Google DevArt: Following the Success of Google's Android Market in the Visual Arts?

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Abstract. Google DevArt for artworks created with computer coding is a hybrid field flanked by technology and art. DevArt, a website run by Google, gives coders the opportunities to express themselves creatively as potential artists. We have categorized Google's art activities into three generations to analyze efforts aimed at digitally preserving meaningful cultural materials and making them accessible to everyone. Our main claim is that DevArt has the potential to follow the success of mobile application stores such as Google's Android Market. In our view, DevArt replicates the central elements behind the mobile application store's success by implementing the open platform and open source development approach for free innovations. Considering its potential success, it is necessary to discuss its potential impact on the existing visual arts.

Keywords: Visual Arts · Platform · Innovation · Google · DevArt · Application Store

1 Introduction

Over the past 40 years of the Digital Revolution, technology has expanded the domain of art. Frank Popper (1995) stated that there is crucial gain for cultural protagonists within the hybrid "scientist-cum-artist" [8]. Google DevArt—artwork created by computer coding—is one of the happy blends of collective creations [12]. Google DevArt is an innovative online competition; the winner among digital art creators will be given the opportunity to feature his/her artwork alongside digital installations at London's Barbican Centre.

Cramer and Gabriel (2001) described computer programs as "literature in a highly elaborate syntax of multiple, mutually interdependent layers of code" [3]. However, a problematic conversion is possible when the code becomes everything or when vision is replaced by data. In his essay "Avant-Grade Attitudes," Greenberg (1969) stated that the dividing lines between art and everything that is not art are becoming blurred; further, scientific technology is invading the visual arts [7]. Within the perspective of formalism, any technical effect is the characteristic of the artwork's medium—"the code"—on which it is based.

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However, questioning whether DevArt is avant-garde is a discussion that is not new. It is important to estimate the influence of this new way of creating art on the traditional visual arts. The impact of DevArt needs to be discussed widely when considering the drastic changes Google has made in a decade. DevArt is aligned with Google's core strategy: providing an open platform for participation by everyone to facilitate creation and expose aspiring creators to a massive opportunity easily and quickly.

Thus, this study is focused on the potential of Google's DevArt in light of Google's path in the telecom industry, especially its success in Android Market. We believe that DevArt and Android Market have common characteristics in terms of the open platform in which anyone with an idea can participate, produce his/her work, and benefit from mass exposure to the global market. Android Market has changed the landscape of the telecom industry, and we believe that DevArt will also make a significant impact in the field of visual arts.

2 Google's Activities in Art

Google's mission is "to organize the world's information and make it universally accessible and useful" [13]. The company's Cultural Institute represents "an effort to make important cultural material available and accessible to everyone and to digitally preserve it to educate and inspire future generations" [13]. Many works from the Cultural Institute, including the Google Art Project, have been displayed in numerous significant exhibitions. In this section, we categorize its works into three generations as below.

2.1 Google in Art 1.0: "Digital Collections"

Google Cultural Institute launched its Art Project in collaboration with well-known museums worldwide, including 17 museums in Europe and the U.S. such as the Tate Gallery in London, the Metropolitan Museum of Art in New York City, and the Uffizi Gallery in Florence [5, 6]. The Art Project has provided more than 40,000 high-resolution images of classical oil paintings and contemporary installation artworks from well-known art museums in more than 40 countries and small regional galleries [13].

The Art Project provides a virtual tour of galleries by scanning artworks and converting them into high-resolution images and high-definition videos [2]. The online museum's visitors can encounter these works intimately through close-up images or videos on their computer screens. This intimacy is not available in galleries, and it makes the art experience more informational and emotional [9].

2.2 Google in Art 2.0: "Digital Museum"

On December 10, 2013, Google Cultural Institute launched Google Open Gallery; it is available to anyone who wants to create and publish his or her own online exhibitions [14]. Google Open Gallery addresses the relationship between public spheres and

network interfaces. It is an excellent venue for unearthing a huge archive of photographs or zooming in powerfully on the evolution of one's work [10].

