

Examining Consumer Oriented Innovations: A Crowdfunding Text Mining Approach

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ABSTRACT

INTRODUCTION

Majority of text mining analysis focus on patent (Ozcan and Islam, 2017; Wang et al, 2018), publication (Rafols et al, 2014; Li, Porter and Suominen, 2017; Ebrahim and Bong, 2018) and recently social media (He, Zha and Li, 2013; Zhuravleva, Bot and Hilton, 2016; Mehrazar et al, 2018) as data sources. However these data sources with exception of social media, show just large organisation oriented activities such as publication scientific output and patents illustrating R&D centre outputs and organisation interests when examined using bibliometric or scientometric analysis.

BACKGROUND OF STUDY

The importance of scientometric or text mining analysis are to identify themes, trends, clusters which would illustrate knowledge management and provide technological road mapping of innovations (Kovacs et al, 2015). It is termed as a quantification tool which uses scientific communications as the basis for analysis and research achievements (Harinarayana, 2015). This approach to research has been applied within research fields such as energy, internet of things, open innovation, earthquake research. The utilisation text mining analysis for research is dependent on data sources such publications, patents, blogs, tweets which are collected through questionnaires, citation databases, information systems and platforms (Harinarayana, 2015). Crowdfunding platforms such as kickstarter, indiegogo, crowdcube, lending club and syndicate room are sources of data with the aim of soliciting financial contributions from large nexus of people (Greenberg et al, 2013; Martínez et al, 2017). The concept of crowdfunding although is not recent rather the adoption of platforms to accumulate funds is relatively novel whereby platforms use the internet as a tool to facilitate contact between capital providers and seekers (Galuszka and Brzozowska, 2017). The consequent reduction of bank credit and financial crisis led to the emergence of this novel concept which is surpassing traditional forms of finance such as bank loans and venture capital (Andrieş and Ursu 2016; Cuomo et al. 2018). The level of public dialogue and information sharing involved in crowdfunding presents a valuable resource for entrepreneurs as social capital (Davidsson and Honig, 2003) and researchers as a data source.

RELEVANCE OF STUDY

The data set from crowdfunding platforms are more consumer oriented with a lot of big consumer desirable products springing out such as GoPro, Pebble, Oculus Rift, and The Dash (Schroter, 2014). Although consumers and individual inventors have always been in the picture when it comes to innovation and new product development process (Franke and Shah, 2003; Lettl, 2005; Poetz and Schreier, 2012; Ende, Frederiksen and Prencipe, 2015), the literature shows a shift to a more inclusive, bottom of the pyramid (BOP), lead user, crowdsourcing and continuous innovation approach of research which focuses on predicting consumer desires developing more radical innovative products and providing novel solutions which build trust between firms and customers, increase business reputation and organizational (Weber and Van der Laan, 2014). Previous research, product and consumer oriented

activities used to be closed and within firms but the shift to a more open innovation approach (Garbarino and Mason, 2016; Cui and Wu, 2017) needs to be looked into by the text mining community in order to uncover insights with regards to developing and commercializing more sustainable products.

RESEARCH AIMS AND METHODOLOGY

The aim of this study is to examine crowdfunding platforms and analyse the investments made by capital providers to show desirable and emerging linkages between products or projects using text mining methods. A custom crawler was developed to download web contents and extract key data points from a crowdfunding platform. The dataset of approximately 1,500 projects from the United Kingdom were analyzed from a period of 2013 to 2018. The project pages on kickstarter were structured and the crawling of specific data points such as project title, project description, project links, project target goal, project amount reached, project category and year were used to build a dataset on projects successfully and not successfully funded. Following the crawling of the data, the dataset was cleaned and a threshold was included to eliminate unsuccessful projects within the data. Afterwards, we use Vosviewer software to visualise and examine emerging focus clusters from various sectors over the period. The figure 1 below give an overview of the data collection process:

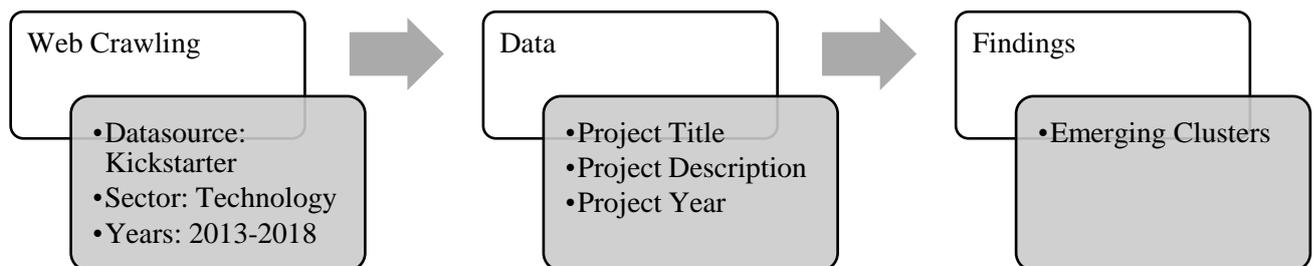


Fig 1: Data Collection Process

EXPECTED CONTRIBUTION

The expected contribution of this study is to show feasible and innovative products which can spring out the development of new ideas and products through the examination linkages between clusters. A quick analysis of emerging clusters, we identify a relationship between art and online platforms where museums, antiques can be bought and sold. For example, yourartbay and artfund. Another relationship is springing up between bikes and smartphones whereby devices such as velostrap and cyclk illustrate the desire of customers to want devices that can easily be used whilst on bikes. Other relationships such as lighting and cyclist, artificial intelligence, machine and creativity, educational courses for apple watch, coders and instagram when analysed further would give more insights on more consumer oriented innovations. The investment made for products illustrate the desires of consumers which could also support large organisation research and development processes.

IMPLICATIONS

Ground breaking ideas or products that appear unexpectedly can lead an overturn in markets and new technologies. Disruptive technologies only serve niche divisions that value their new attributes with many firms developing working prototypes of products embedding an emerging disruptive technologies (Vecchiato, 2017). In changing industries, the influence of prior history often lead to difficulty in making decisions to respond to new events due limited beliefs which further result in organisational inertia and poor performance (Vecchiato, 2017). Crowdfunding has led to innovations such as Glowforge (3D printer), Pebble (smartwatch) to disrupt markets and this is all from a consumer oriented,

BOP perspective. The analysis of the linkages between technologies would be beneficial to companies seeking to disrupt markets.

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