

## THE PLATFORMISATION OF ORDINARY ANTIQUES

### Business Model Typology & Information Asymmetries in the Lowest End of the Contemporary Art Market

**Alessia Crotta**

[alessia.crotta@ulb.be](mailto:alessia.crotta@ulb.be)

PhD, Université Libre de Bruxelles

**Anne-Sophie Radermecker,**

[anne-sophie.radermecker@ulb.be](mailto:anne-sophie.radermecker@ulb.be)

Prof / Dr. Université Libre de Bruxelles

Alessia Crotta is a PhD candidate at Université Libre de Bruxelles, as part of the ERC Starting Grant project MOOVA - Making Old Objects Valuable Again. With a background in cultural economics and lecturing experience in art markets, her research explores antique markets and the contemporary value of ordinary antiques.

Anne-Sophie Radermecker is Associate Professor in Cultural Management and teaches cultural economics at the Master Program. Her research interests art markets studies, the consumption of cultural goods, authenticity in the arts and quantitative art history. In 2023, she obtained the ERC starting grant for MOOVA- Making Old Objects Valuable Again.

#### ABSTRACT

In the contemporary art market, ordinary antiques are generally out of fashion and exchanged through informal channels, unless inherited, gifted, or discarded. However, online platforms such as Invaluable, Catawiki, and 1st Dibs have expanded the avenues for trading antiques, challenging traditional methods and market dynamics. This paper explores *how the business models of online antiques platforms address information asymmetries*, focusing on Belgium, France, Italy, the Netherlands, and the UK.

The study characterizes this market segment and its evolution through platformisation, classifying 57 antiques platforms using the Business Model Canvas (BMC) (Osterwalder, 2004). A two-step cluster analysis of the BMC with information-asymmetry-related variables as evaluation fields proposes a business model classification and addresses how these models handle information problems.

Results show that platforms can be classified by their level of specialization, with more selective platforms reducing information asymmetries and resembling traditional art market dynamics between intermediaries and buyers.

**Keywords:** Ordinary Antiques, Platformisation, Business Model, Contemporary Antiques Market

## Introduction

When thinking about the art market, one thinks of the ten-figure-sales of the Picasso's, the Basquiat's and the Monet's, and of artists of the calibre of Hirst, Hockney and Murakami. The art market is portrayed as a hardly predicable, financially unstable yet fascinating environment reserved for the wealthy with high cultural and financial capital. However, to which extent is this market really made of million-dollar interactions and high-end art? What about the decorative objects that furnish our everyday lives? The old paintings we inherited, the vintage lamps bought at flea markets and the old furniture sold on Facebook the last time we moved?

The art market is segmented into high-, middle-, and low-end, the last of which deals with objects valued up to \$50,000. According to the most recent Art Market Report, however, 86% of art market transactions in 2023 were worth below \$50,000 (McAndrews, 2024), with antiques being priced on average \$18.500 (Halperin, 2024). Hence, despite the attention-grabbing sales, the majority of the art market takes place in a reachable and ordinary environment, for objects that include paintings but also collectibles and antiques<sup>1</sup>. whether fine or ordinary, antiques are generally part of the conventional lowest end of the market. Moreover, this market segment is also increasingly located online, where nearly 95% of transactions occur (McAndrews, 2024). This raises questions about how this market works, especially for objects that are typically sold through the brick-and-mortar model. In a market typically defined by information asymmetries, what role do platforms play? How do they engage in these information games?

With the emergence of platforms such as Invaluable, Catawiki and 1<sup>st</sup> Dibs, which offer an opportunity for less reputable players to join the market and for information to be more easily shared, exploring the lowest-end, online art market reveals itself as a valuable opportunity. Hence, this research employs a two-step cluster analysis to investigate *how the business models employed by platforms in the antiques online market engage with the information asymmetries typical of the art market.*

The scope of the research is a twofold: first, it aims to propose a business-model classification for platforms in the antiques market. Second, it looks at the way information asymmetries are distributed in these business models. The chosen research method allows the grouping of the final dataset of platforms into separate clusters, generating business model classification that can be addressed for its engagement with information asymmetries. Considering the geographical proliferation and historical development of the antiques market, the research focuses on platforms operating in the markets of Belgium, France, Italy, The Netherlands and the UK.

Researching the antiques market is a relevant matter, especially from an economics and business perspective. Whilst most research has approached the topic from a sociological, anthropological or historical perspective, economic studies focus on higher market segments (Radermecker, 2022; Radermecker & Alvarez de Toledo, 2022) or on the informal, gig economy (Ayres, 2022). Sociological contributions range from studies investigating decorative goods (Moulin, 1967) to analyses on the role of antique dealers, their poetry-like narratives (Makovicky, 2018) and their influence on the generation of knowledge (Conrad, 2015). Finally, others focus on historical modes of production and the formal, material and aesthetic characteristics of antiques (Rosenstein, 1987,2009). The few studies on antiques markets concern their earlier development (Bogdanova, 2011; Westgarth, 2020), and are highlighted from a historical and less contemporary perspective.

Looking into antiques in the context of platformisation, the few existing sources unveil contrasting perspectives: some scholars argue that online sales diminish the investment value of antiques, and undermine the established dynamics of a market that heavily relies on information asymmetries (Highfill and O'Brien, 2007; Makovicky, 2018). Others explore the possibility that platforms provide an opportunity for the antiques market to proliferate and favour their economic sustainability (Radermecker, 2022). Along its academic urgency, this research could prove useful for existing

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<sup>1</sup> According to the Art Market Report, Decorative art, antiques, and antiquities are inclusive of objects such as 'furniture and decorations (in glass, wood, stone, ceramic, metal, or other material), couture (costumes and jewellery), ephemera, textiles, other antiques, and antiquities' (McAndrews 2024, p.243). According to The Intelligence Report, the 'Decorative Arts Category includes design objects, furniture, jewellery, watches, and more' (Halperin, 2024).

platforms to develop innovative business models and competitive strategies, as well as for dealers, buyers and collectors to obtain an initial sense on how to navigate this market.

### **From High Art to Ordinary Antiques: An Overview of the Market**

Analysing the art and antiques market is a complex task that, although many scholars have embarked on, still requires and attracts attention. The market for art has been categorised by some salient characteristics that explain, at least in part, its cloudy dynamics and complex setting. First, art presents experience and credence goods characteristics, which make quality difficult to assess before consumption, or at times impossible to determine even after (Velthuis, 2011). This quality uncertainty generates price implications, with scarcity playing a crucial role in price determination, creating a market that is heavily demand-driven (Bogdanova, 2011). Cultural economists define quality (and price) uncertainties as typical of markets with information asymmetries.

Formally proposed as a concept by Akerlof (1970), information asymmetries represent situations in which one side of the market – usually supply - has access to a higher level of information than the other on the goods exchanged. This creates incentives for opportunistic behaviour on the side of the more informed market player. As a solution to this problem, it becomes essential to recognise quality signals and communicate valuable information that can build trust among market participants. In the art market, the most important quality signals relate to the authenticity of the artwork, the reputation of the artist, the provenance of the artwork, and the reputation of intermediaries (Velthuis, 2011). These elements hence act as price determinants when transactions are made (Bogdanova, 2011). Considering the placement of antiques within the lowest end of the art markets, it is relevant to question how information asymmetries manifest and explore the solutions that the traditional side of market proposes, before looking at how the online side acts.

