

The Network Effect of Arts Incubators

A Geospatial Perspective

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ABSTRACT: Although there has been a proliferation of metrics to evaluate arts incubators, the academic field is still developing. Different models and methods of education are applied to the complex phenomena of arts incubators; therefore, it is crucial to measure the effectiveness of education programs from many different perspectives. Our aim is to propose a metric that can estimate the effect of each incubator activity based on the geospatial distribution of its participants. This GIS-based metric will provide a descriptive measure for the quantity and density of the geographical communities affected by the incubator's activity as well as socioeconomic and demographic benchmarks. Our study investigates fourteen US-based arts incubators that offer entrepreneurial training to their associated 1,087 incubatees. The goal of this study is to provide a metric that can assist arts incubators, program directors, arts administrators, and university programs in assessing program growth and funding and marketing efforts. **KEYWORDS:** Incubators, Arts, GIS, Non-Conventional Entrepreneur, Artists, Entrepreneurship, Network Effects, Clusters. **DOI:** doi.org/10.34053/artivate.10.2.157

Introduction

Artist and entrepreneurs have common attributes that contrast them from other professionals (Daum, 2005; Poorsoltan, 2012). Furthermore, the entrepreneurial mindset of artists is well documented (Agrawal, Catalini, & Goldfarb, 2010; Barry, 2011; Lindqvist, 2011; Dworkin, 2019). A recent study by Arenius et al. (2021) highlights that “artists and entrepreneurs share three key features.” The authors explain that both “exhibit higher self-reported risk preference,

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are more open to experience, and have greater intrinsic motivation” when benchmarked against a control group comprised of other professionals. Despite some artists’ reluctance to be represented as entrepreneurs (Hjorth, 2016; Haynes & Marshall, 2018), the practices associated with an entrepreneurial mindset have been recognized to increase the prospect of realizing an artistic career (Eikhof & Haunschild, 2006; Arenius et al., 2021). In addition, many of those artists who do not consider themselves entrepreneurs are at risk of losing the opportunity to exploit their economic potential, especially when the barrier of capitalizing on this economic potential is facilitated by a digital economy that enables artists to scale their work output readily. Indeed, the cultural-sector industries rely on live performances and content generation (Renard et al., 2013).

However, content generation isn’t historically seen as a predictably scalable business model. Content remains a hit business, whether distributed in physical or digital form, and the ability to repeat a success can be illusive. Perhaps that is changing given the blurring between content, technology, social media, and audience. In some ways, innovating business practices within the cultural sector have been more off-putting for the traditional investor. Aspiring startups, artists, and creators must contend with entrenched, complex business relationships, rights, and long-term contracts. Incubator and accelerator programs are one innovative solution to support artists in becoming entrepreneurs and are committed to giving them the tools to do so, even within a volatile economic climate. Thus, relatively new programs are now finding an audience among artists and industry leaders alike.

Incubators and accelerator programs supporting the cultural sector assist and develop creators across a wide range of art forms, including but not limited to music, film, theatrical arts, dance, creative writing, and video game design. These programs often combine a cash allowance, a co-working space, and a mentorship support system, and they are naturally very attractive for the participants involved. Importantly, they provide an option for artists and content creators wishing to go through a rigorous program of varying length and scope, and they treat them as a startup by fostering their entrepreneurial mindset and know-how to increase their chances of success in the marketplace (CCL, 2013; Essig, 2014b, 2015). The oldest arts incubator was founded in 1986 in Chicago (Kahn, 1995) a year after the formation of the National Business Incubator Association (NBIA), the trade association for business incubators. However, the information most pertinent to our study is the lack of metrics established to assess the education and incubation process, as well as the economic impact, of arts incubators in the United States. Indeed, several studies provide information about the services offered by arts incubators (Essig, 2014b, 2015; Kahn, 1995), but none have evaluated the impact these services have on communities besides the artists themselves. The goal of this research is to explore a metric that can be useful in measuring the impact of an incubator’s activity.

Educating artists on entrepreneurial skills positively affects their community for two reasons. First, entrepreneurship is a means to support social mobility because entrepreneurs experience higher upward mobility than other workers, even in non-favorable economic environments (Quadrini, 2000; Sørensen & Sharkey, 2014). Second, artist entrepreneurs are role models who contribute to the transmitting of entrepreneurial culture over time, which affects

the economic development over long periods of time and after many structural changes (Fritsch & Wyrwich, 2014). However, it is also necessary to mention the documentation of the debate over the limiting factors of the benefits of entrepreneurship education in the arts when coping with a neoliberal agenda (Barbour, 2018; Alexander, 2018; Kandil & Bokkel, 2019). The argument favors fostering “environment acknowledgement and belonging” (i.e., identity and sense of self in relation to others in a community), which is “essential for community building and raising awareness” of marketable skills (Kandil & Bokkel, 2019). But arts incubators are in a unique position to approach and often reconcile community building, the development of artists’ identities, and entrepreneurial training (e.g., The Lark Theatre in New York City). It is for those reasons that arts incubators affect communities through the entrepreneurial education they give to their incubatees. Our aim is to propose a metric that can estimate the effect of each incubator’s activity based on the geospatial distribution of their incubatees. This metric will provide a measure of quantity and density for the geographical communities affected by the incubator’s activity, including several key socio-economic and demographic benchmarks. The following section will introduce the literature review and the proposed research design.

Literature Review

Entrepreneurs that start a company create jobs into the local community and improve economic growth (Glaeser, Kerr, & Ponzetto, 2010). For this reason, policymakers and private organizations have been increasingly supporting entrepreneurial activity to fuel economic development (Schramm, 2006). The high risk of failure involved in new entrepreneurial businesses is balanced by the entrepreneur’s large returns and communities’ increasing wealth (De Nardi, Doctor, & Krane, 2007). Indeed, countries with the higher levels of entrepreneurial activity also enjoy higher average growth in gross domestic product and higher levels of employment (Hardy, 1999). Therefore, entrepreneurial activity is critical to economic progress because it creates new businesses, and, in turn, triggers the creation of new jobs (Nijkamp, 2003; Quadrini, 2000).

To support and encourage early-stage entrepreneurial activity, an increasing number of business incubators provide physical workspace as well as technical, legal, managerial, and financial support to new startup companies. The National Business Incubation Association (NBIA) estimates that there were approximately 15 incubators in North America as of 1980, but today 1,400 incubators are located in North America alone. *Business incubator* is a broad umbrella term referring to organizations that vary in their strategies. While some operate virtually, many are located in a physical space to foster networking among entrepreneurs and provide basic business support services. Some incubators focus their services on jumpstarting businesses that are more developed. In this case, they are defined as *accelerators*. The common factors across the different flavors of incubation are advice giving and coaching services, which includes social networking (Maia et al., 2012). These services help the firm’s survival after graduating from the incubation program (Ayatse, Kwahar, & Iyortsuun, 2017). In addition, participants in an incubation program benefit in the areas of revenue and firm growth, patents

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application, obtaining finance or capital, and establishing alliances. Indeed, beside some contradictory findings (Tavoletti, 2013), there is empirical evidence that participants in an incubation program outperform nonparticipants in terms of firm survival and sales growth. To measure their performance, incubators have been using a wide range of metrics over the years. These metrics include tracking jobs, revenue, and, in some cases, return on investment and societal impact—this over a four to six-year period of the startup's life. The emphasis on metrics of growth, job creation, and return on investment is a challenging fit for such arts incubators whose focus is on community wellbeing or image creation (Montgomery, 2007).

