

The Beauty and the Beast: Taxonomies of Consensus Making Trajectories in the Contemporary Art system

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Premises

Contemporary art is produced and exchanged within a global assessment process carried by the so called “art system”. This process is driven by the action of a complex hierarchy of gatekeepers, that legitimate, validate, evaluate the art works and, at the same time, by the status and reputation of the artists (Danto, 1964; Dickie, 1969; Becker, 1982; Velthuis, 2005; Horowitz, 2011; Lind and Velthuis, 2012). Within this system, the markets (auction and galleries markets) coexist and interact with a selective and collective judgment process, needed to assess the value of arts works as “singularities” (Karpik, 2011). In an ideal world, this qualitative assessment is carried by critics and cultural institutions (museums and kunsthalls), independently of economic motivations, whereas collectors, with their tastes, preferences and motivations, drive the actions of galleries and of auction houses. Actually, these two sides of the art system interact in a much more complex, reflexive and path dependent way. They cooperate in the definition of a moving global contemporary art star system, in which the actions of cultural institutions and market agents structurally overlap, producing a permanent and meditated interaction between the economic evaluation and the cultural, aesthetic, and qualitative validation (Graw, 2009; Thornton, 2008). This interaction is not limited to the “stars”, like Picasso, Warhol or Koons, whose works are disputed between museums (that in theory have the mission to produce and display the history of art for the sake of public interest) and private collectors (who follow their tastes and preferences, thus adopting a private interest perspective). The game of money and critical assessment influences the galleries’ commercial and portfolio strategies as well as the curators’ choices, thus influencing the legitimation and consecration paths of artists and their professional strategies.

Studying these interactions is difficult because of the inherent complexity and lack of transparency characterizing the contemporary art system, and, also, because of the non-availability of data. Typically, the publicly available data used for economic analysis relate to the auction prices, while the universe of private galleries is examined through qualitative, small scale, and sample-based studies¹.

The purpose of the paper

This paper, which is part of a wider research project, addresses the issue of the lack of information by focusing on the analysis of the portfolio behavior and strategies of 480 among the most relevant galleries at world level. More specifically, we aim at studying the convergence and diversity of the galleries’ actions along a period of 8 years, running from 2005 to 2012, and therefore axed around the 2008 world financial crisis.

We regard the *visibility* as a crucial asset for the collective legitimization and consecration of an artist (Baia Curioni, Forti and Leone, 2014). The visibility of artworks and artists can be fostered, and therefore studied, as the combined effect of a number of media and actions: articles on magazines and newspapers, shows in museums and galleries, presence in fairs as well as in private collections and homes of prestigious collectors. Visibility can be conveyed by the charismatic behaviour of the artists

¹ More recently, online platforms like Artfact allow to crosscut information between auction houses, galleries and artists. However, the criteria used to collect and build the dataset are not explicitly declared, and this reduces the possibility of using such information.

themselves or by the diffusion of their works, and can be managed adopting different strategies. Visibility in the art system requires information flows and shared information, both because potential buyers may get in contact with artworks, and because galleries' owners and/or managers make choices and accept an opportunity costs in exhibiting one artist instead of another, the same holding for any curator and museum.

The galleries considered in this work are all those who participated to Art Basel, the most important collective gathering event for art at a worldwide level, a reference point in which the world top galleries perform their best pieces. In Art Basel, professional dealers, collectors, experts, as well as the general public, spot what is emerging, gaining relevance and collective professional attention.

The visibility of the artworks, and therefore of the artists, in a top world fair like Basel offers a relevant opportunity to detect in one synthetic gaze:

- the levels and the dynamics of the consensus on one artist's relevance among the most important professional actors; in this sense it is a sign of reputation, defined as capability to perform as artist.
- the level and dynamic of the informational pressure applied by the gallery system to the public of collectors; in this sense it is a sign of economic potential.
- the quantity and importance of the artists with whom the artist is connected within the galleries portfolio; as such, it is a sign of the artists status, defined as the level of perceived quality of the artist².
- the galleries' networking strategies, assuming that presenting an artist in Basel implies the presence of common information about the artists' work, a similar judgement about his quality and a common (even if not always aware and negotiated) display effort.