Antiques include, according to LAPADA's<sup>2</sup> definition, 'antiquities, architectural and garden items, books and maps, ceramics, clocks and barometers, coins, banknotes and medals, collectibles, furniture, glass, jewellery and watches, lighting, rugs, carpets and textiles, silver, tribal and ethnographical art (...)' which were made in a past epoch whose distance from the present is still widely debated (Bogdanova, 2011, Rosenstein, 2009). Agedness aside, the variety of objects in the category arguably presents a wide variety of functions that include, but are not limited to, the decorative purpose typical of art. Specifically, not only do these objects contain an experience and credence good character, but they also manifest a utilitarian feature (Radermecker, 2022). This may be the cause of the lower availability of information on these objects' provenance: as they were originally made with a functional and use purpose, they were possibly prevented from displaying their history of ownership (Radermecker, 2022, Bogdanova, 2011). This characteristic, in addition to the lower economic value of antiques, may lower the incentives of market players to bare the information costs related to these objects. Together with provenance, authenticity seems problematic too: differently than the visual arts, antiques are more often tied to an epoch or style rather than an individual artist (Radermecker, 2022). Therefore, information on the authenticity of the artwork and the reputation of the artist is also more challenging to assess, and requires highly specialised cognitive skills (Radermecker, 2022). Overall, looking into antiques and the lower end of the art market, the problem of information asymmetries magnifies, especially due to the lower availability of quality signals related to provenance, authenticity, and reputation.

The greater lack of consensus on these object's quality in combination with consumers' desire of acquiring them places a higher importance on the presence of intermediaries and their reputation (Bogdanova, 2011). This is manifested in the business models composing the market, typically characterised by physical interactions with antique dealers and brick-and-mortar sales (Radermecker, 2022). Intermediaries, and particularly dealers, are discussed in a wide variety of literature: according to Parsons (2010), they possess extensive knowledge functional to market dynamics, a role that Combs (2003) extends to generating information that will perpetrate to future generations. Makovicky (2018)

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<sup>2</sup> UK's Largest Association of Art & Antiques Dealers. See <https://lapada.org/> for the definition

underlines the significance of the *poetry of antiques* to illustrate how intermediaries create a narrative and aesthetic value around objects.

The nature of relationships between market participants also varies, revealing intricate relational dynamics that shape the market. Relationships with antiques dealers tend to be trust-based and long-term, but short-term interactions in the market exist too, especially in second-hand shops and flea markets (Makovicky, 2018; Roster & Rogers, 2016). In the lowest market, it can be argued that information asymmetries will be the highest, touching the levels of *symmetrical ignorance* (Caves, 2000), but also that buyers – or sellers – will have the lowest incentives to uncover product information due to their higher cost. In contrast, antiques exchanged through dealers will incorporate in their price the cultural capital that the intermediary had to gain in order to become a reputable source of quality signal in the market, and hence will be part of a slightly higher segment of the market.

### **Virtually Antique: The Rise of Platforms & Most Contemporary Turns of the Antiques Market**

With the traditional antiques market structure relying on interpersonal relationships and the presence of intermediaries, the emergence of platforms poses questions on the ways in which the market will respond. While specific research on the rise of platforms in the antiques market is lacking, platforms are increasingly present in the market online, also for antiques (Radermecker, 2022). Some, such as Amazon or Facebook Marketplace, were originally created for the exchange of any product, possibly including antiques, while others, such as Drouot.com, originated directly from existing art market players, to arguably extend revenue streams and remain up to date with the current times. The rise of platforms is an increasingly noticeable phenomenon, as online-only sales have reached an estimated \$11.8 billion in 2024, which, doubling in size from 2019, point at the online market as one worth looking into (McAndrews, 2024).

Despite lack of in-depth studies on the platformisation of antiques, some information can be derived from literature on the definition of platforms and implications that the traditional market will face with a more democratised access to it. As Parker et al. (2016) define them, platforms are ‘online businesses that create value by facilitating exchanges between two or more interdependent groups, usually consumers and producers’. In the case of antiques, as production dates back by several years or centuries, the producers’ side will include dealers, but also extend to collectors and generic browsers (Michael, 2002). As platforms offer a place in which antiques can be exchanged at lower transaction costs, they appear as an appealing model especially for the lower end of the art market (Lee & Lee, 2019). On a demand level, the lower transaction costs combined with less problematic geographical constraints and a less intimidating and elitist atmosphere will attract new collectors from a wider range of socioeconomic upbringings (Brodie, 2015; Lee & Lee, 2019). On a supply level, platformisation has lowered the entry barriers not only in terms of transaction costs, but also in terms of expertise and cultural capital (Brodie, 2017a; 2017b).

The implications of this phenomenon for established intermediaries seem contrasting: on the one hand, dealers could benefit from a wider pool of potential and interested buyers (Hou & Blodgett, 2010). Lee & Lee (2019), in a study that looks at user participation in the platform Saatchi Art, emphasise that many online buyers declared to have never purchased artworks in person. On the other hand, legitimised intermediaries may feel threatened by the higher competition on the supply side, but also by the increase in transparency in the market and the proliferation of potentially false information (Roster & Roger, 2016; Makovicky, 2018).

In practice, platforms and digital technologies are argued to innovate business models, not only in art markets but also in the creative industries in general. In a paper that analyses how business models have been impacted by digital technologies, Li (2020) employs the Business Model Canvas (BMC) (Osterwalder, 2004; Osterwalder & Pigneur, 2010) to show the automation, extension and transformation of business models impacted by digitalisation in the creative industries. In the antiques market, although research on the business models generated by platforms is lacking, platformisation and digitalisation are generally argued to work against the traditional brick-and-mortar model

(Radermecker, 2022). However, it is also possible that legitimised dealers, such as Drouot or Saatchi Art, have accepted and adapted to the platformised market by taking part in it. In reference to Saatchi Art, where artists are the sellers, Lee and Lee (2019) suggest that, together with prioritising ease of use, platforms can legitimise themselves by reassuring that the art market's 'situational normality' is maintained, i.e. by making a curatorial-like selection of their objects and artists (p.7). Therefore, it can be argued that the role of intermediaries in shaping knowledge and lowering asymmetries still persists in the online market.

In relation to the present research, it can be expected that the business models of platforms will be inherently tied to the platforms' approach to the issue of asymmetric information. Platforms making curatorial selections are expected to lower information asymmetries in the market, whereas platforms whose priority will focus on accessibility and ease of use are expected to display higher information asymmetries.

### Data and Methodology

To draft a business model typology on platforms, it was essential to first clarify the selection criteria through for platforms. The definition of platform employed in this research departs from by Parker's et al. (2016) and extends to the conceptualisation of marketplace offered by Täuscher & Laudien (2017). In line with Täuscher & Laudien (2017), platforms will need to adhere to the following criteria:

1. Connect independent users from the demand and supply side;
2. Users interact with each other directly through the platform to initiate commercial transactions;
3. The platform provides an institutional and regulatory frame for transactions;
4. The platform does not produce or trade goods or services itself.