Polish Art_Inkubator defines arts incubators as “an organization that supports future entrepreneurs, non-governmental organizations and artists by helping them to enter the creative industries sector. Arts incubators are platforms that empower artists and organizations to implement their business and artistic ideas” (Essig, 2015). In this sense, the arts incubator's strategic role should be to lower the barriers that individual artists and small arts organizations face when they enter the cultural marketplace. Business survival and growth depends primarily on the capacity of each artist to develop entrepreneurial skills that enable them to exploit opportunities and overcome challenges. Arts incubator services aim to help artists identify the art concept or business model that best fulfils their creative aspirations and social aims. Such support can materialize through knowledge, space, services, and networking opportunities in order to successfully help new arts and culture enterprises (Essig, 2015). Another advantage is the connection to a network of talented artists who often share similar experiences, which facilitates peer-to-peer action learning. These partnerships among incubatees often promote collaborations with external artists, art organizations, or representatives of the community (Thom, 2015). This, in turn, has a positive impact on the artists and the economy (Cockpit, 2013). Indeed, arts incubators are one of four types of programs that are used to support arts-based community economic development along with artists' cooperatives, development of tourism, and comprehensive approaches (Phillips, 2004).

Because of the positive economic and social impact, arts incubators are used as policy tools to attain community economic and cultural development, community engagement, and the economic sustainability of individual artists. Indeed, the objective of arts incubators is often the local community and not the individual artist (Grodach, 2011). In this case, the community is the chief claimant stakeholder of the incubator, although individual artists or arts enterprises may be their clients. Arts incubation, in these instances, is a means toward community development rather than an end in itself (Essig, 2014a). The incubator's metrics reflect this fact as well. Evaluation metrics for the strategic priority of community development include growing attendance at community-wide events, increased foot traffic, and local media interest (Essig, 2015). Such evaluation variables reveal that the incubator is often sustained by local donors and investors, thus their metrics are locally focused. However, there is an overlooked impact on communities: the indirect impact of the entrepreneurial education provided by the incubator to the artists. Though overlooked, such impact is significant because it is long lasting and crosses the spatial boundaries of the local communities.

The entrepreneurial education that an artist receives from the arts incubator includes a set

of norms, skills, and values that can be transmitted among generations and, for this reason, can persist over a long period of time. In fact, entrepreneurs are role models that contribute to the transmission of entrepreneurship culture (Van Auken, Fry, & Stephens, 2006). On the other side, and after many structural changes, a strong local entrepreneurial culture affects the economic development over long periods of time (Fritsch & Wyrwich, 2014). On the long term, increased local entrepreneurship activity will support social mobility, even in non-favorable economic environments (Quadrini, 2000; Sørensen & Sharkey, 2014). Entrepreneurial education at the arts incubator triggers a cultural change that can have a pervasive, long-term influence on the regional economies (Hallam & Zanella, 2017; Williamson, 2000). For this reason, we propose to evaluate the impact of entrepreneurial education on artists by tracking the number of geographical communities that an incubator indirectly affects through their incubatees. This number, eventually weighted by the number of artists belonging to each community, will provide a geographical and quantitative map of the impact of each incubator's activity. The following section will explain the methodology of our proposed geospatial metric.

Methodology

Our geospatial methodology is rooted in the form of an interactive mapping methodology and geographic information system (GIS) that can process location data (Renard, 2018). In other words, the methodology captures latitudes and longitudes, thus capturing specific location data (e.g., the address of an arts incubator or artist based on latitude and longitude). GIS is also designed to store, manipulate, analyze, manage, and represent spatial or geographic data. Finally, the methodology enables users to create map overlay (adding layers of data) and projections (cf. figure 1 and 2).

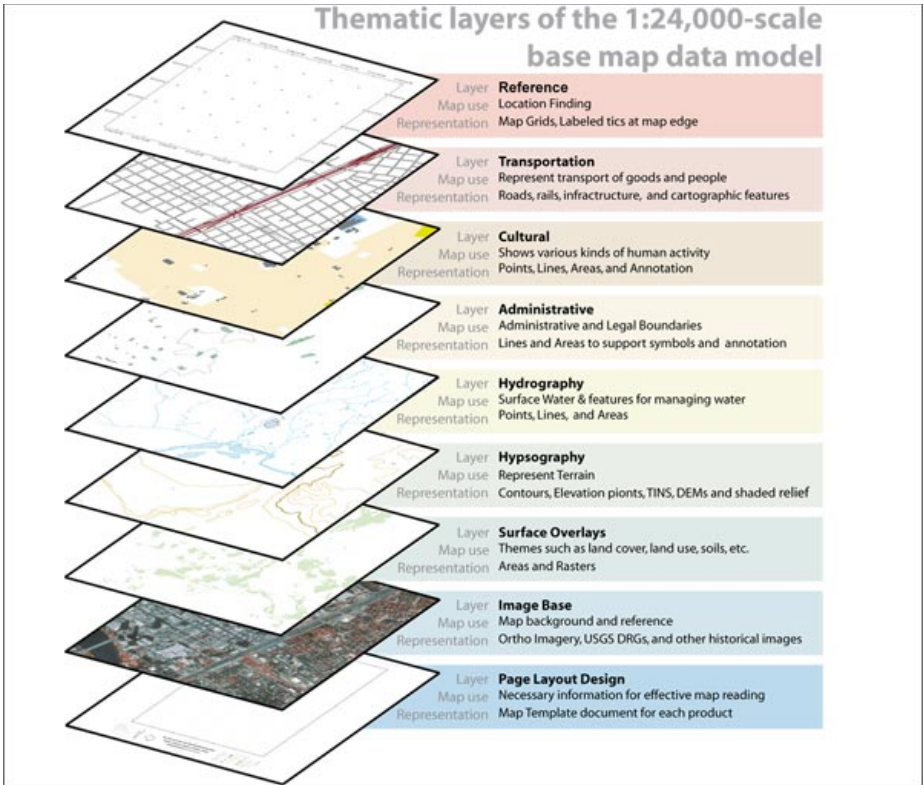


Figure 1. Example of Map Overlay. Source: <https://www.esri.com/news/arcnews/winter0203/articles/introducing.html>

Data Collection

Geocoded datasets were necessary to proceed with GIS. Eight separate datasets were sourced. First, we identified 14 arts incubators that offer entrepreneurship/business training to artists in early stages of their career as well as mentorship and networking services (cf. table 1). The collected information about each incubator was publicly available from their respective websites and includes the name of the incubator, location, year founded, form of incorporation, number of incubates, and number of geographical communities impacted. Second, we gathered the profile of 1,087 artists that are (or have participated in) those specific incubators/programs, which include names, art form practiced, date of participation, and current city and state of residence. This study uses addresses based on city and state geocoded data for both the arts incubators and the artist participants. Please note that the 14 incubator studies have collectively served tens of thousands of artists. However, this study only collected data from a subset of the programs offered by those incubators that focused on business and entrepreneurial skill training offered to artists over a certain length of time (i.e., ZooLabs in San Francisco offers a four-months-long program that fosters the business acumen of musicians in the Bay area).

In addition to the two layers of data described above, six socio-economic and demographic layers were used. That data was created by and sourced from (1) the American Community Survey (ACS) that is sourced from the US Census Bureau website¹, (2) ESRI², and (3) CBRE³. All three are reliable sources of information for population and housing information across the United States. Information used includes population density estimates (ESRI, 2016), poverty status variables measure (ACS, 2019), race and Hispanics origin status variables measure (ACS, 2019), housing costs variables measure (ACS, 2019), US median household income (CBRE, 2020), and US unemployment rate (CBRE, 2020).

