01	114.78	125.81	131.88	120.80	127.03	136.44	140.10	130.00
MTS (fixed line)	15.03	15.15	14.86	15.26	15.05	14.97	14.96	15.03	15.26	15.75	15.21	15.84	15.93	16.37	18.88	20.00	20.00
MTS (bank's revenue)			5.55	6.30	6.30	6.85	7.64	9.04	8.33	8.01	8.83	9.27	9.82	11.44	12.45	14.00	14.50
MTS (bank: interest income)			4.00	4.20	4.20	4.40	4.80	5.20	5.51	5.57	5.60	5.50	5.50	6.37	7.40	8.50	8.50
MTS (bank: fee income: settlement operations)			0.10	0.20	0.20	0.20	0.20	0.50	0.33	0.22	0.30	0.30	0.24	0.26	0.24	0.28	0.26
MTS (bank: fee income: cash transactions using plastic card)			0.10	0.30	0.20	0.20	0.20	0.20	0.28	0.20	0.20	0.30	0.40	0.62	0.74	0.85	0.95
MTS (bank: fee income: bank cards servicing)			0.40	0.20	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.20	0.22	0.22	0.22
Wildberries																	
Wildberries (GMV)	19.50	20.40	32.40	46.40	43.90	48.60	57.30	74.70	90.00	100.00	110.00	137.20	139.40	163.6	214.60	304.80	288.60
Upper limit (tolerance)																	
Sber (wealth management and brokerage services)	30.10	30.10	30.20	30.20	31.50	32.80	33.50	36.10	31.20	16.50	26.90	23.00	29.50	36.20	43.90		
Sber (risk insurance)	25.10	25.20	25.20	25.20	25.70	25.80	26.40	26.60	24.90	20.00	25.00	24.60	24.20	31.00	35.80		
MTC (fixed line)	15.03	15.15	14.86	15.26	15.05	14.97	14.96	15.03	15.26	15.75	15.21	15.84	15.93	16.37	18.88		

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