The underlying frame of this analysis is that visibility, reputation, status and economic potential are mutually connected for the artists' career, and that Basel Fair offers a central and global platform for the analysis of the organizational environment developed by the commercial and entrepreneurial gatekeepers (the galleries). This environment can be considered as one of the basic infrastructures of the evaluation process provided by the art system as a whole.

The considered time span (2005-2012) has been chosen to study a moment of vivid expansion of the global art system's infrastructures, in terms of fairs, galleries, art cities and quarters, museums, art showrooms (Horowitz, 2011; McAndrews, 2012; Baia Curioni, 2012), and activities, in terms of auction turnover. Besides this, the chosen period is characterized by a commonly-perceived fragmentation of the critical paradigms framing the artworks evaluation and its definition (Harris, 2010), as well as by the consequences of the global crisis.

This paper focuses on two main aspects of the artists visibility, namely their permanence (duration) and their centrality in the fair, and on their relations.

² *Status* differentiates itself from *reputation* as it is a diffuse hierarchical notion in which eminence and power are reflected by the individual's affiliations, while the second is more related to the expert evaluation of an intrinsic and functional quality (inborn or acquired) of the person or organization. It is true, nevertheless that in the case of art the two notions coexist. For further reference, see Podolny, J.M. (1993). "A Status-Based model of Market Competition", *American Journal of Sociology*, vol. 98, pp. 829-872; Podolny, J.M. (1994), Market uncertainty and the social character of Economic Exchange, *Administrative Science Quarterly*, 39, pp. 458-483. See also Ridgeway C.L. and H.A. Walker. (1995). Status structures. In K.S. Cook, G. A. Fine, and J.S. House (Eds), *Sociological perspectives on social psychology*, (pp. 281-310). Boston: Allyn and Bacon; and Podolny J. (2005), *Status signal: a sociological study of market competition*, Princeton: Princeton University Press, 2005.

With **duration** we refer to the number of years that an artist has been included in the portfolio of Basel galleries. A longer period implies longer presence in the displays, longer relations with the galleries, and, probably, a compliance with the demand of the collectors.

Centrality is instead related to the number of galleries bringing a given artist in their portfolio, and to the overall dimension of their portfolio. Centrality in the network is a complex measure that goes beyond visibility and needs to be discussed.

We calculated the network centrality of the artists on the basis of the square matrix describing the pairwise connections between all the artists, using the number of galleries in common as connectors (UCINET, Borgatti et al. 2002). As a network centrality index we used the measure of the “degree” which is given by the number of connections that each artist included in Basel has with all the others, mediated by the gallery portfolios. For an artist, a higher degree in Basel may depend on the fact that she is represented by many galleries and/or on the fact that she is represented by galleries with wide portfolios. The degree is therefore not only a quantitative measure of the artist’s visibility³, but also provides organizational information as a wider portfolio reflects both the risk diversification of the gallery and of the level of participation to the market activities.

In fact (table 1.) the degree centrality of the artists is correlated with the average centrality of the galleries that brings her in their portfolio (.459**) and with the eigenvector of the artists, an index of the centralities of the artist’s connections (how central are the artists with whom he is connected – .889**)

The degree is therefore a centrality measure that offers an indicator of the visibility of the artists in the fair display (number of galleries) and also the relative central position of artists in terms of importance of galleries and importance of the other connected artists.

Table 1. Correlations between networks centrality, number of galleries, average gallery degree, and eigenvectors for the 5031 artists in Basel (between 2005 and 2008).

Correlations					
		Artists Degree	Artists Nr of galleries	Artists Eigenvector	AVG Galleries Degree per Artist
Artists Degree	Pearson Correlation	1			
Artists Nr of galleries	Pearson Correlation	,932**	1		
Artists Eigenvector	Pearson Correlation	,889**	,797**	1	
AVG Galleries Degree per Artist	Pearson Correlation	,459**	,275**	,540**	1

** correlation significant at the 0.0001 level

The joint analysis of the duration and artists centrality permits to describe the evolution of the artists’ visibility throughout the considered 8 years and eventually to recognize common patterns in their dynamics within the top global segment of the art system. This reconstruction can be considered as a step towards the more ambitious goal of defining the role of networks and cultural entrepreneurship

³ Indeed visibility could be measured also by simply referring to the number of galleries of an artist. In our complete dataset, the two variables (degree and number of galleries) for the period 2005-2008 are strongly correlated (.932**, see Table 1).

in the creation of art values, and of describing how art is assessed and defined in the global contemporary world.