Table 1. List of Arts Incubators Studied.

| Arts Incubator | Incubator Location by City and State | Form of Incorporation | Year Founded | Number of Incubatees/ Participants | Geographical Communities (Cities) Impacted |
|--|--------------------------------------|---------------------------------|--------------|------------------------------------|--|
| Arts + Public Life at the University of Chicago ⁴ | Chicago, IL | 501(c)3 | 2011 | 33 | 15 |
| 2112 Inc. ⁵ | Chicago, IL | Limited Liability Company (LLC) | 2015 | 100 | 7 |
| Austin Music Foundation ⁶ | Austin, TX | 501(c)3 | 2002 | 75 | 2 |
| C4 Atlanta ⁷ | Atlanta, GA | 501(c)3 | 2010 | 7 | 2 |
| Creative Capital ⁸ | New York, NY | 501(c)3 | 1999 | 283 | 91 |
| Creative Lab Hawaii ⁹ | Honolulu, HI | State Initiative | 2012 | 58 | 24 |
| Diaspora Vibe Cultural Arts Incubator ¹⁰ | Miami, FL | 501(c)3 | 1996 | 81 | 25 |
| First Peoples Fund ¹¹ | Rapid City, SD | 501(c)3 | 2003 | 82 | 62 |
| National Arts | Alexandria, | 501(c)3 | 1983 | 214 | 97 |

¹ <https://www.census.gov/programs-surveys/acs/data.html>

² <https://www.arcgis.com/home/group.html?id=1d1f24e8556642f49448f1c88b5a571b#overview>

³ <https://www.cbre.us/real-estate-services/real-estate-industries/data-center-solutions>

⁴ <https://arts.uchicago.edu/artsandpubliclife>

⁵ <https://2112inc.com/>

⁶ <https://austinmusicfoundation.org/>

⁷ <https://c4atlanta.org/>

⁸ <https://creative-capital.org/>

⁹ <https://creativelab.hawaii.gov/>

¹⁰ <http://www.dvcai.org/>

¹¹ <https://www.firstpeoplesfund.org/>

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|---|------------------|---------|------------------------------|------|-----|
| Strategies | VA | | | | |
| NEW INC¹² | New York, NY | 501(c)3 | 2014 | 26 | 5 |
| The Arts and Business Council of Greater Boston¹³ | Boston, MA | 501(c)3 | 1993 | 27 | 6 |
| The Corzo Center at UArts¹⁴ | Philadelphia, PA | 501(c)3 | 2009 (Defunct as of 2020) | 28 | 3 |
| The Lark¹⁵ | New York, NY | 501(c)3 | 1994 | 22 | 9 |
| Zoo Labs¹⁶ | Oakland, CA | 501(c)3 | 2013 | 51 | 18 |
| TOTAL | 14 | N/A | Mean (2004) | 1087 | 366 |

GIS Setup: ArcGIS Online

For the purpose of this study, we used the online version of ArcGIS, which is powered by ESRI. ArcGIS is a powerful GIS platform and offers both desktop and online versions of the program. To generate our GIS maps, we imported the incubators, incubatees, and the six socio-economic and demographics datasets into ArcGIS as separate csv. files. Three types of visual representations have been generated. The first type is a cluster representation of the GIS data (cf. figures 2, 4, 5, and 6). The cluster coefficient used is a measure of density or concentration of activity. For example, the 14 arts incubators are seen in figure 2 as wide blue circles setup to appear in a semi-transparent format to alleviate clutter. This enables the reader to view the incubatees, also shown in cluster format, and observe the sphere of influence of each incubator. We imported the incubatees’ data into ArcGIS as a separate layer and attributed color coating to connect incubatees to the arts incubator they participated in. Figures 2, 4, 5, and 6 are configured this way. The second visual formatting does not use a cluster coefficient and shows all 1,087 participants associated with the 14 incubators and their arts entrepreneurship-focused programs as individual dots on the map (cf. figure 3). This second visualization setup is projected with the six socioeconomic and demographic datasets (cf. figures 9-18). Finally, several figures showcase one specific arts incubator and its associated incubatees/participants.

¹² <https://www.newinc.org/>

¹³ <https://artsandbusinesscouncil.org/the-creative-entrepreneur-fellowship/>

¹⁴ <https://corzocenter.uarts.edu/>

¹⁵ <https://www.larktheatre.org/>

¹⁶ <https://www.zoolabs.org/>

This is a case study format (cf. figures 7, 8, and 11). Those three types of visualizations helped to assist our analysis.

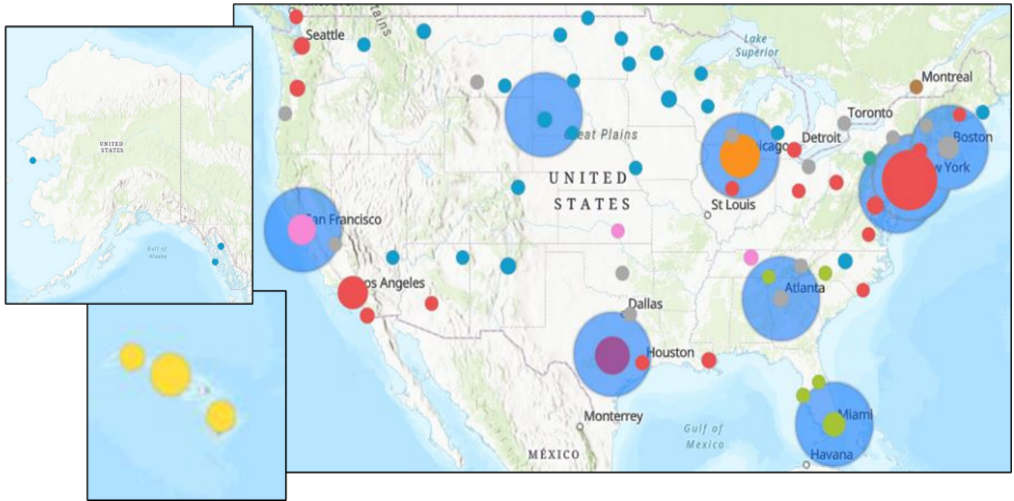
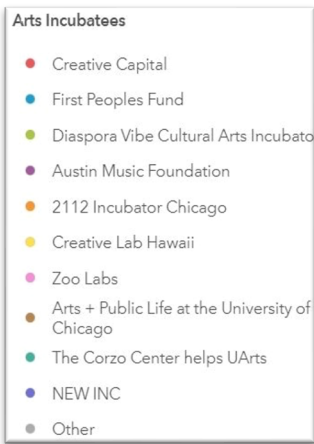


Figure 2. Geospatial Location of Arts Incubators (large blue circles) and Associated Incubatees from a Cluster Perspective



Observations & Analysis

Table 1 summarizes the data connecting arts incubators, their associated incubatees, and the communities impacted. First, we observe that all but two of the arts incubators studied in our sample are incorporated as 501(c)3 nonprofit organizations. Of those, only two are university incubators, one being defunct (the Corzo Center at UArts). Please note that both arts incubators residing within a higher education institution serve community members and not students. For instance, Art+Public at the University of Chicago serves artists on the South Side of Chicago. We also see that the 14 arts incubators in our sample have existed for an average of 17 years. The oldest

one is National Arts Strategies (1983), while 2112 Inc. (2015) is the most recently created one within our sample. We observe that two incubators are in Chicago, and three are in New York City. Regionally, eight are on the East Coast of the United States, three are in the Midwest, one is on the West Coast, one in the Southwest, and one in Hawaii. Those observations are important as we may assume that the highest concentration of incubatees will be located on the East Coast. However, our GIS maps tell us a more complete story and provide a powerful visualization tool that displays the prevalence of the Arts Incubators’ network effect (cf. figure 3). But the data in table 1 also informs us which incubators concentrate their efforts on their local communities based on how many geographical communities they impact. For instance,

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the Austin Music Foundation and C4 Atlanta both dedicate their efforts to only two adjacent geographical communities, thus their impact is more concentrated; whereas National Arts Strategies (97 communities impacted) and Creative Capital (91 communities impacted) have a broader reach. Our GIS representations further treat this information.

Next, observe figure 2, which is setup in cluster format and presents the sphere of influence of the 14 arts incubators. Please note that the larger a colored filled node, the denser that cluster. The rationale in applying a clustering coefficient accounts for the potential of having more than one current or past incubatee living in a specific city and state. The same accounts for incubators located within the same city. Indeed, the highest concentration (density) of incubatees found in decreasing order are in New York City, Chicago, Austin, Los Angeles, the Bay Area, Miami, Honolulu, Boston, and Atlanta. Thus, New York City and Chicago are the two most dense clusters where current and past participants currently reside. This information, from a density perspective, shows us where the highest concentration of residencies of artists who are entrepreneurial minded, and it shows the pervasive impact of entrepreneurial education of artists. We will fully address this issue later when we connect our socioeconomic data (cf. figures 9–18).

