The Emerging Application Ecosystems: An Introductory Analysis of Android Ecosystem

Sami Hyrynsalmi, Department of Management and Entrepreneurship, Turku School of Economics, University of Turku, Turku, Finland
Arho Suominen, Innovation, Economy and Policy, VTT Technical Research Centre of Finland, Turku, Finland
Tuomas Mäkilä, Technology Research Center, University of Turku, Turku, Finland
Timo Knuutila, Technology Research Center, University of Turku, Turku, Finland

ABSTRACT

Emerging mobile application ecosystems have had a clear effect on the software business. Apple App Store and Google Play have gathered both existing large software companies and new start-ups. In creating a healthy ecosystem, the role of the software developer is significant. In practice, the ecosystems’ ability to entice developers to create software products to the ecosystem can be argued to be a major factor driving the competitiveness of the ecosystem. This article empirically investigates Google Play, by gathering the data of 350,000 applications from the marketplace. With the dataset, common assumptions linked to the marketplace are studied. The results show that the direct software sale is a practical revenue model only for a few while offering a trial and paid version of the application seems to improve the revenue. The impact of the number of applications in the marketplace is questioned.

Keywords: App Economy, Application Marketplace, Freemium, Google Play, Mobile Ecosystem

INTRODUCTION

A clear indication of the change in the software application business has been seen in the emergence of new mobile device related ecosystems. We have seen these new mobile application ecosystems, such as Google’s Android ecosystem and Apple’s ecosystem, having had significant success in getting existing software companies as well as new start-up ventures to offer software products and services within them. New, young ecosystems, such as Microsoft’s Windows Phone ecosystem, are also currently growing and the competition between

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the ecosystems will most likely increase in the near future.

Motivated by the changes in software product business, we focus on analysing the Android application ecosystem, its developers and users. Although noting that this constitutes just a small portion of the whole software business, the data gathered from the ecosystem might uncover different modes of business within these new software product markets. Furthermore, by analysing the structure of the marketplace we can create a significant insight to the ‘health’ of the ecosystem.

Mobile applications stores have been recently researched from different angles, e.g. the factors of Apple’s iPhone success (West & Mace, 2010; Laugesen & Yuan, 2010), the supply chain of the phones (Dedrick et al., 2011), a developer’s perspective (Anvaari & Jansen, 2010; Holzer & Ondrus, 2011; Schultz et al., 2011; Hyrynsalmi et al., 2012b), the multi-homing of developers and applications (Idu et al., 2011; Hyrynsalmi et al., 2012a), ecosystem’s content (Feijóo et al., 2009a; 2009b), value network approach (Peppard & Rylander, 2006), overall framework (Yamakami, 2010) and from a business strategy approach (Zhang & Liang, 2011) have been assessed previously.

Although there is a considerable amount of existing research, the overall picture into the new marketplaces is scattered and built upon conceptual studies as well as empirical studies with a considerable small amount of data. Furthermore, some issues such as the monetization of products in mobile application ecosystems have not been studied, to the authors’ knowledge, before. Therefore further empirical studies with representative samples are needed to advance our understanding in the new marketplaces.

In this article we are presenting an introductory analysis of the Android ecosystem. The ecosystem was chosen due to the variety of data that it offers. The aim of the study is to recognize information gaps of a mobile application ecosystem beliefs and ecosystems seen in practice. We assess these objectives by gathering data from Google Play, the application marketplace of the Android ecosystem, and investigating several general assumptions relating both the developers and the customers: Is direct sale profitable in the ecosystem? Is it a reasonable publishing model to offer a free version to try? Do the customers pay for the personalization of the smart devices? Does positive feedback correlate with download decisions?

The data for the study is parsed from the applications published in Google Play. Formerly the marketplace was known as Android Market, in March 2012 it was integrated with other Google driven stores as a part of new marketplace Google Play. In December 2011, we gathered a dataset of free and paid applications published in the marketplace resulting in a sample of 339,861 different applications. In order to check the validity of the data gathering process and the data gathered, the data gathering was repeated in June 2012 resulting with the data of 366,938 applications. These datasets were then used to study the interactions of different characteristics. Our parser produced a dataset that contains, e.g., the name of the application, the last updating date, price, number of installations, rating of application, and publisher. The data was investigated by taking descriptive statistics to analyse the overall trends of development.

The results show that, even though there has been an overall increase in the number of applications offered through Google Play, revenue models, other than getting paid for the product itself, are becoming more and more dominant. The marketplace relies on a few successful products, mostly based on advertisements or different kind of ‘freemium’-models (see Anderson, 2009; Pulkkanen & Seppänen, 2012). From the total number of individual developers identified from the sample, the number of successful paid software products remains remarkably small. The monetization of products comes mainly from advertisements or through products/services sales to which the application serves as a supporting product. However, the challenge of differentiating within the marketplace, while creating a viable product portfolio, is rapidly becoming the most
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