Data and Methodology

Our analysis is based upon a number of methodological choices, described and motivated below.

Definition of three levels of centrality. Since we are not interested to micro changes in the degree but to the presence of relevant shifts, we defined three levels of centrality based on the quartiles of the observed degrees. More precisely, in a given year an artist was considered as *peripheral* if her degree was lower than the median (50-th percentile) degree, in an *average position* if her degree was included between the median and the third quartile (75-th percentile) and *central* if her degree was higher than the third quartile.

Definition of three levels of organizational complexity and articulation. We considered the number of galleries representing the artists at the fair as an indicator of organizational complexity. In particular, we considered the artists connected with one or two galleries as inserted in a relatively low level of organizational complexity (simple, 1822 artists), those that are included in the portfolio of 3 to 9 galleries as nodes with a high network complexity (high, 502 artists), and those having 10 or more galleries as artists widely diffused in the gallery system and probably treated in the secondary market over the period 2005-2012 (secondary, 5 artists).

Exclusion of the artist who exited the Basel Fair because of the exclusion of their galleries from the Fair. The admission to the Fair is competitive and expensive. The inclusion or exclusion of the galleries is decided each year by a committee of gallery's owners who manage the structure of the event, co-opting their peers on the basis of different considerations on their qualities. It may happen that a gallery gives up the opportunity for economic or strategic reasons, or, more often, that the committee decides not to admit the gallery again. In both cases, the decision has of course an impact on artists' visibility and possibly also on their career development. Nonetheless, to better focus on galleries' portfolio strategies, we decided to exclude these cases from the database, reducing its size to $n = 5682$ records.

Focus on the artists born after 1965. The visibility issue may have different implications for younger and living artists, and their process of consecration and legitimization may follow paths and inner dynamics different from those characterizing elder or historical artists. Therefore we decided to limit attention to the $n = 2329$ artists born after 1965.

For the $n = 2329$ younger artists we studied the temporal pattern of their centrality levels from their entry to their exit from the Basel system.

In particular, to simplify the analysis and the inspection of such trajectories, we decided to obtain clusters of artists who possibly experienced similar trajectories so as to deduce some typical patterns. To do so, the dissimilarity between temporal trajectories has to be properly measured. We use Sequence Analysis (SA, see among others Aisenbrey and Fasang, 2010; Piccarreta and Billari, 2007; Piccarreta and Lior, 2010) at this aim, which is one of the most used and discussed techniques to describe life course trajectories represented as sequences (i.e., ordered collections of states), as in the present case.

In particular we refer to Optimal Matching Analysis (OMA), introduced by Abbott (Abbott and Hrychak 1990; Abbott 1995). OMA is an algorithm to optimally align sequences, explicitly taking into account sequences in their entirety. It measures the dissimilarity between sequences by quantifying the effort

needed to transform one sequence into another. Three basic transformations are considered: insertion (one state is inserted into the sequence), deletion (one state is deleted from the sequence) and substitution (one state is replaced by another state). To each operation a specific cost is assigned, ideally reflecting how difficult it is to modify a trajectory according to the operation itself. The total cost (sum of the costs) of the operations needed to transform one sequence into another is calculated, and the OMA dissimilarity between two sequences is defined as the minimum transformation cost (hence dissimilarity is unequivocally defined, independently of the number of possible transformations).