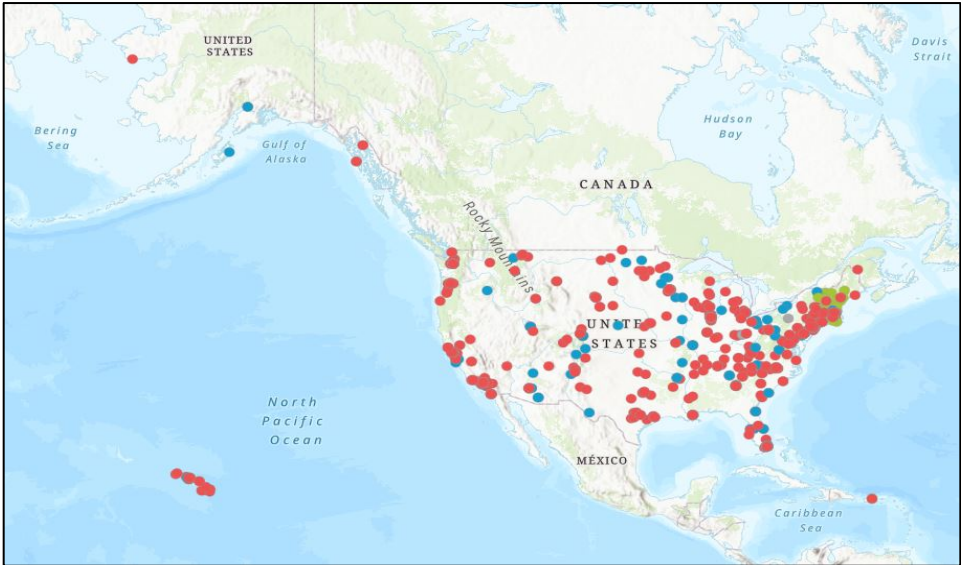


Figure 3. View of the Geographical Distribution of the 1087 Incubatees/Participants Studied

In addition, GIS maps can provide us with significant data otherwise not available. For instance, GIS can showcase how incubators fair in terms of network influence within each cluster with a predominant value measure (cf. figures 4, 5, and 6). We use ArcGIS to address any attributes that have been imported for each data layer. For instance, figure 4 indicates that Creative Capital is the incubator located in New York City with the strongest network effect and sphere of influence. It informs us that 165 of the incubatees in our sample reside in New York City and that Creative Capital has offered entrepreneurial training to more artists within this

hub than other incubators within our sample. Note that the pop-up window only shows 1 out of 4 options. As the user browses through those options, the GIS platforms tell us which other incubators exert the most influence on artists in New York City. In order, those are: Creative Capital, National Arts Strategies, NEWINK, and the Lark. This is a very useful metric and benchmark for the staff of any arts incubator. It can assist them with competitive strategic planning for program development, funding strategies, and marketing efforts.

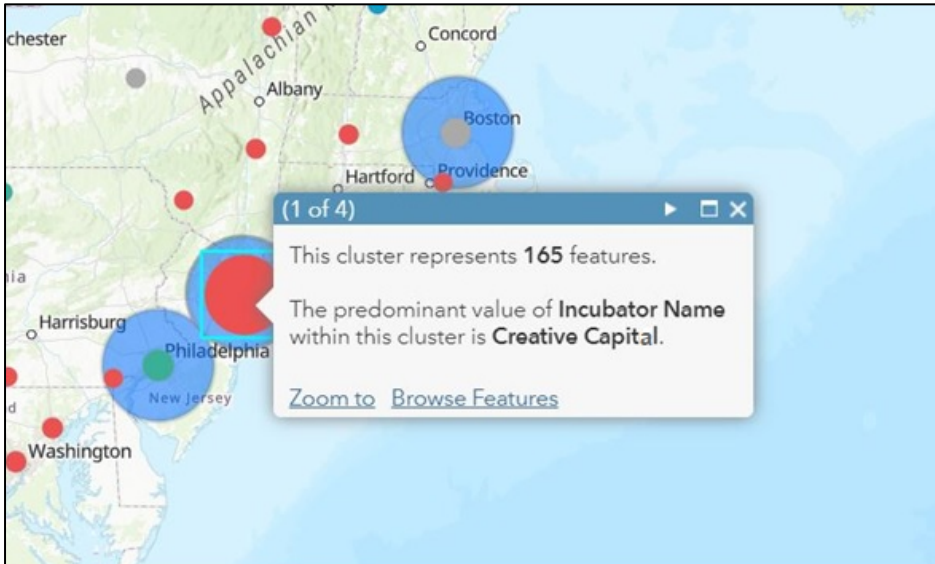


Figure 4. Example of Predominant Value of Network Effect within the New York Cluster

Figure 5 shows the arts incubators' network effect by year of participation within the San Francisco Bay Area cluster. It first informs us that there are 55 current and past incubatees residing within that cluster who have participated in entrepreneurial training with at least one of the 14 arts incubators in our sample. It also displays that most of the artists residing in the Bay Area took part in one of those programs in 2016, thus being the predominant value. Please note that we only see two display options. It means that ArcGIS was only able to capture two aggregated measures that were predominant over the others. This is another crucial metric that can inform any program director when and where their programs were most effective.

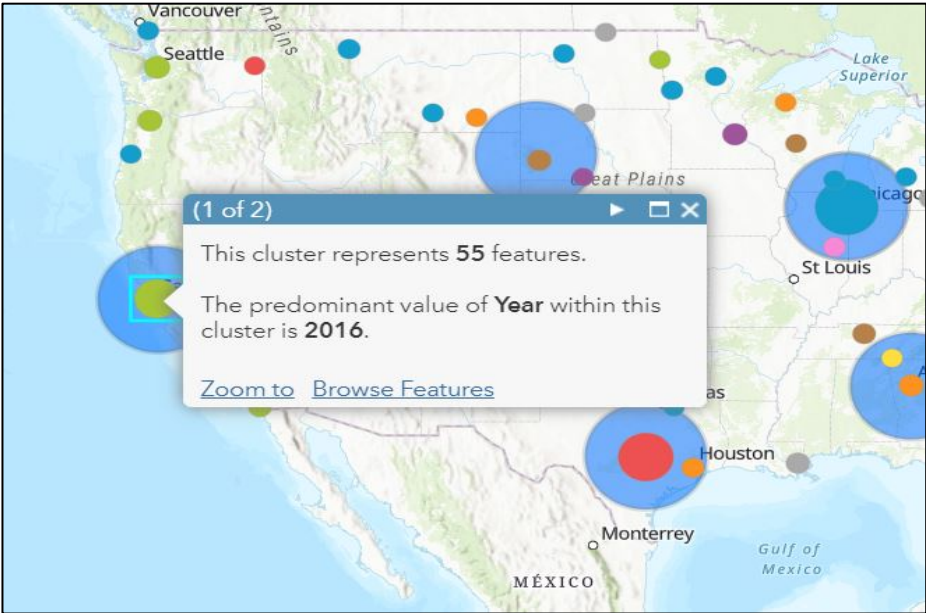


Figure 5. Example of Predominant Value of Network Effect by Year of Participation within the San Francisco Bay Area Cluster

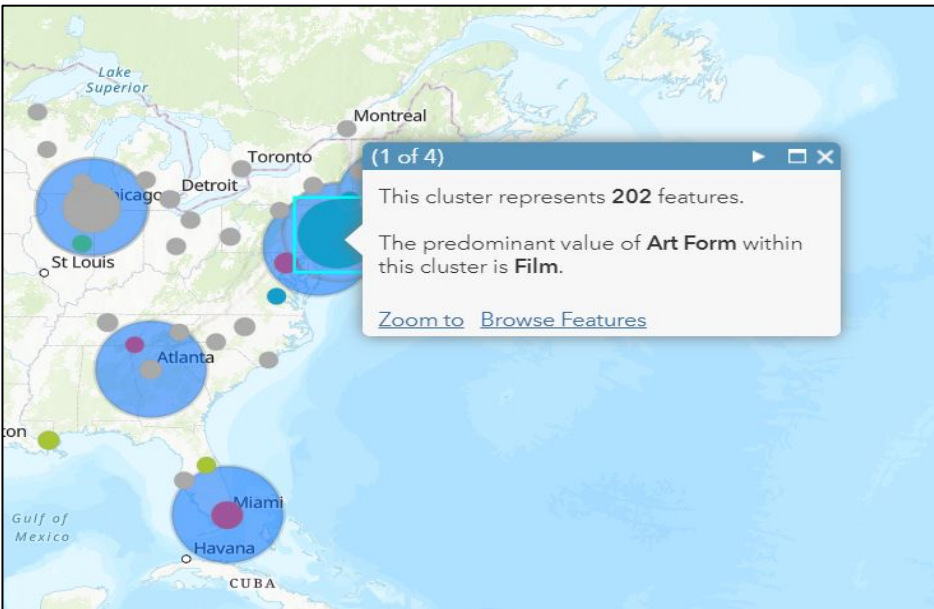


Figure 6. Example of Predominant Value of Network Effect by Art Form within the Combined New York/Philadelphia Cluster