Once labelled as platform, the website also had to provide antiques among the objects for sale. Platforms would either need to present an object category containing the term 'antique' (not applied to visual arts) or dispose of objects described as antiques by the seller.

The research employed a VPN to geolocate the searches in Belgium, France, Italy, The Netherlands and the UK, selected two search-terms in the official languages of said countries and a third term in English, which was employed in all searches<sup>3</sup>. This method was designed to offer a thorough overview of the active platforms in the selected antiques market, and to simulate the research outcome of a potential user. As the first 100 results of the Google searches were collected for each search-term, the initial dataset contained 1600 website links. The websites were then explored and classified as *Platforms*, *Bricks-and-clicks*<sup>4</sup>, *Brick-and-mortars* with online windows or *Other*<sup>5</sup>. The platforms were 274, which, after excluding repetitions, resulted in a total of 100 websites, 57 of which appeared in at least two country searches.

With reference to Li's (2020) analysis, the present research then applied the BMC classification to collect data on the 57 platforms considered. The empirical operationalisation was guided by the BMC features as described by Osterwalder (2004)<sup>6</sup>. The data collection focused on the nine building blocks of the BMC, namely the value proposition, key activities and resources, key partners and channels, main customer segments, relationship types, cost structure and revenue streams. The building blocks have been collected by generating 21 variables, whose names and possible categories are listed in the table below. Most of the characteristics related to the nine building blocks were created as categorical variables, with the exception of *V6* and *V8*.

<sup>3</sup> The search terms employed were 'plateformes de vente d'antiquités' and 'acheter antiquités en ligne' for the searches geolocated in France, 'platforms die antiek verkopen' and 'online antiek kopen' for The Netherlands, 'piattaforme di vendita antiquariato' and 'comprare antiquariato online' for Italy, 'platforms selling antiques' and 'buy antiques online' for the United Kingdom, and the same search terms used for France and for The Netherlands for Belgium.

<sup>4</sup> A company that offers a physical store as well as an online one

<sup>5</sup> The category includes blogs or magazine articles

<sup>6</sup> See Appendix 1 for BMC outlook

KEY PARTNERS (V1, V2)		KEY ACTIVITIES (V3, V4)	VALUE PROPOSITION (V8 to V13)	CUSTOMER RELATIONSHIPS (V14 to 16)		CUSTOMER SEGMENTS (V18, V19)	
<b>V1 By Type:</b> Buyer-Supplier, Supplier-Buyer	<b>V2 By Stakeholder:</b> Transaction Services; Delivery Services; Professional Sellers, Auction Houses, Dealers, Antique Dealers	<b>V3 User Selection:</b> User Registration, User Certification, Generic Seller Selection, Product Selection, Auction House Selection, Dealer Selection <b>V4 Sale:</b> Sale setup, Sale Organisation, Auction Participation, Auction Organisation	<b>V8 Product Categories Number</b> <b>V9 Product Categories Type:</b> Generic Objects, Interiors, Art & More, Decorative& Collectibles, Core Antiques <b>V10 Platform Function:</b> Auction, Direct Sale, Bargaining, Contact for Sale, Sale on other website, Auction aggregation with bidding. <b>V11 Database Function:</b> Auctions, Antique stores, Fairs database, Antiques Galleries, (Auction) Prices <b>V12 Media Content:</b> Blog, Magazine <b>V13 Other:</b> Valuation Service, Website Design, Custom Software development	<b>DEMAND</b> <b>V14 Buyers Trust:</b> Low, Medium, High <b>V15 Price Disclosure:</b> Price Discrimination; Low Price Transparency; Price Transparency; Price Advantages	<b>SUPPLY</b> <b>V16 Seller's Engagement:</b> Occasional; Personal Assistance; Long Term	<b>DEMAND V18</b> Generic Buyer; Expert Buyer.	<b>SUPPLY V19</b> Generic User, Generic Seller, Professional Seller, Auction House, Dealer, Antique Dealer
<b>KEY RESOURCES (V5 to V7)</b>				<b>CHANNELS (V17)</b>			
<b>V5 Physical:</b> Office space; Transportation means <b>V6 Human:</b> number of employees in executive roles <b>V7 Intellectual:</b> cultural; product-related; network-related.				Website; App; Social Media			
<b>COST STRUCTURE (V20, V21)</b>				<b>REVENUE STREAMS (V22)</b>			
<b>V20 Product Information Costs:</b> None, Low, Medium, High, Maximum				Commission on sale for both parties, Commission on sale for seller, Subscription or membership fee for seller, Advertising for seller, Other sources of revenue			
<b>V21 Other Costs:</b> Transaction, Delivery, Other, None.							

Table 1 Business Model Canvas Operationalised<sup>7</sup>

To provide for an overview of the platforms, other information was collected in addition to the BMC framework. This information ranges from the year of foundation of the company to the location of its headquarters, its mission, ‘about us’ statement and core values. The collected data also indicated the platform’s product categories and whether antiques were defined. Finally, data about information asymmetries on the platforms was collected. Compatibly with the solutions discussed by Akerlof (1970) and Velthuis (2011) to asymmetric information in the market, this data concerns users reviews on the platform or other users, the availability of experts offered by the platform, the platforms’ selection process towards users or objects, and additional information for the buyers and sellers to prove the platform’s reliability. The data was then coded into five categorical variables specified in the table below.

Reviews (IA-V1)	Expert Figure (IA-V2)	Product or User Selection (IA-V3)	Additional Information for Buyers (IA-V4)	Additional Information for Sellers (IA-V5)
Reviews on Sellers with Stars and Comments, Reviews on Platform, Membership Year of Sellers, Seller’s Website Directly Linked, Seller’s Direct Contact, None	Not mentioned, None, Expert to support sale, Expert valuers, Expert for object selection, Expert for professional seller selection, Auctioneer	No Selection, Object Selection, Generic Seller Selection, Professional Seller Selection, Auction House Selection	None, Generic Information on the Buying Process, Instructions on How to Spot a Scam, Emphasis on Transaction Security and Data Protection; Reassurance on Seller’s Reliability	None, Not Before Registration, Generic Guidelines and Rules, Set by Platform, Instructions for Use, Instructions for Marketing, Curation and Expert Advice, Instruction on photos, communication, curation, pricing.

Table 2 Information Asymmetry Variables

It is important to acknowledge that some data collection error is possible, as platforms present display information in different ways and provide for unequal details on business operations and collaborations. The data collected is limited to the information publicly disclosed by the companies on their website before creating an account. Because the focus of the research is to understand how the companies themselves deal with transparency issues, additional websites were employed only to look for the companies’ foundation date and headquarters. Moreover, as the study targets platforms and not users, it was impossible to collect direct information on the objects outside of the object categories listed and admitted sellers on the website.