In our framework, we are interested to compare the centrality trajectories followed by the artists from their entry into the Basel Fair to their exit from it. Note that in doing so we do not explicitly consider the year when one artist enters the fair. Using OMA, we measure the dissimilarity between the trajectories of the authors. One problem in the application of OMA concerns the choice of costs, which is arbitrary. Following a rather common practice, we set the costs of insertion and deletion to 1. As for the substitution cost, we relate it to transition frequencies, thus regarding frequent transitions as less costly than rare transitions. Since a substitution operation is equivalent to an insertion operation followed by a deletion, we set the substitution cost lower than the sum of insertion and deletion costs, 2 (Rohwer and Pötter, 2004). The Traminer R package (Gabadinho et al., 2011) was used to obtain such dissimilarities.

Based on the OMA dissimilarities, we applied cluster analysis obtain groups of artists with similar trajectories. In particular, we referred to the PAM algorithm (Kaufman and Rousseeuw, 1990), a partitioning algorithm which iteratively assigns each observation to the cluster it is closest to. The closeness between one observation and a cluster is measured as the dissimilarity (here OMA dissimilarity) between the observation and the medoid of a cluster. The medoid of a cluster is the most central case, defined as the case which is less dissimilar from the other cases in the cluster (i.e., the case having the minimum total dissimilarity to the other cases in the cluster). Therefore, the algorithm attempts at partitioning cases into a prefixed number of clusters so as to minimize the overall dissimilarity between the medoid of each cluster and its members. Since in this case cluster analysis is used as a descriptive tool, we analysed and compared different solutions and we chose those characterized by a satisfactory compromise between detail of the description and simplicity of the solution.

Main evidences

Cluster analysis: three belts of visibility and consecration.

Cluster analysis was applied to describe the features of the artists' trajectories conditioned to the level of the network complexity. More precisely, we limited our attention to the first two layers (simple – 1 or 2 galleries; and high – from 3 to 9 galleries), since the last layer (10 or more galleries) characterizes only the 5 artists, reported below.

Table 2. The 5 artists with 10 or more galleries (2005-2012)

Artists	Gender	Birth	Country	Year of Entrance in Basel	Number of Years in Basel
Wim Delvoye	M	1965	BE	2005	8
Olafur Eliasson	M	1967	DK	2005	8
Thomas Houseago	M	1972	UK	2005	7

Jonathan Meese	M	1970	DE	2005	8
Wolfgang Tillmans	M	1968	DE	2005	8

In Figures 1 and 2, reporting the obtained clusters, artists are arranged along the horizontal axis. To each artist a vertical bar is associated, representing the evolution of her presence and her level of centrality from the entry to the exit from the Basel fair. The sequence of each artist is represented by a set of stacked bars, with colors and lengths depending on the experienced levels of centrality and on their duration. In the plots, the following colors are used: orange for peripheral positions, light green for average positions and dark green for central position. The grey areas in the figures are signaling that the artists are not present in the fair.

Figure 1. Clusters of artists with low network complexity (1 or 2 galleries)