Figure 6 tells a different story. It showcases how a cluster can be treated with an art form as attribute. We observe in the combined New York and Philadelphia area that there are 202

current and past participants whose predominant value as art form is film. This means that artists who participated in the entrepreneurial training provided by the arts incubators were predominantly film makers. This is another poignant measure that can be used by incubators and program directors as they assess where their current and past participants reside and where discipline specific hubs are developing.

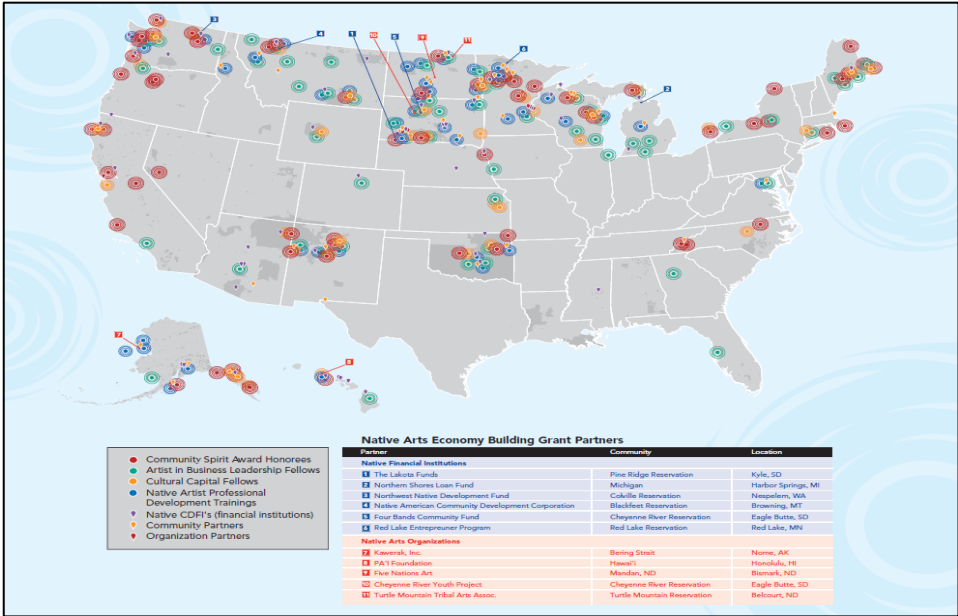


Figure 7. Participants and Grant Partners GIS Representation of First Peoples Fund (Note: Artist In Business Leadership Fellows are indicated in green on the map).

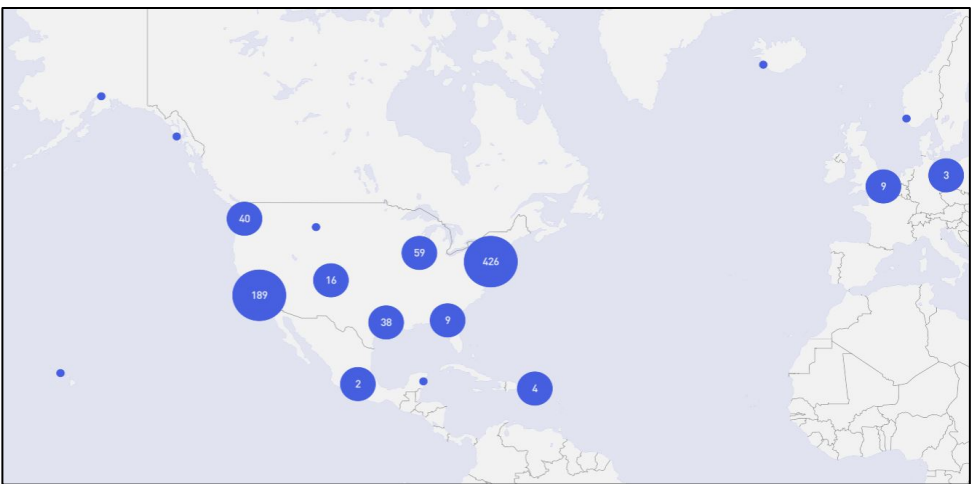


Figure 8. Participants Clusters and Count for all participants of Creative Capital.

The next two figures are examples of how two of the arts incubators within our sample have

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used GIS as a metric to assist their activities (cf. figures 7 and 8). First, Peoples Fund, which is an arts incubator dedicated to “honoring and supporting Native artists and culture bearers for 25 years,” has employed GIS in their Indigenous Arts Ecology Report. It beautifully presents the organization’s network, their current and past participant to their programs, and where their various partner organizations and community partners are located (cf. figure 7). On the other hand, Creative Capital, which prides itself on “funding the creation of groundbreaking art since 1999,” chose to use a cluster coefficient and count with its GIS representation to show the reach the organization has had over the years and where their current and past participants reside (cf. figure 8). Both are very effective ways of using GIS as a tool and metric and yet, both provided very different perspectives.

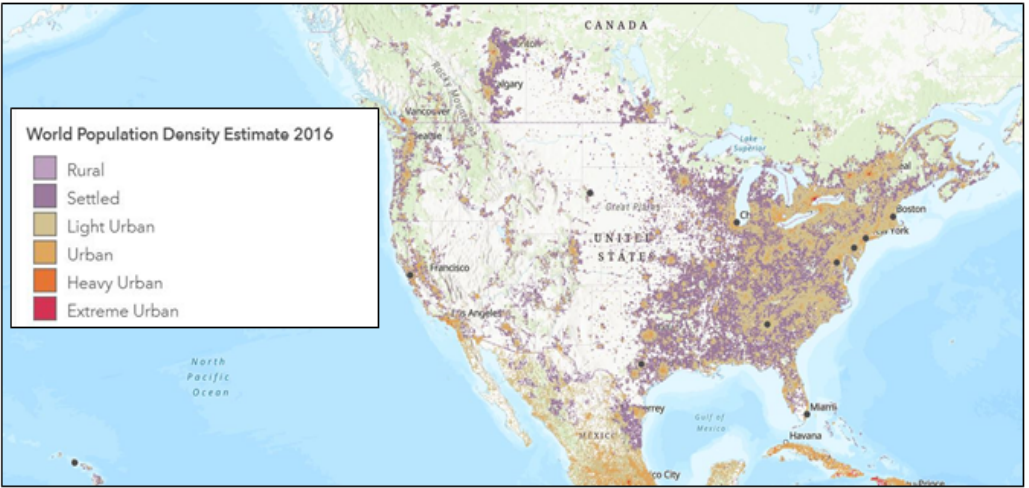


Figure 9. Arts Incubators (black dots) and Population Density Estimate Map Projection