Looking at previous research, a few studies emerge for their employment of cluster analysis to examine business models, even though in different sectors. Setyaningsih (2012) employs cluster analysis to visualise the pattern of growth and strategies developed by small and medium enterprises. Leask and Parker (2007) explore the existence and performance of strategic groups in the pharmaceutical industry in the United Kingdom. Urban et al. (2018) determine airline clusters with the objective of facilitating a more thorough analysis of business models in the sector. Finally, Täuscher & Laudien (2017) research

<sup>7</sup> The variables in grey have been collected but not used for the analysis, as they were not present thoroughly for most platforms or they were the same most platforms

business model types using cluster analysis on marketplaces that are popular online such as Airbnb or Uber. The last two mentioned researches also use some sections of the BMC to classify business models within their sample. Because of their definition of business models, their methodological closeness and the compatible dataset size, they represent a methodological reference for this research. The method consists in a two-step cluster analysis of the business models operating in the antiques platforms, with the information asymmetry variables as evaluation fields.

Cluster analysis is a statistical method used to categorise different cases of a dataset into similar sets or groups based on the common characteristics that these groups display (Kaufman & Rousseeuw, 1990; Ketchen & Shook, 1996); it consists in a multivariate technique whose primary purpose is to group cases according to the common features that they possess (Setyaningsih, 2012). The method, employed in disciplines ranging from psychology to biology, engineering and business, can assume several names, such as Q analysis, typology construction and classification analysis (Setyaningsih, 2012). Although many types of cluster analysis exist, two-step cluster analysis is the only clustering method in which the mutual engagement of categorical and numeric variables is possible (Urban et al., 2018). With data displaying mainly qualitative characteristics, this clustering method has been considered the most suited for the analysis.

### Analysis & Discussion

On average, platforms in the dataset have been founded around 2008, with the most recent being created in 2021 and the most dated in 1995. In terms of institutional locations, the most common one is the United States, which hosts 18 of the platforms' headquarters, almost a third of the total. The most popular city in the USA is New York, with five platforms headquarters, although the remaining headquarters are relatively spread across the country. The second most popular country is the United Kingdom, with 13 platforms, five of which are based in London. Finally, the most popular city to host platforms headquarters is Paris, with six companies located there.

When looking at the distribution of some of BMC variables, the degree of specialisation of platforms can already be noticed. In terms of object selections, platforms range from generic objects to interiors, art and core antiques (*Table 3*), with interiors being the most popular category. In terms of selection of sellers, platforms mostly deal with generic sellers or users<sup>8</sup>, although some of them select professional sellers<sup>9</sup>, auction houses and dealers (*Table 4*). Finally, even before looking into the distribution of the information asymmetry variables, it is possible to see user-selection as one of the key activities of the platforms (*Table 5*). Within this activity, it is possible to distinguish platforms with a more generic approach towards users and products selection from those with a specific selection type, accepting only antique dealers or art auctions as sellers. This already points at the expectations of the research: as more informed and legitimised intermediaries are known to decrease the information asymmetries in the market, it seems that the platforms could already be grouped according to their degree of selection towards objects and users, and hence according to their approach towards information asymmetries.

Value Proposition - Categories Type	Frequency	Percent
Generic	13	22,8
Interiors	14	24,6
Art & More	8	14
Collectibles & Decorative	12	21,1
Core Antiques	8	14
<i>Total</i>	<i>57</i>	<i>100</i>

Table 3: Frequency table for Value Proposition – Categories Type

<sup>8</sup> The two are differentiated by the fact that platforms with generic sellers require the approval of the seller's sign-up, while platforms admitting generic users simply require to sign up.

<sup>9</sup> Generally interior-shops owners

Customer Segments - Supply	Frequency	Percent	Key Activities - Seller Selection	Frequency	Percent
Generic User	12	21,1	User Registration	13	22,7
Generis Seller	11	19,3	User Certification	5	8,8
Professional Seller	8	14	Product Selection	6	10,5
Auction House	6	10,5	Professional Seller selection	7	12,3
Dealer	7	12,3	Auction House selection	6	10,5
Antique Dealer	7	12,3	Dealer Selection	7	12,3
Dealer & Generic seller	3	5,3	Antique Dealer Selection	7	12,3
Professional & Generic seller	3	5,3	Professional & Generic Seller Selection	3	5,3
<i>Total</i>	<i>57</i>	<i>100</i>	Dealer & Generic Seller Selection	3	5,3
			<i>Total</i>	<i>57</i>	<i>100</i>

Table 4: Frequency table for Customer Segments – Supply Table 5: Frequency table for Key Activities – Seller Selection

A final interesting element is the definition of antiques that some of the platforms display. The different definitions have been collected into Table 5 and classified according to the typology offered on the platforms’ websites. Interestingly, on the listed platforms, antiques are defined mainly through an object’s date of creation and its distance from the present date. This distance varies from 20 to 50, 100 and up to 300 years. Some websites also define other categories of art objects, such as vintage and contemporary products. Whilst the former tend to be dated between 20 to 100, or 50 to 100 years, contemporary objects are those made 20 years ago at earliest.

Company Name	Antiques Definition	Vintage Definition	Contemporary Definition
Antiques.co.uk	items over 50 years old		
Chairish	pre-18th Century		
Etsy	20 years or older		
Incollect	100+ years		
Love Antiques	100 years old and are rare	50 to 100 years old	
Ruby Lane	100 years (1924) or older	20 years (2004) or older;	Less than 20 years old
Selling Antiques	UK's Trading Standards "Consumer Protection from Unfair Trading Regulations 2008": "there is no uniformly accepted definition of the term 'antique". In general, the definition includes items made in 1930-70		
De Antiek Siite	we have a general rule of thumb for twentieth century objects: the younger the supply, the higher the requirements we set for quality: the historical value , aesthetics, rarity, craftsmanship, etc..		

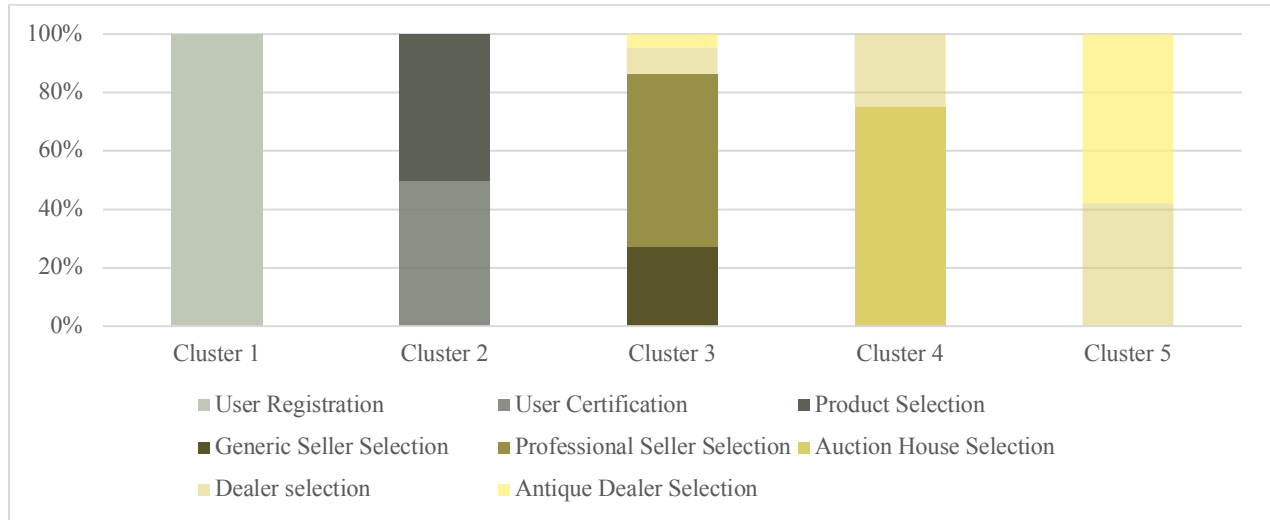
Table 6: Definitions of antiques provided by the platforms