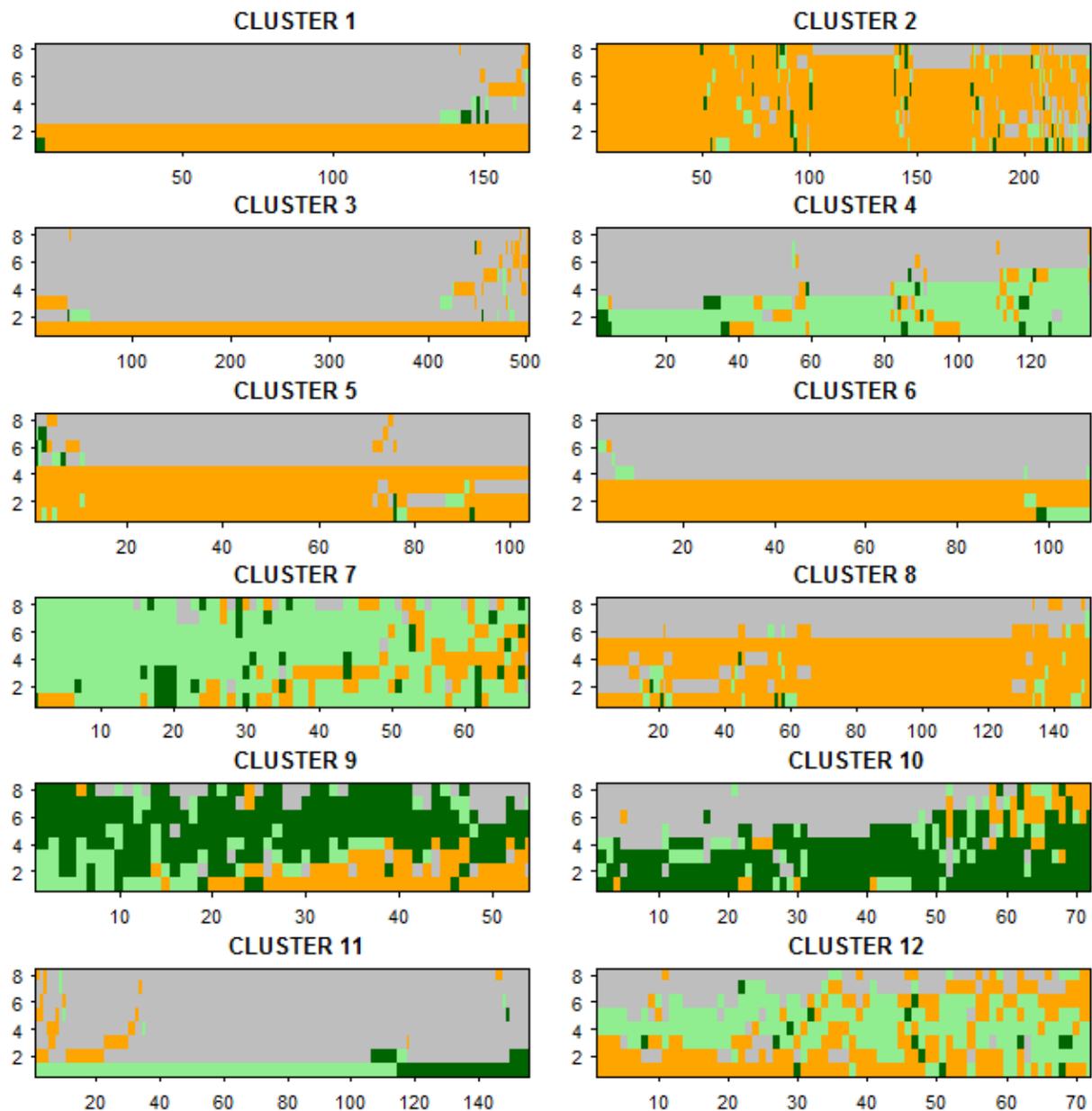
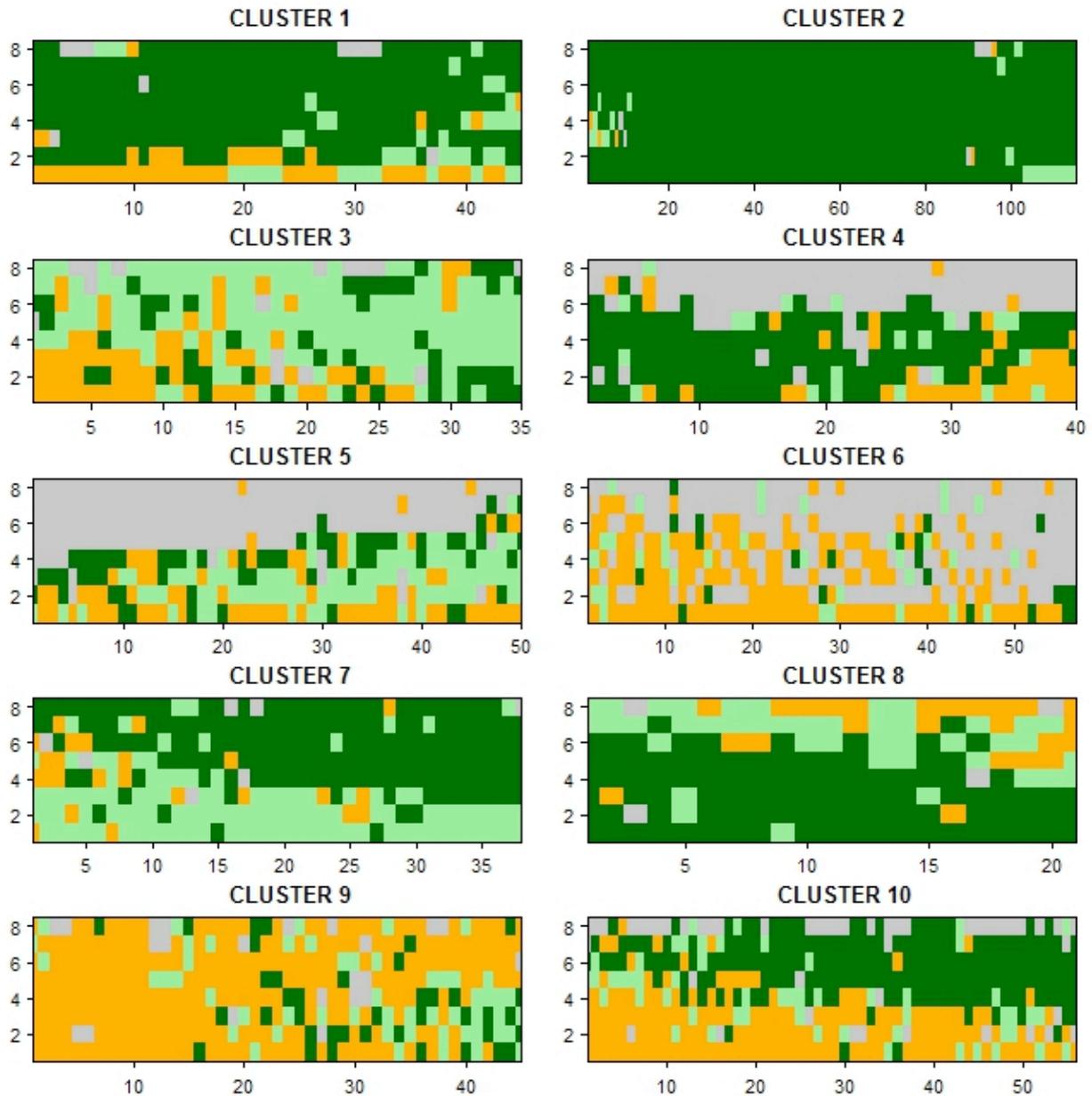