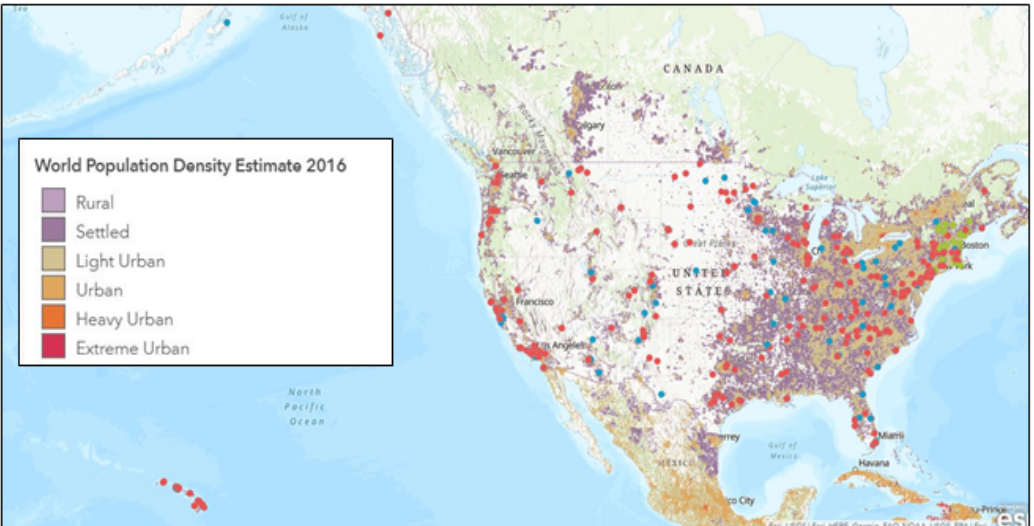


Figure 10. Incubatees (red, blue, and green dots) and Population Density Projection Estimate Map Projection

The next section of our analysis aims to unpack the complexity of impact assessment based on the socioeconomic and demographic benchmarks to better understand the geographical communities of the 1,087 artists. First, figures 9, 10, and 11 are calibrated for population density. This is a useful and clear metric that informs us if the artists and incubators are in more dense or less dense areas. Figure 9 shows that all our arts incubators, except for one (First Peoples Fund), are in heavily populated areas. Figure 10 displays that the 1,087 artists also live, with some exceptions, in urban and very densely populated areas. Figure 11 isolates the participants to First Peoples Fund's Artists in Business Leadership Fellows because it is the only arts incubator in our sample that caters to many artists residing in rural areas and shows the network of participants distributed across the United States.

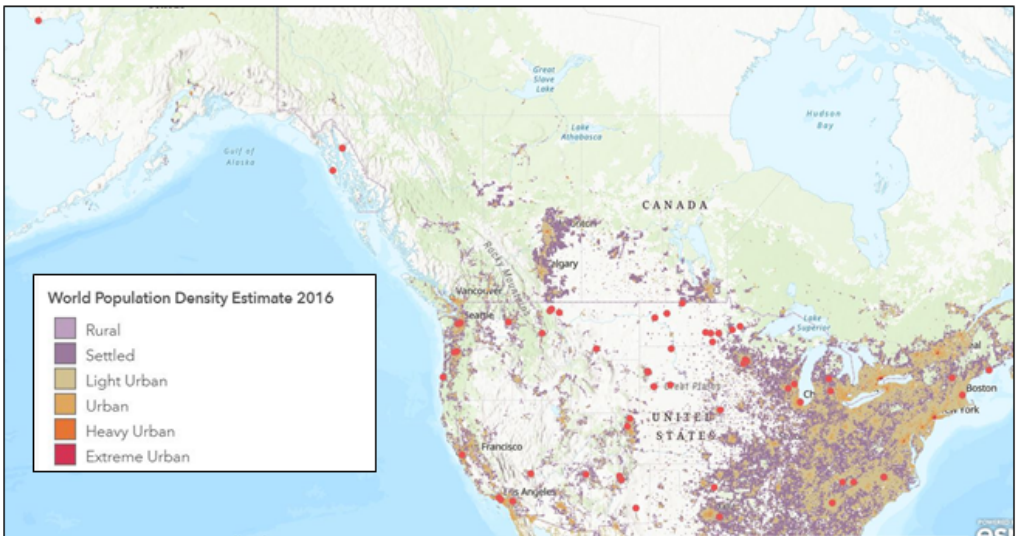


Figure 11. First Peoples Fund Artists in Business Leadership Fellows (red dots) and Population Density Estimate Map Projection

On the other hand, figures 12 and 13 are calibrated to understand the percentage of the population by area whose income in the past twelve months is under the poverty level. Figure 13 is a zoomed-in version of figure 12. We observe that, with no exception, arts incubators studied are all located in areas with higher poverty levels. Also, the artists in our sample who live in higher density areas also reside in areas with higher poverty levels. Figure 14 is calibrated for race and gives us a good understanding of where predominantly non-white areas intersect with our incubators and artists. However, when aggregating the whole dataset, most of the artists served by the arts incubators appear to reside in predominantly non-Hispanic white areas. Also, we learn that the majority of artists studied live in areas with a high cost of rent and utilities combined and which account for more than 30 percent of their household income (cf. figure 15 and 16), but they also reside in areas where the US median household income is higher (cf. figure 17). Finally, most reside in areas where unemployment rate is either low or moderate

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(cf. figure 18). Socioeconomic and demographic datasets used in conjunction with our artists and arts incubators' datasets are a powerful and essential tool for any arts administrator and incubator. They provide easily digestible information that can inform if the strategy of the organization is in line with its mission and serves its incubatees/participants in the most optimal way possible.

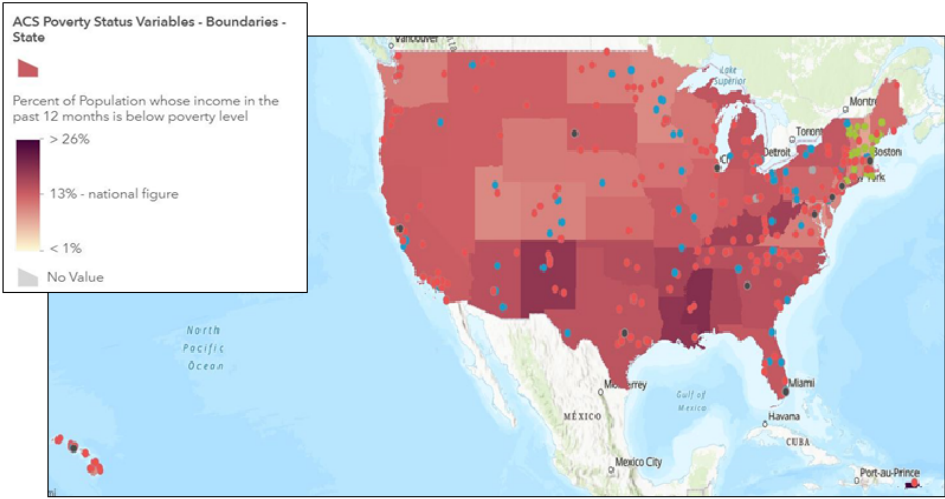


Figure 12. Arts Incubators (black dots), Incubatees (red, blue, and green dots), and Poverty Status Measure Map Projection

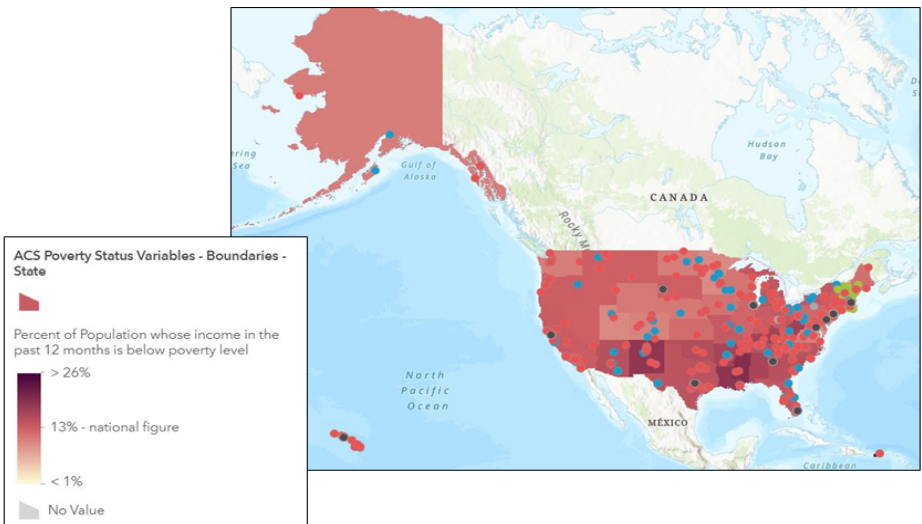


Figure 13. Arts Incubators (black dots), Incubatees (red, blue, and green dots), and Poverty Status Measure Map Projection (Zoom in View)