When running the analysis with the variables composing the BMC and the information asymmetry variables as evaluation fields<sup>10</sup>, the platforms are located in five different clusters. Although the cluster silhouette is 0,3, indicating an average cluster strength – probably because of the amount of variables in the BMC – the clusters present clear and representative distinctions. The clusters are made of eight to 14 platforms each, hence present a largest-to-smallest cluster ratio of 1,75, indicating a good

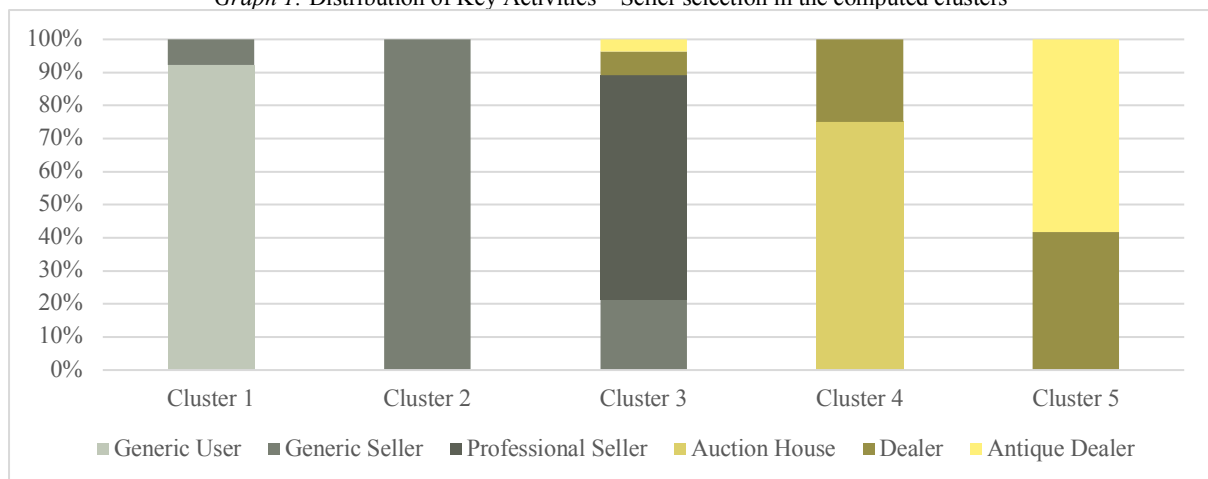
<sup>10</sup> 2-Step Cluster Analysis with the following variables: Value Proposition (1. Number of Categories, 2. Type of Categories, 3. Sale function); 4. Customer Segments; Customer Relationship (5. Buyer’s Trust, 6. Buyer’s Price Advantages, 7. Seller’s Engagement); Resources (8. Human, 9. Intellectual); Key Activities (10. Curation, 11. Sale); Key Partners (12. Type, 13. Stakeholder); Cost Structure (14. Information Costs; 15. Other Costs); 16. Revenue Streams.



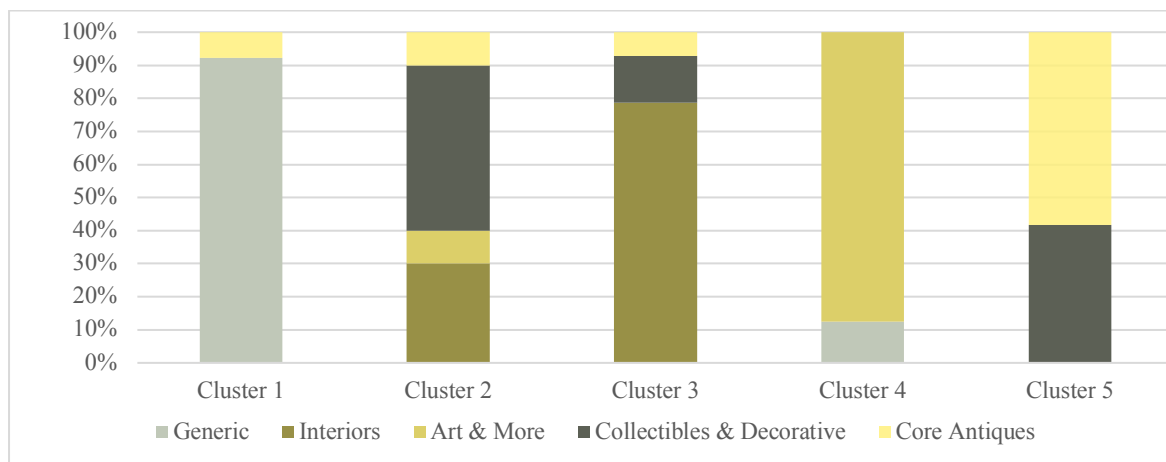
distribution of the platforms in the five groups. In terms of predictors importance, it seems that most variables have been used, although with a varying level of importance. The most relevant variables employed for clustering result as *Key Activity – Seller Selection*, the *Customer Segments – Supply*, and *Value Proposition – Product Categories*, for an average importance of 90%, and for which their within-cluster distribution is illustrated below.



Graph 1: Distribution of Key Activities – Seller selection in the computed clusters



Graph 2: Distribution of Customer Segment – Supply in the computed clusters



Graph 3: Distribution of Value Proposition – Categories Type in the computed clusters

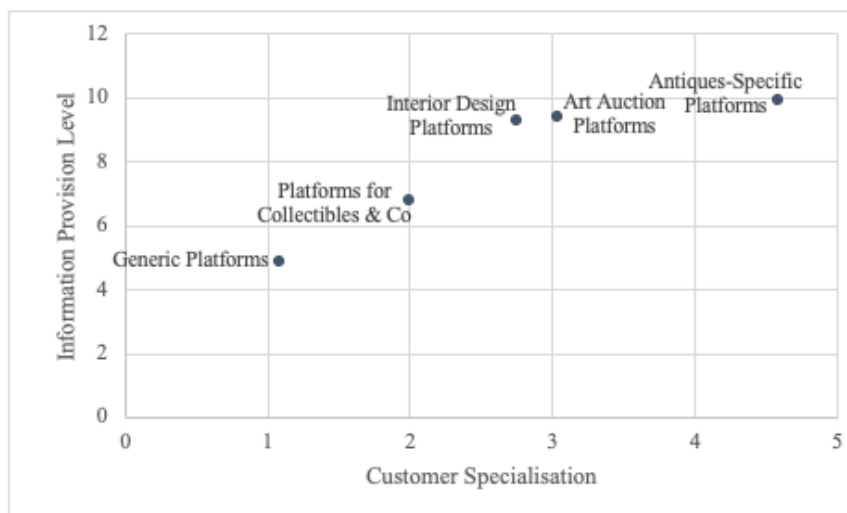
This means that the variables that pointed most straightforwardly at information asymmetry solutions were also the most important determinants in classifying the business model. After a closer look at the clusters, they have been named and listed according to their most salient characteristics in the table below.