Figure 2. Clusters of artists with high network complexity (3-9 galleries)



The two sets of clusters permit to highlight some relevant differences summarized in Table 3.

a. Artists with less than 3 galleries

The group of artists with a lower number of galleries, and therefore with a simpler networking structure shows a dual structure of duration and centrality.

As summarized in Table 3a, the 31% of artists are present for less than 4 years, the 13% remained in the fair from 4 to 6 years, and the 17% were present for either 7 or 8 years⁴. The 69% of them were peripheral.

⁴ The system considers the durations independently from the entry years. Therefore in the clusters illustrated in the display, a two years duration might be as well a sign of an early exit or a sign of a late entry of an artist. In order to correct this effect we eliminated all the artists that entered in 2012 (the last year) , and all those that

Only the artists in cluster 9 (which corresponds to 3% of the total) experienced a significant growth of their visibility during the 8 years considered.

b. Artists with 3 to 9 galleries

Regarding the duration for artists with highly complex networks structures, the 68% of them is present for 7 or 8 years. The permanence at the fair is lower than 4 years for the 4% of the artists only, and ranges from 4 to 6 years for the 12% of the artists⁵.

Clusters 7 and 10 (19% of cases in this group) experienced an upward dynamic of their visibility, whereas only a 4% was downsized (see Table 3b).

These differences do not imply, at this stage of the analysis, that a simpler organizational structure is better or worse than a more complex one for the career of an artist and for her legitimization process, even if the highest volatility was observed in the first group. Clearly the two conditions indicate the presence of two strongly differentiated visibility “belts” with different features in terms of stability and duration.