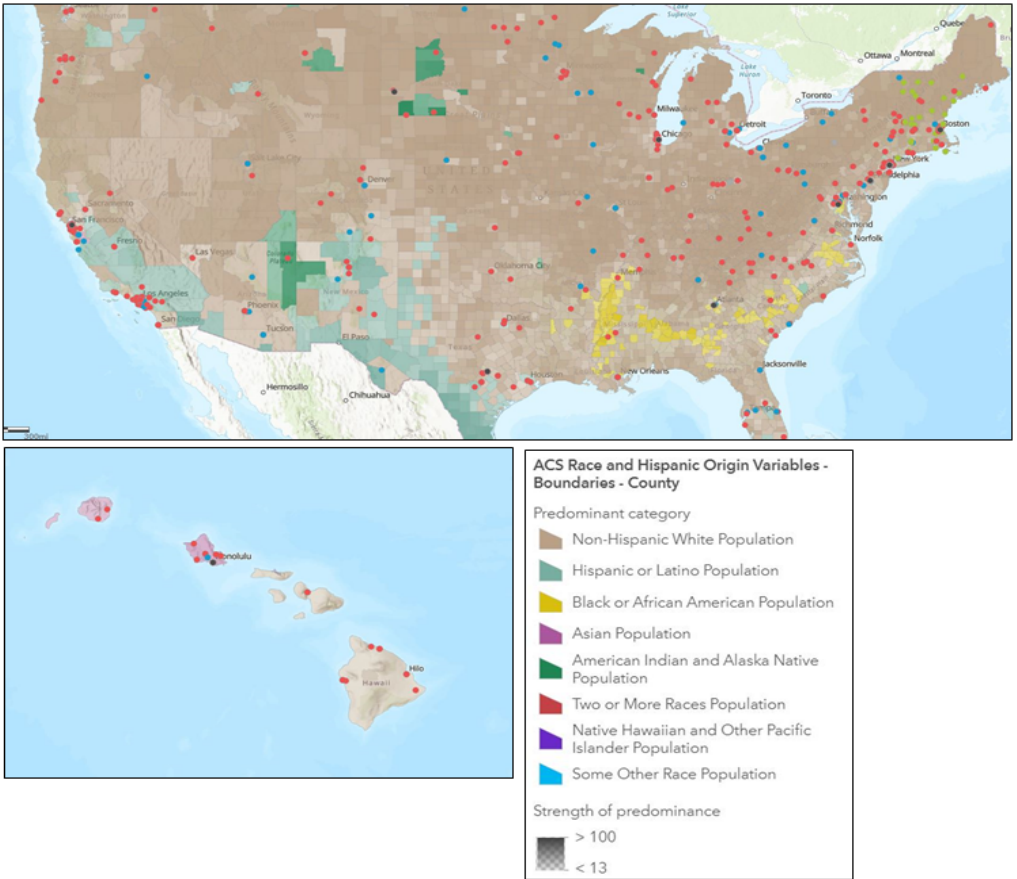


Figure 14. Arts Incubators (black dots), Incubatees (red, blue, and green dots) and Race and Hispanic Variables Map Projection

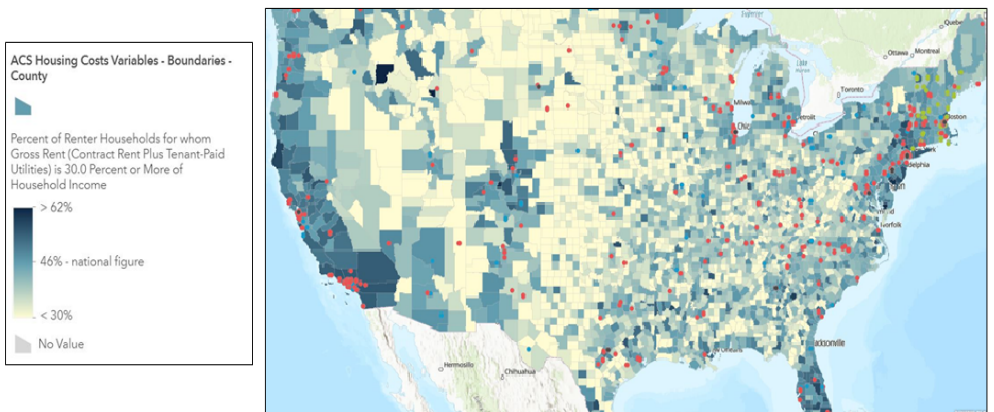


Figure 15. Arts Incubators (black dots), Incubatees (red, blue, and green dots), and Housing Costs Measure Map Projection

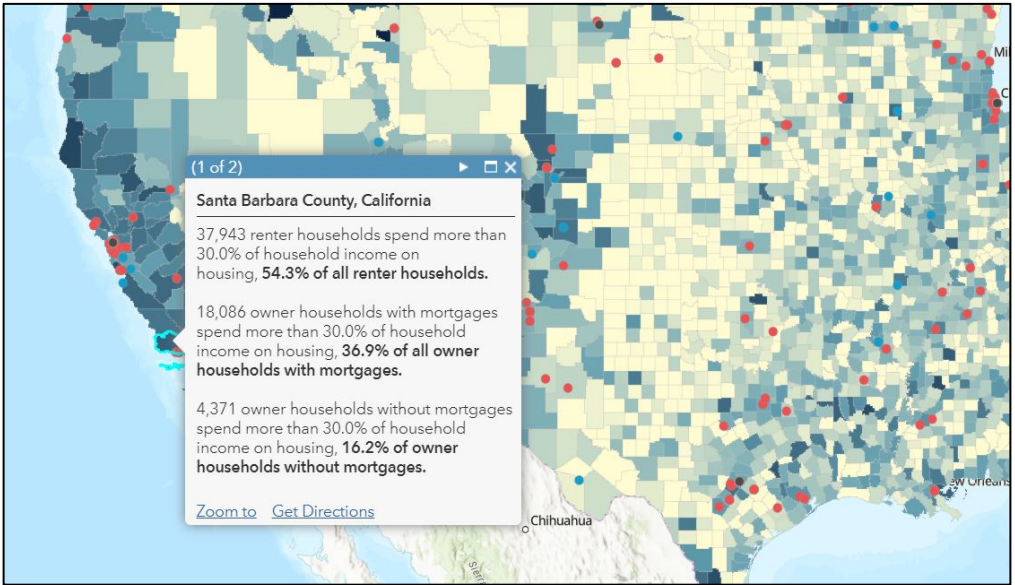


Figure 16. Arts incubators (black dots), Incubatees (red, blue, and green dots), and Housing Costs Measure Map Projection (Zoom in and Pop-up window view)