Clusters	Platforms	Main Characteristics
<b>1.The "Generic" Platform1</b>	2dehands, Amazon Marketplace, Craigslist, Ebay, Etsy, FacebookMarketplace, Instagram, LeBonCoin, Marktplaats, Subito.it, Vinted, TIAS, TikTok	<ul style="list-style-type: none"> <li>• Large enterprise</li> <li>• Antiques among generic products</li> <li>• No user selection and specialisation</li> <li>• Various means of sale (direct sale, bargaining, contact for sale) and revenue streams</li> <li>• Occasional relationship with users, low trust from buyers</li> <li>• Low product information costs, transaction and distribution costs are more relevant</li> </ul>
<b>2.The Platform for Collectibles &amp; co.</b>	AntiekMarkt, AntiqueBay, Catawiki, Chairish, GoAntiques, ImParlour, Narchie, RubyLane, Selency, Todocolleccion	<ul style="list-style-type: none"> <li>• Enterprise of variable size</li> <li>• Antiques as sub-category of collectibles &amp; decorative objects</li> <li>• Generic but platform-approved sellers and objects</li> <li>• Sales directly with bargaining option, revenues through subscriptions or commission on sale</li> <li>• Occasional to long-term relationships with users, medium trust from buyers</li> <li>• Medium product information costs, transaction and distribution costs are generally present</li> </ul>
<b>3.The Interior Design Platform</b>	1stDibs, Antiques.co.uk, Antiqon, ArtaPlaza, DecorativeCollective, DelCampe, HuntVintage, Incollect, Pamono, TheHoarder, Reliving, VintageKeepers, Vinterior, Whoppah	<ul style="list-style-type: none"> <li>• Small sized enterprise</li> <li>• Antiques as part of interiors</li> <li>• Mainly for shops or professional sellers</li> <li>• Direct sales with - at times - a bargaining option, revenues mainly through sellers subscriptions</li> <li>• Occasional to long-term (more frequent) relationships with users, medium-to-high trust from buyers</li> <li>• Low-to-medium product information costs, mainly transaction but also some distribution costs are present</li> </ul>
<b>4.The Art Auction Platform</b>	Barneby's, BidSpirit, Bidsquare, Drouot, Invaluable, LiveAuctioneers, Proxibid, TheSaleroom	<ul style="list-style-type: none"> <li>• Medium-to-large enterprise</li> <li>• Antiques as art-related objects</li> <li>• Mainly for auction houses</li> <li>• Auction sales, revenues mainly through sellers subscriptions or commission on buyer and seller</li> <li>• Occasional to long-term relationships with users, high trust from buyers</li> <li>• Medium product information and transaction costs</li> </ul>
<b>5.The Antique-Specific Platform</b>	Antikeo, AnticStore, AnticSwiss, AntiquesBoutique, DeAntiekSite, Effetto, Lapada, LoveAntiques, ProAntic, SellingAntiques, TransferAntique, Worthpoint.com	<ul style="list-style-type: none"> <li>• Small size enterprise</li> <li>• Antiques as the main object exchanged</li> <li>• Mainly for professional antique dealers or dealers in general</li> <li>• Sale happens through direct contact with dealer, revenues mainly through sellers subscriptions</li> <li>• Mainly long-term relationships with sellers high trust from buyers</li> <li>• Very high product information costs</li> </ul>

Table 7: Clusters classification based on core characteristics

Looking at the clusters<sup>11</sup>, it becomes clear that the business models of platforms can be differentiated on their degree of specialisation, with business models varying from large enterprises exchanging products of any type through unselected users to small-scale companies that require their sellers to demonstrate their professional profile as dealers when entering the platform. In terms of product selection, only a few platforms, mostly located in cluster 2, declare to select and approve the objects up for sale, although they mostly accept sellers without selecting them. With that being said, the product categorisation that the platforms list remains very inclusive for the first clusters, with product categories that extend beyond antiques and art, and increasingly specialises in the rest of the clusters from including interiors, to arts, decorative and collectible objects. The types of sales that the platforms offer vary: while the more generic platforms offer diverse options for exchange, such as direct sale or direct sale with a bargaining option, the more specialised platforms tend to prefer auction sales or contact for sales, both of which imply the lack of price disclosure before the exchange is made. For revenue streams, commissions on sales seem more common in the more generic platforms, whereas the more specialised ones opt for a subscription type of model, indicating a higher incentive to create longer-term relationships with sellers.

<sup>11</sup> See Appendix 3 for full cluster characterisation



Graph 4: Distribution of Information Asymmetries based on customer specialisation in the clusters

Observing information asymmetries within the clusters<sup>12</sup>, the variables distribution confirms the expectations that more selective and specialised businesses contribute to a higher level of information provision (Graph 4). This relates back to the structure of the market, and the fact that the sellers' reputation plays a role in trusting the quality of acquired products. In practice, platforms that accept only registered dealers or auctions into the supply side of their website behave according to the traditional dynamics of the antiques market. It is interesting to see how closely the online business models resemble situations that are typical of the traditional art market. For instance, the antique-specific platforms, collaborating with antique dealers, require users to contact the seller directly in order to purchase the object. This means that, similarly to the traditional brick-and-mortar model, interactions and exchange agreements happen privately and directly between the buyer and the dealer. In contrast, the generic platform seems similar to a flea market, where many objects of different kind are made available to users, without them knowing the level of specialisation or cultural capital of the seller. As in flea markets, exchange agreements are made 'publicly', as prices tend to be disclosed, and often allow for some kind of bargaining. In contrast to literature discussing the online market as opposite to the physical one, this paper proposes the juxtaposition of the two as parallel realities, in which the more established, traditional market, shapes the ways in which the online one develops.

## Conclusions

The present research has analysed the business models of platforms in the market for antiques online, with the scope of proposing a business-model classification and assessing the distribution of information asymmetries within the business models proposed. The paper employs the conceptualisation of the BMC by Osterwalder (2004) to classify the business models of platforms, and the characterisation of the solutions to information asymmetries discussed by Akerlof (1970) and Velthuis (2011) to operationalise information provision methods. Through a two-step cluster analysis of the BMC with the information asymmetry variables as evaluation fields, the research shows that the business models of antiques platforms can be clustered according to their degree of specialisation, specifically in terms of seller selection and product categorisation. This, even before looking at the distribution of information asymmetries in the clusters, shows that platforms that prioritise the presence

<sup>12</sup> The categories in the information-asymmetry variables were here ordered based on level of transparency and assigned a number for each category. When this was not, the variable was transformed into a dummy to simply indicate whether that information was present or not. The distribution in the clusters has been calculated based on the combination of the weighted percentage of information asymmetry variables for each cluster. See Appendix 4 for information asymmetry distribution in the clusters.

of legitimised sellers on their website will also rely on the sellers' legitimacy to decrease information asymmetries in the market.