Table 3a. Summaries of the clusters landscape: duration

Duration	Simple < 3 galleries	Duration	High 3-9 galleries
Less than 4 years	31%	Less than 4 years	4%
Between 4-6 years	13%	Between 4-6 years	12%
For 7 or 8 years	17%	For 7 or 8 years	68%
Excluded from computation	39%	Excluded from computation	16%

Table 3b. Summaries of the clusters landscape: upward and downward dynamics

	Simple < 3 galleries		High 3-9 galleries
Upward	3% peripheral and average to central	Upward	19% Peripheral and average to central
Downward	0%	Downward	4%

In Between Stability and Transition

The observed results suggest that the sub-sample of artists represented by a number of galleries ranging from 3 to 9 is the most interesting in order to study artists’ centrality and their upward or downward transitions. Within this sub sample we limited our attention to the following group of artists::

- artists in upward transition from average to center (cluster 7): 38 artists
- artists in upward transition from peripheral position to central one (cluster 10): 56 artists
- artists in downward transition from center to average (cluster 8): 21 artists

The demographical characteristics of these artists are summarized in Table 4.

entered in 2010 and 2011 and still were in the sample in 2012. We kept all those that left the fair at least one year before 2012 and all those that were in the fair at least since 2009. In this way we excluded the 39% of the observations.

⁵ These percentages were computed using the same procedure described above, thus excluding the 16% of the artists

Table 4. Characteristics of artists in clusters 7, 8, 10 – (in the group of artists with 3-9 galleries)

Dynamic	<i>Upward transition from avg to centre</i>		<i>Upward transition from periph to centre</i>		<i>Downward transition from centre to avg.</i>	
Gender						
F	6	16%	16	29%	10	48%
M	32	84%	40	71%	11	52%
Country of Birth						
Emerging	9	24%	16	29%	2	10%
US, UK	11	29%	14	25%	11	52%
JP, KR	1	3%	4	7%	2	10%
DE,FR,IT,ES	12	32%	14	25%	1	5%
CH,BE, NL, AT	1	3%	6	11%	4	19%
SE, NO, FI	2	5%	1	2%	1	5%
RU, PL, HU	2	5%	1	2%		
Year of Birth						
65-70	15	39%	20	36%	17	81%
70-75	15	39%	23	41%	3	14%
75-80	7	18%	12	21%	1	5%
>80	1	3%	1	2%		

Figures in Table 4 indicate a lower presence of women and a higher presence of artists from the emerging new scenes in the upward clusters (7 and 10), and a higher presence of women and artists from traditional scenes in the downward cluster (Baia Curioni, Dubini, Equi 2013).

The dynamic of artists centrality can be the consequence of different patterns:

- a growth in the centrality of the galleries that were carrying the artist since the beginning;
- a switch from more peripheral to more central galleries, as a sign that the artist is selected by more central galleries;
- a combination between these two main patterns.

In order to carry the analysis we divided the galleries including *a given artist* in its portfolio into different categories;

- *Stable* if a gallery presents the artist stably (i.e. if they present an artist in their portfolio for at least 5 years);
- *Spot* if a gallery presents the artist for only 1 year;
- *Addendum* if a gallery cooperated with the artist for some years without a precise pattern and it is adding its presence to that of others galleries;
- *Leaving* if a gallery is not presenting anymore an artist;
- *Replace* if a gallery substitutes other galleries in the short life of an artist in Basel.⁶

⁶ The dynamics of galleries were analyzed for each artist; in the case of cluster 8 no galleries ‘replace’ were identified because their pattern could be assimilated to that of ‘addendum’.

In order to understand what are the organizational characteristics of galleries that favor artists in their upward transitions or cause downward transition, we used network analysis (UCINET VI) to compute, the following centrality measures:

- *gallery's degree*: the centrality of galleries within the system computed as the number of connections to artists galleries have (the interpretation is symmetric to the degree of artists);
- *gallery's density*: how much galleries are able to transform their *potential* connections into *real* ones. If higher, this implies that galleries are able to exploit all their potential links;
- *gallery's nBroker*: the number of times a gallery works as a broker; namely this variable measures the extent to which a gallery links actors that are not otherwise connected, having therefore, a higher control on the network; .
- *gallery's coreness*: how much a gallery is close to the core of the network;
- *gallery's constraints*: it measures the extent to which a gallery is connected to other galleries that, in turn, have a multiplicity of alternative connections and therefore is potentially replaceable.