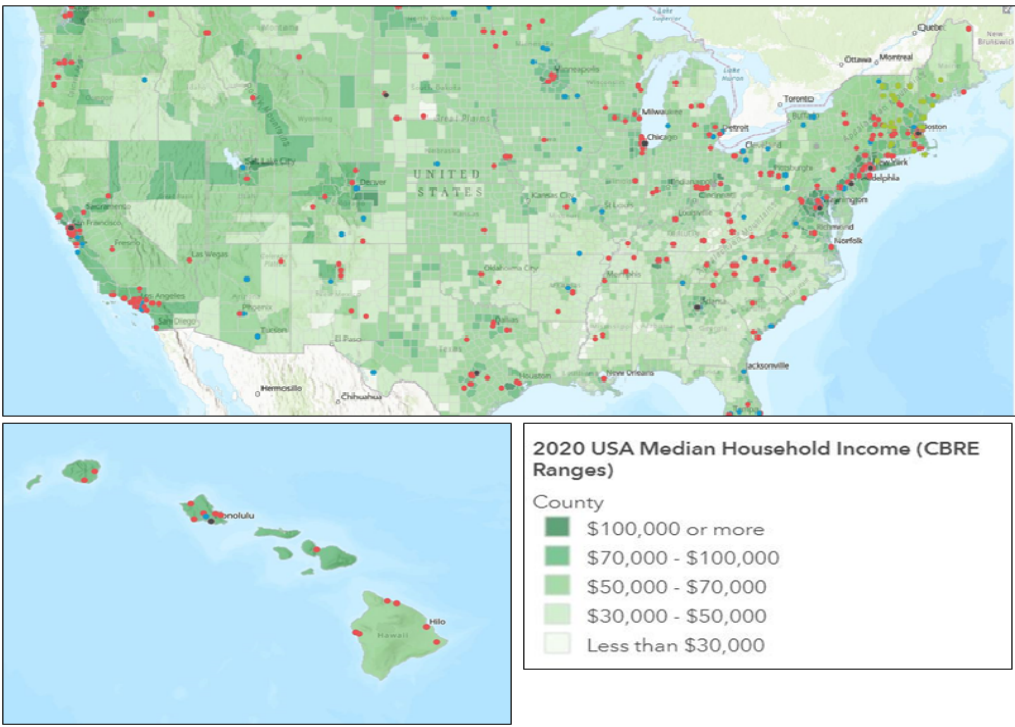


Figure 17. Arts incubators (black dots), Incubatees (red, blue, and green dots), and Median Household Income Measure Map Projection

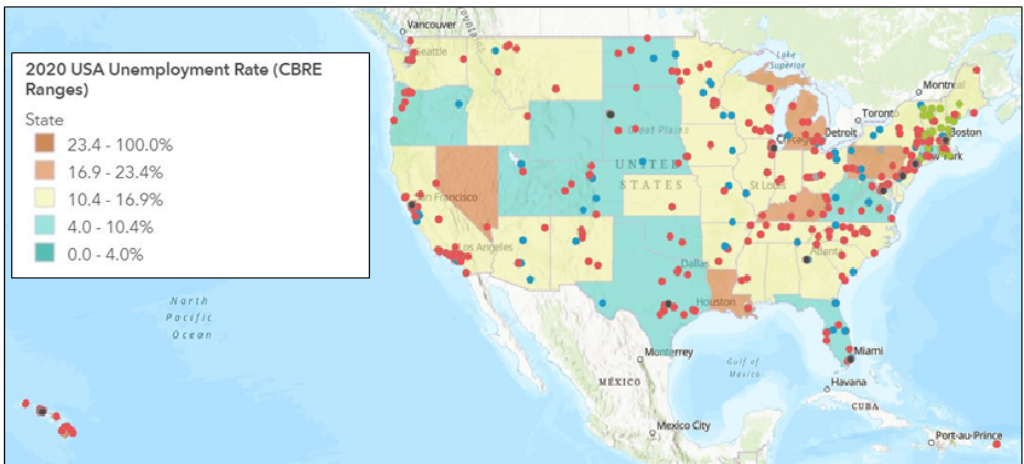


Figure 18. Arts Incubators (black dots), Incubatees (red, blue, and green dots), and Unemployment Rate Measure Map Projection

Discussion

Though there is a proliferation of metrics to evaluate arts incubators, the academic field is still developing. Different models and methods of education are applied to the complex phenomena of arts incubators; therefore, it is crucial to measure the effectiveness of education programs from many different perspectives. Our research focuses on entrepreneurial education for artists. Our interest is fueled by the observation that entrepreneurs are a significant contributor to economic growth and job creation (Chatterji, Glaeser, & Kerr, 2014; Delgado, Porter, & Stern, 2010; Glaeser et al., 2010; Schramm, 2006). In addition, entrepreneurs act as role models by influencing their communities to a much larger extent than non-business role models (Van Auken et al., 2006; Van Auken, Stephens, Fry, & Silva, 2006). Therefore, artist entrepreneurs that graduate from incubators are more likely to directly affect the economic well-being of their communities and indirectly affect the entrepreneurial culture across those communities. The indirect effect on the entrepreneurial culture is deep and can be transmitted over time (Van Auken et al., 2006). Our proposed metric enables incubators to estimate the impact of their activities on the geographical communities affected by their operations.

Study Limitations

The study has several limitations. First, location data for the incubatees was limited to the city and state of residence, and it lacked the detail level that the street address could provide. That amount of detail would have yielded much more accurate results. Unfortunately, that information was not available for all artists. Second, the present study investigated 14 arts incubators and 1,087 associated incubatees. That is a limitation on its own as it prevented us

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from going into the kind of details that a single case study would provide. Third, there are over 300 arts incubators across the United States. A similar study covering the fuller universe of arts incubators would yield more robust results. However, collecting the necessary data would take several years. Finally, the study wasn't able to indicate the degree of impact by serving a larger number of communities. Indeed, the economic impact of serving a larger quantity of communities versus concentrating efforts on one more densely populated metroplex is beyond the purview of this study, but it could be addressed in further work.

Strategic Implications

The impact of the incubators on various communities is heavily rooted in the mission statement of those organizations. In addition, most of those incubators have a small staff (3 to 4 staff members on average), and they must focus their human resources, funds, and physical spaces, if any, on the target demographics that they serve. For instance, the Austin Music Foundation and C4 Atlanta are dedicating their resources to and concentrating their impact on artists that are residents of their respective cities/communities, whereas the First Peoples Fund's goal is to assist Native artists in 62 communities across the United States, many living in rural areas. Some incubators have a dedicated arts incubation space that may include artist studios (C4 Atlanta), co-working spaces (2112 Inc.), and even a maker space (Art + Public Life), while others chose only to provide programs and assistance to artists (Creative Capital, National Arts Strategies). The later model of operation focuses its resources on reaching as many communities as possible, while incubators that invest in a facility are more likely to dedicate their resources to neighboring or local communities. Each incubator has shown to be unique, and they don't attempt to duplicate other programs but to provide specialized services based on the demands of the participants from the communities they serve. Building network capacity is cohort-dependent, and participants that have attended programs within a cohort tend to develop a strong tie with lasting effects beyond the cohort's program graduation. However, addressing the question of the economic value that arts incubators have on their communities is beyond the scope of this study.

Implications for Future Research

In expanding this work, three major research needs arise. First, this explorative study proposed a simple measure of quantity and density of community impact of the incubator activity. More complex measures may arise to account for the (local) population density and other contextual factors. Second, the effect of entrepreneurial culture needs to be evaluated to some extent. Identifying entrepreneurial activity through a longitudinal study on artists' social media networks will estimate the effect of role models on their communities. Third, the economic impact of the value that arts incubators have on their communities could be quantified using a multiplier tool.

Implication for Entrepreneurship Education

Governments, academia, and private organizations are increasingly identifying entrepreneurial activity as a major contributor to job creation and long-term economic growth (Romer, 1994). Literature supports this line of thought by identifying an increase in employment and a growth in wealth creation associated with a region's increase in entrepreneurial activity (Mitra, 2013). The contribution of arts incubators to local economic growth can be substantial, but it must be estimated. The results of this study indicate that the proposed geospatial metric measures the quantity and density of the communities impacted by the incubator's entrepreneurial education. Such a metric has an impact on an educator's activities in three ways. First, the measure is instrumental to educators to verify the effectiveness of their educational activities and programs. Combined with existing metrics, the use of the geospatial impact measure will enable the improvement of educational programs by understanding which non-local communities are affected the most by their operations. Second, leveraging the new metrics, incubators' leadership will be able to extend their fundraising and marketing activities to the regions that are affected the most by their activities. Third, university incubators should consider adopting this assessment metric in evaluating their own programs, thereby shaping future research on the assessment of entrepreneurship training for years to come, particularly as university incubators deliver entrepreneurship education and expand their alumni network. That combination would accelerate the career progress of their students and could be quantifiably assessed with this metric. In sum, the new metric will improve the success rate of incubators and, at the same time, will enable the improvement of educational programs.

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