The research contributes generically to the body of literature on the lowest end of the contemporary art market, and specifically to research on the platformisation of antiques and business model analyses of platforms. It also functions as reference for buyers, sellers, intermediaries or platforms potentially interested in gaining an overview of the market online. In terms of limitations, the analysis is bound to the information displayed on the websites, and an operationalisation of the BMC that depends on them. The research could expand by looking further into the online-offline spectrum of the market, and offer more in-depth, qualitative analyses of individual platforms. Future research could expand the observations on the antiques market also in terms of market structure and price determinants.

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Appendices

APPENDIX 1 - Concrete explanation of BMC by Osterwalder and Pigneur (2010)

<b>KEY PARTNERS</b>	<b>KEY ACTIVITIES</b>	<b>VALUE PROPOSITION</b>	<b>CUSTOMER RELATIONSHIPS</b>	<b>CUSTOMER SEGMENTS</b>
Who are the key partners? Who are the key suppliers? Which key resources are acquired from partners? Which key activities do partners perform?	What key activities do our value propositions require? Our distribution channels? Customer relationships? Revenue streams?  <b>KEY RESOURCES</b> What key resources are required for: value proposition? distribution channels? customer relationships? revenue streams?	What value is delivered to the customer? Which one of the customer's problems are solved? Which customer needs are satisfied? What bundles of products and services are offered to each customer segment?	What type of relationship does each of the customer segments expect to be established and maintained? Which ones are established? How costly are they? How are they integrated with the rest of the business model?  <b>CHANNELS</b> Through which channels do the customer segments want to be reached? Which ones work best? Which ones are most cost efficient? How are they integrated with customer routines?	For whom is value created? Who are the most important customers?
<b>COST STRUCTURE</b>		<b>REVENUE STREAMS</b>		
What are the most important costs inherent in the business model? Which key resources are most expensive? Which key activities are most expensive?		What are values, customers are willing to pay for? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each revenue stream contribute to overall revenues?		

APPENDIX 2 - Overview of frequency tables for information asymmetry variables in the full sample (pre-clustering)

<b>Information Asymmetries - Intermediation</b>	<b>Frequency</b>	<b>Percent</b>
No Selection	15	26,3
Object Approval	5	8,8
Generic Seller Selection	3	5,3
Auction Houses Selection	5	8,8
Professional Dealers Selection	20	35,1
Professional Dealers & Auction Houses	2	3,5
Professional Dealers & Generic Sellers Selection	7	12,3
<i>Total</i>	<i>57</i>	<i>100</i>

<b>Information Asymmetries – Expert Figure</b>	<b>Frequency</b>	<b>Percent</b>
Not mentioned	30	52,6
None	10	17,5
Experts to support sale	2	3,5
Expert <u>valuers</u>	3	5,3
Experts for object selection	4	7
Experts for professional seller selection	7	12,3
Auctioneers	1	1,8
<i>Total</i>	<i>57</i>	<i>100</i>

<b>Information Asymmetries – Instructions for Sellers</b>	<b>Frequency</b>	<b>Percent</b>
None	4	7
Not before registration	3	5,3
Generic guidelines and rules	20	35,1
Set by platform	6	10,5
Instructions for photos	5	8,8
Instructions for use	4	7
Instructions for marketing	4	7
Curation and <u>experts</u> advice	8	14
Very specific instructions	3	5,3
<i>Total</i>	<i>57</i>	<i>100</i>

<b>Information Asymmetries – Rating on Sellers</b>	<b>Frequency</b>	<b>Percent</b>
None	11	19,3
Sellers direct contact	3	5,3
Sellers website linked	16	28,1
Reviews on platforms	4	7
Membership year of sellers	4	7
Reviews on sellers	15	26,3
Reviews on and membership year of sellers	4	7
<i>Total</i>	<i>57</i>	<i>100</i>

<b>Information Asymmetries – Instructions for Buyers</b>	<b>Frequency</b>	<b>Percent</b>
None	7	12,3
Generic information on the buying process	34	59,6
Instructions on how to spot scams	4	7
Emphasis on transaction security and data protection	6	10,5
Reassurance on <u>sellers</u> reliability	6	10,5
<i>Total</i>	<i>57</i>	<i>100</i>



### APPENDIX 3 – Full Clusters Characteristics Value Proposition, Customer Segments and Customer Relationships:

Clusters	1	2	3	4	5
n	13	10	14	8	12
<b>BMC Building Blocks</b>	<b>Most frequent categories</b>				
<b>Value Proposition:</b>	M = 18	M = 14,3	M = 13,1	M = 13	M = 19,8
<b>I. Number of Categories</b>					
<b>II. Type of Categories</b>	Generic 92,3%; Core Antiques 7,7%	Collectibles & Decorative 50%; Interiors 30%; Art & more 10%; Core Antiques 10%	Interiors 78,6%; Collectibles & Decorative 14,3%; Core Antiques 7,1%	Art & More 87,5%; Generic 12,5%	Core Antiques 58,3%; Collectibles & Decorative 42,7%
<b>III. Sale Function</b>	Direct Sale 46,2%; Contact for sale 30,8%; Direct sale with bargaining 23%	Direct Sale with bargaining 60%	Direct Sale with bargaining 50%; Direct sale 42,9%; Contact for sale 7,1%	Auction Sale 100%	Contact for Sale 58,3%
<b>Customer Segments</b>	Generic User 92,3%; Generic seller 7,7%	Generic Seller 100%	Professional Seller 57,1%; Professional and generic seller 21,4%; Dealer & Generic seller 14,3%; Antique dealer and generic seller 7,2%	Auction House 75%; Dealer 25%	Antique Dealer 58,3%; Dealer 41,7%
<b>Supply-Focused</b>					
<b>Customer Relationship:</b>	Low 100%	Medium 90%; Low 10%	Medium 50%; High 50%	High 100%	High 100%
<b>I. Buyer's Trust</b>					
<b>II. Buyer's Price Advantages</b>	Price Transparency 46,2%; Low price transparency 30,8%; Price advantages 23%	Price Advantages 60%; Low Price transparency 20%; Price Discrimination 10%; Price Transparency 10%	Price Advantages 50%; Price Transparency 40%; Low price transparency 10%	Price Discrimination 100%	Low Price Transparency 58,3%; Price Transparency 33,3%; Price advantages 8,4%
<b>III. Seller's engagement</b>	Occasional 100%	Occasional 50%; Long term 20%; Occasional to long term 20%; Occasional with personal assistance 10%	Long Term 42,9%; Occasional 35,7%; Occasional to long term 14,3%; Long term with personal assistance 7,1%	Long Term 25%; Occasional to Long term 25%; Occasional with personal assistance 25%; Occasional 12,5%; Long term with personal assistance 12,5%	Long Term 83,3%