Given these centrality measures, we applied the Mann Whitney Test, to verify if the means of each centrality measure for each category of galleries differ for artists transitioning upward (94 cases) and those transitioning downward (21 cases). The results, reported in Table 5, suggest that the mean ranks of the centrality measures, of the galleries 'addendum', 'leaving' and 'replace', and therefore the characteristics of the network of galleries supporting the artists, differ for artists who transitioned upward or downward.

The artists who experienced upward transitions on the average start collaborating with galleries that are more central (see the result for the degree and coreness), work within more dense network of gatekeepers (density and constraints) and have higher control on the network having higher gatekeeping capabilities (nBroker). This difference is even sharper in the case of the 'addendum' galleries than in the case of the 'replace' ones.

At the same time, these artists are 'left' by (or leave) galleries that are more peripheral , inserted in more isolated networks and characterized by lower capability of controlling their networks.

The group of artists that move downward from central to average position, is characterized by an opposite specular situation.

As a final remark, it is worth to point out that the 'stable' and 'spot' galleries seem not to present significantly different results for the group of artists in transition upward and that in transition downward. In other words the characteristics of such galleries do not significantly change depending on the movements (up/down-wards) of artists' trajectories.

Table 5. Mann-Whitney U Test

Mann-Whitney U				
	DOWN		UP	
	N	Mean Rank	N	Mean Rank
Degree Addendum **	21	36.62	94	62.78
Density Addendum **	21	37.95	94	62.48
nBroker Addendum **	21	41.4	94	61.71
Constraints Addendum **	21	39.52	94	62.13
Coreness Addendum **	21	35.93	94	62.93
Degree Leaving **	21	96.71	94	49.35
Density Leaving **	21	87.33	94	51.45
nBroker Leaving **	21	89.71	94	50.91
Constraints Leaving **	21	83.52	94	52.3
Coreness Leaving **	21	96.71	94	49.35
Degree Replace *	21	50.5	94	59.68
Density Replace *	21	50.5	94	59.68
nBroker Replace *	21	50.5	94	59.68
Constraints Replace *	21	50.5	94	59.68
Coreness Replace *	21	50.5	94	59.68
** 0,01 *0,1				

The obtained results may indicate that the upward transition in the artists degree, that is the increase in the artists visibility and overall reputation and status, come along with the adoption of the artist by the most central galleries rather than by a growth in centrality of the galleries that originally kept the artists in the Basel fair. In this sense, our results may suggest that the system presents an organizational resilience and high level of control from the central galleries.

Conclusions and directions of future research

In this paper we considered the empirical trajectories of the degree centrality in the population of artists born after 1965 in the display of Basel Fair in the years 2005-2012..

We first discussed the degree as a metric of the visibility and of the organizational environment in which they are managing their presence in the most important art fair at world level.

Three main organizational belts have been identified, with a difference between the artists participating to a relatively simple networks of galleries (average lower duration, higher turbulence) , and the artists inserted into more complex and wide networks (longer duration, lower turbulence, higher upward transitions).

Only considering the artists implied in upward or downward transitions, we observed that their trajectories are characterized in general by a substitution of the original set of galleries, with the inclusion in the portfolios of more central and connected galleries. This structure prevails on the alternative based on the growth of the original galleries.

This pattern suggests that visibility, reputational and status dynamics in the global market-oriented art system depend upon action and choices made by the group of central galleries, while the

innovation (artists that pass from peripheral to central position) , consistently with the literature, seems to be granted by relatively marginal or peripheral actors.

The work presented here can of course be extended along a number of directions. First of all, we are interested in studying more in details the combination of the dynamics of transition/stability of art galleries and of artists. This could permit to better understand which are the relationships between galleries' strategies and artists' legitimization.

Also, a possible limit of this study is that we did not consider the year of entrance of artists but only their duration within the fair, i.e. we have not implemented an analysis which would allow us to study the relation between the temporal evolution of artists' dynamics and the evolution of the art system in the considered year span. Surely, this aspect deserves attention, and a longitudinal analysis would be a natural evolution of the work.

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