Although Google must grant users permission to participate, publish, and exhibit in Open Gallery, approved users can freely upload, organize, and customize. Open Gallery can be viewed as an open space where people can tell engaging stories on their own websites by uploading images, videos, Street View imagery, and text work as cultural content [11].

Online Gallery is expected to be a cooperative public art venue attracting hundreds of thousands of visits from users throughout the world [13]. Individual pieces can work together to present a nonlinear flow of abstract patterns. The Belgian Comic Strip Center and the Fort Collins Museum of Discovery are examples of galleries with the potential to make cultural artifacts more accessible or image-heavy [10]. Open Gallery's full-screen introductory image is used by the Belgian Comic Strip Center to express the story of Waucquez Warehouse, an iconic Art Nouveau building in the Center. The Fort Collins Museum of Discovery uses a powerful zoom tool for details of intricate illustrations or vintage archive photos with contemporary Street View imagery [10].

2.3 Google in Art 3.0: "Scientist-cum-artist"

Google DevArt is part of a series of the Google Cultural Institute's efforts to explore art on the Web. Anyone can sign up for the DevArt competition and begin coding to create an artwork, regardless of experience. The final winner(s) in the competition will have a chance to appear at the Barbican Centre in London. DevArt can be viewed as a platform for anyone who wishes to use the established development environment to produce an output according to the common instructions given to participants [12].

Google Creative Lab's Emma Turpin said, "What we're trying to show is that art isn't just the output, but the entire development process" [1]. Steve Vranakis, the executive creative director at London Creative Labs, stated, "DevArt gives the platform and the opportunity for coders to express themselves creatively and make something incredible" [1].

3 Comparison Analysis of Google Android Market and DevArt Project

In this section, we argue that DevArt has the potential to follow the success of mobile application stores such as the Apple App Store or Google Android Market because it replicates the central elements responsible for mobile application store successes. For example, DevArt has adopted an open platform with development tools that can be used to create innovations for free.

The mobile application store is an online marketplace where smartphone users can search, select, buy, and download applications. Its success has been proven by the dramatic growth in the number of applications downloaded. In fact, this growth phenomenon has changed the landscape of the mobile content industry from a telecom-network-operator-centered business to an application-provider-centered business [4].

Before the emergence of the mobile application store, the mobile content business model was the semi-walled garden concept controlled by operators. On the contrary, the mobile application store opens its platform and brings together the smartphone's user interface, a service delivery platform, and a revenue model for developers, which has allowed many more to innovate. Success associated with Apple App Store and Google Android Market proves that the open approach draws critical resources—third-party developers—from the outside and is effective in promoting innovation; further, it contributes to significant business growth [4].

Here, we compare the Android Market and DevArt to show their similarities and differences. The comparison criteria used in the analysis below is based on the study by Cuadrado and Duenas (2012) in which they explain the success factors, existing approaches, and future developments of the mobile application store and provide a comparative analysis of Apple's App Store and Google's Android Market.

Platform. The applications in Android Market are only compatible with Android OS. The works in DevArt can be developed in multiple platforms including Android OS, Arduino, iOS, Linux, Raspberry Pi, and Windows.

Development Restrictions. Open source development tools such as programming languages are available in both Android Market and DevArt.

Submission Restrictions. Android Market does not restrict submissions by any application developer. Anyone who has an idea can participate in the market. DevArt is also open to anyone who can code.

Contents Approval Process. An application submitted to Android Market is checked automatically for minimum criteria (e.g., security) and can be published immediately. After publication, if the application is found inappropriate, it can be removed. DevArt takes an approach similar to that of Android Market. A developer can post his/her work instantly and at no charge on the DevArt website, but it can be deleted if it is judged as including inappropriate content.

Partnership. Google Android Market forms partnerships with external parties such as telecom operators and handset manufacturers to make an inroad for any developers into the mass market. DevArt collaborates with London's Barbican Centre, a renowned multi-arts and conference venue, so that any developer can experience ease of access to exhibition opportunities and exposure to the visual arts mass market.