### Resources, Key Activities and Key Partners:

Clusters	1	2	3	4	5
n	13	10	14	8	12
<b>BMC Building Blocks</b>	<b>Most frequent categories</b>				
<b>Resources:</b>	100+	Not found	0-10 included	50-100excluded	1-10included
<b>I. Human (employees)</b>	69,2%	40%; 1-10 included 20%; 50-100 excluded 20%; 100+ 20%	64,3%	50%; 100+ 25%; 50-100 excluded 12,5%; 1-10 included 12,5%	58,3%; 16,7% Not Found; 16,7% 50-100 excluded; 10-50 excluded 8,3%
<b>II. Intellectual</b>	Platform related 84,6%	Platform & Object related 60%; platform related 40%	Platform, Object and Network related 50%; Platform and object related 50%	Platform & Network related 100%	Platform & Network related 100%
<b>Key Activities:</b>	User Registration 100%	Product Selection 50%; User Certification 50%	Professional Seller Selection 50%; Professional and generic seller selection 30%; Dealer and generic seller selection 20%; Antique dealer and generic seller selection 10%	Auction House Selection 75%; Dealer selection 25%	Antique Dealer Selection 58%; Dealer selection 42%
<b>I. Intermediation</b>					
<b>II. Sale</b>	Sale Organisation 69,2%	Sale Organisation 80%	Sale Organisation 92,9%	Auction Participation 62,5%	Sale Organisation 66,7%
<b>Key Partners:</b>	Buyer-Supplier 69,2%	Buyer-Supplier 80%	Buyer-Supplier and Supplier-Buyer 85,7%	Buyer-Supplier and Supplier-Buyer 87,5%	Supplier-Buyer 58,3%
<b>I.Type</b>					
<b>II.Stakeholder</b>	Transaction Services 46,2%; Transaction & delivery services 23,2%; Not Relevant 23,2%; None 7,4%	Transaction & Delivery Services 50%; Transaction Services 30%; None 20%	Transaction Services and Professional Sellers 42,9%; Transaction and delivery services and professional sellers 38,5%	Transaction Services and Auction Houses 62,5%	Antique Dealers 33,3%; Art dealers and transaction services 16,7%; Auction houses 8,3%; Others combined 24,9%

### Cost Structure and Revenue Streams:

Clusters	1	2	3	4	5
n	13	10	14	8	12
<b>BMC Building Blocks</b>	<b>Most frequent categories</b>				
<b>Cost Structure:</b>	None 84,6%	High 40%; Low 30%; Maximum 20%; Medium 10%	Low 71,4%	Medium 87,5%	Maximum 58,3%; High 42,2%
<b>I. Information Costs on Product</b>					
<b>II. Other Costs</b>	Transaction Costs 46,2%; 23,1% Transaction & delivery costs; 23,1% Transaction & Delivery Costs; None 7,6%	Transaction & Delivery Costs 50%; None 30%; Transaction costs 20%	Transaction & Delivery Costs 50%; Transaction Costs 42,8%; Other Costs 7,2%	Transaction Costs 62,5%	None 33,3%; Transaction costs 25%; Transaction and delivery costs 16,7%; Data Management Costs 16,7%; Other Costs 8,3%
<b>Revenue Streams</b>	Other sources 23,1%; Advertisement for seller 23,1%; Commission on sale and advertisement for seller 15,4%; Commission on sale for seller 15,4%; Commission on sale for seller combined with other streams 15,4%; Commission on sale for buyer and seller 7,6%	Commission on sale for seller 30%; Subscription for seller 20%; Other 5 categories combined (10% each) 50%	Subscription for seller 21,4%; Subscription for seller and advertisement for seller 21,4%; Commission on sale for seller 21,4%; Other 5 categories combined (7% each) 35,8%	Subscription or seller 37,5%; Commission on sale for buyer and seller and subscription for seller 25%; Other 3 categories combined (12,5% each) 37,5%	Subscription for seller 83,3%; Subscription for seller and website design fee 16,7%

APPENDIX 4 – Clusters Information Asymmetries Characteristics  
 Information-asymmetry variables distribution (employed as evaluation fields)

Clusters	1	2	3	4	5
<b>Information Asymmetry Variables</b>	<b>Most frequent categories</b>				
<b>Intermediation</b>	No Selection 84,6%; Generic Seller Selection 15,4%	Object Approval 50%; No selection 40%; Generic seller selection 10%	Professional Dealers & Generic Seller Selection 50%; Professional dealers only 50%	Auction Houses Only 50%; Professional dealers and auction houses only 25%; Professional dealers only 25%	Professional dealers only 91,7%; Auction Houses only 8,3%
<b>Expert Figure</b>	None 61,5%; Not mentioned 38,5%	Not mentioned 40%; Experts for Object selection 30%; None 20%; Expert Valuers 10%	Not mentioned 57,1%; Experts for sellers' selection 21,4%; Other 3 categories combined (7% each) 21,5%	Not mentioned 75%; Expert valuers 12,5%; Auctioneers 12,5%	Not mentioned 58,3%; Experts for sellers' selection 33,3%; Experts to support sale 8,4%
<b>Instructions for Sellers</b>	Generic Guidelines & Rules 61,5%; Instructions for sale 15,4%; None 15,4%; Instructions for photos and descriptions 7,7%	Generic Guidelines & Rules 30%; Instructions for object selection, time for sale, photographs, descriptions, values, shipping 20%; Other 5 categories combined (10% each) 50%	Generic Guidelines & Rules 35,7%; Experts availability 14,3%; Other categories combined (10% each) 50%	Set by platform 50%; Instructions for marketing 25%; Generic guidelines and rules 25%	Curation advice 16,7%; Other 10 categories combined (8% each) 83,3%
<b>Rating on Sellers</b>	Reviews with stars and comments 38,5%; None 30,8%; Reviews on seller with stars and comments and membership year of seller 23,1%; Seller's website linked 7,6%	Reviews with stars and comments 30%; Reviews on company 20%; Seller's contact and email listed 20%; other 3 categories combined (10% each) 30%	Reviews with stars and comments 21,4%; None 21,4%; Membership year of seller 14,3%; Seller's website linked 14,3%; Other 4 categories combined (7% each) 28,6%	Seller's website linked 50%; Seller's website and reviews with stars and comments 25%; Reviews with stars and comments 12,5%; Reviews on company with seller's website linked 12,5%	Seller's website linked 66,7%; None 25%; Approved listing, certified dealers, number of sales by dealer 8,3%
<b>Instructions for Buyers</b>	Generic Information on the buying process 61,5%; How to spot a scam 15,4%; None 15,4%; Emphasis on security and data protection 7,7%	Generic information on the buying process 60%; How to spot a scam 20%; Reassurance on seller reliability 10%; Emphasis on transaction security 10%	Generic Information on the buying process 57,1%; Reassurance on seller reliability and object selection 21,4%; None 14,3%; Emphasis on transaction security and data protection 7,2%	Generic Information on the buying process 62,5%; Emphasis on transaction security and data protection 25%; None 12,5%	Generic Information on the buying process 58,3%; None 16,7%; Other 3 categories combined (8% each) 25%

□