4 Discussion and Conclusion

The potential of DevArt is still uncharted in the academic field of visual arts. Up to this point, we have analyzed the potential impact of DevArt based on a comparison with mobile application stores (e.g., Android Market). Because DevArt is still at an early stage, it will take time for the project to follow the growth trajectory of the Android Market. In this section, we address four questions related to the future direction of DevArt.

First, will more museums participate in DevArt? DevArt's future growth would require an increase in the number of partnering museums. As of now, DevArt has a partnership with only one museum—London's Barbican Centre; in contrast, Google Art Project is working with a number of renowned museums worldwide. Clearly, visiting the Barbican Centre in London is challenging to people who do not live near London. As DevArt expands its partnership with additional museums, it will increase the opportunities for participants to exhibit works of art.

Second, if DevArt continues to grow, will its growth be a positive development for the traditional field of visual arts? Considering Google's path in the telecom industry, DevArt may ultimately control the field. When Google introduced Android OS, the corporation was supposed to be concentrating on software development, not hardware. Based on their confidence in Google, handset manufacturers including Samsung and HTC focused on the development of hardware such as smartphones and tablets, not software. However, when Android earned the dominant position in the mobile OS market, Google changed its position and decided to produce its own hardware; thus, it acquired Motorola. Additionally, it launched Google Glass, which is expected to replace smartphones. Additionally, telecom operators who had provided network services lost their presence in the content business, which is currently dominated by Google, Facebook, and other content service providers. Their network is regarded as dumb pipe that merely transfers data and does not generate a value-added service. If DevArt establishes a strong reputation for debuting artists, or if the online exhibition becomes more popular, more art museums will want to participate in this project. If Google regards museums as nothing more than places that rent out exhibition rooms, or if people give more attention to Google than to museums, traditional institutions may lose their authority. Thus, museums must consider their role in light of the rising presence of Google in the visual arts.

Third, does DevArt provide fair opportunities to its participants? In Android Market, any applications can be published easily. Because of its optimistic approval policy, numerous applications are now in the marketplace. DevArt has a similar approval policy; therefore, it cannot restrict the number of artworks uploaded to the site. Thus, it is prudent to ask if it is possible for six judges to evaluate all artworks fairly. The background of each judge would be limited to his or her area of expertise, but the artworks to be judged would vary widely.

Fourth, do developers in DevArt favor the open development process? Uploading images and videos to an open platform and sharing development processes would require a significant amount of time. Regardless of authenticity, the fancier images could receive more attention from judges or audiences. We do not believe that the value of development processes is more meaningful than the resulting artworks.

This study provides the foundation to understand how DevArt contributes to and impacts the visual arts based on a comparison analysis of Android Market (mobile application store) and DevArt. We have identified similarities between the two, indicating the potential growth of DevArt. This work is a stepping stone for future work to further expand an understanding of Google's role in the visual arts. In digital media, DevArt would be an essential feature of the Internet and inspire its own genre of art.

5 Limitations and Future Research

As part of our analysis of Google DevArt, we attempted to obtain statistical data about the number of submitters and visitors. However, Google does not disclose this data, according to its policy. Furthermore, the DevArt website does not allow visitors to add comments; thus, our efforts to examine visitors' feedback were limited. The goal of this study, though, was not to estimate the current scale of the DevArt competition but to illustrate and understand its potential to become a new kind of global open platform for creators. Subsequent research could begin with the discussion points included in this paper and extend to the artistic value of specific DevArt artworks. It is important to consider how visual artists understand and collaborate with Google or other similar companies. DevArt contestants are required to include at least one example of Google technology in their various works of art. In the next phase of DevArt competition, Google could add requirements that would influence artists' work further. Google DevArt has received positive reactions regarding its role as a venue for a new generation of artists, but there are digital artists (hacktheartworld.com) who criticize the competition for exploiting artists and limiting their freedom to choose their own creative tools.

In the telecom industry, Samsung, the world's largest Android smartphone manufacturer, is now switching from Android to Tizen, an open-source operating system led by Samsung and Intel. As Google is strengthening its control over Android to expand its market presence, more companies participating in the Android platform are looking for such alternatives to avoid its dominant influence. Additional discussions are needed to explore the role and potential impact of Google DevArt in view of Google's path and influence in the telecom industry.

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