

e-Entrepreneurship and Open Source Software

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Abstract

As the first stage of a larger project, this paper presents experiences of two e-Entrepreneurs in the light of Open Source Software (OSS) being accepted globally. Unlike proprietary software (such as Windows), OSS comes with its internal details visible to its users. The significant implications of this unique style of software distribution for e-Entrepreneurs are examined. Recommendations arising from the interviews include the need to be technically competent; understanding the reasons behind adopting this strategy; and identifying and addressing customers' requirements. Authors also found similarities between traits (such as being visionary; being responsive to market changes) which make an entrepreneur and e-Entrepreneurs successful.

Key words: Australia; Case Study; e-Entrepreneurship; Open Source Software (OSS)

INTRODUCTION

The notion of an e-Entrepreneur has recently gained recognition amongst both academics and practitioners. An e-Entrepreneur has many similarities with that of an 'entrepreneur', especially with respect to the attributes and traits required to be successful. For the purpose of this paper, authors define an (e)entrepreneur as a person or an organisation principally using the Internet to strategically and competitively achieve vision, business goals and objectives. An (e)entrepreneur is viewed as being 'successful' when they secure growth in dollar terms whilst overcoming market challenges. Over the last two decades businesses have experienced substantial change brought about as a result of globalisation and the Internet. Maintaining a competitive advantage to simply survive is a continued battle for many businesses. The Internet has provided companies (such as Amazon.com, 2004) with numerous opportunities to provide improved customers services. Nonetheless, for many businesses a large proportion of the sales revenue is still generated through activities conducted at the physical stores (see for example Telstra, 2004). Hence even though the number of companies performing their business activities through the Internet is increasing rapidly, many still maintain a physical store presence to enable customers to 'see and feel' their products before making a purchasing decision, as in case of the Borders bookstores (Borders, 2004).

This paper presents the findings of the first stage of a larger project. It aims to identify: attributes of e-Entrepreneurs and the similarities and differences between Entrepreneurship and e-Entrepreneurship.

It also aims to explore whether being an e-Entrepreneur is more advantageous than simply being an Entrepreneur; and to examine Open Source Software (OSS) in the context of e-Entrepreneurship.

ENTREPRENEURSHIP AND E-ENTREPRENEURSHIP

The concept of entrepreneurship has been evident in economics and sociology studies since the early eighteen century (Becker and Knudsen, 2004). A number of entrepreneurship definitions have been mentioned in the literature. Mulcahy (2003: 165), while citing the Oxford dictionary defines an entrepreneur as “a person who undertakes or controls a business or enterprise and bears the risk of profit or loss”. Thompson and Randall (2001: 290) describe entrepreneurs as those individuals who “sense opportunities and take risks in the face of uncertainty to open new markets, design and develop new and improved products and processes” (see also Legge and Hindle, 1997; Kuratko and Hodgetts, 2001).

A number of traits and skills that entrepreneurs possess are cited in the literature. According to Chris Dyson, a business analyst, there are nine traits that depict a persons’ entrepreneurial character such as initiative, commitment, confidence, self-direction, and leadership (cited in Tams, 2002: 399). Cherwitz and Sullivan (2002: 24, 25) similarly comment that an ‘intellectual entrepreneur’ is depicted by having attributes such as “realistic and attainable vision, taking risks and seizing opportunities, using available resources to achieve the vision by using collaboration, teamwork and innovative strategies” (see also Jablecka, 2001: 376). From these definitions it can be inferred that ‘successful’ entrepreneurs need to possess attributes such as being visionary, opportunity-seeker, and management skills.

The focus of this paper is on e-Entrepreneurship which is defined as principally using the Internet to strategically and competitively achieve vision, business goals and objectives. e-Entrepreneurs use the World Wide Web (WWW) to interact and complete virtual transactions both with other businesses (B2B) and their consumers/customers (B2C) (see also Thompson and Stickland, 2003). e-Entrepreneurs are defined as individuals or organisations engaged in e-Entrepreneurship. It is also anticipated that e-Entrepreneurs will possess similar traits as entrepreneurs, in addition to having

expertise in employing technical skills. For the purpose of this project, a 'successful' e-Entrepreneur is one who, along with being profitable in dollar terms, would have also survived external (such as technological changes, competitors, government policies) and internal (for instance, employee turnover, organisational culture) forces.

OPEN SOURCE SOFTWARE (OSS) VERSUS PROPRIETARY SOFTWARE

In the recent past, much high-profile software (including Microsoft products such as Word and Windows XP) have been distributed in a 'binary' form that a computer can execute. However, programmers are unable to study the internals of the program. They are not permitted to modify its working and they can redistribute neither the original software nor a derived form. The software vendor utilises restrictive licensing and secrecy to safeguard Intellectual Property (IP).

For an e-Entrepreneur wishing to leverage existing technology, proprietary software may not seem like an attractive option, since modification and redistribution of existing proprietary software is forbidden. Furthermore, providing key services related to deployed proprietary software may not be possible due to the unavailability of the internal source code. For instance, only Microsoft itself can provide security updates and bug fixes for the proprietary Windows Operating System. Hence unless it decides to issue a security update or a bug fix, users must use the software in its existing condition.

When referring to Open Source Software (OSS), the authors have used the Open Source Initiative (OSI) definition (OSI, 2004a). OSS involves access to the underlying source code. In addition, for software to be considered Open Source, it must permit redistribution of the software without requiring a royalty. Modification of the software and creation of derived works must be permitted. There are some other clauses that must be satisfied for a particular software package to qualify as OSS (OSI, 2004b). However, the above criteria are arguably the most fundamental. Many organisations and websites use the term 'Free Software' (FSF, 2004) whose meaning and interpretation is very similar to OSS, with 'free' implying freedom to access and modify the source as well as redistribute unmodified and modified versions rather than 'at no cost'. Strictly speaking, the definition of 'Free Software'

might preclude certain software from being considered 'Free' even though it might be considered OSS. For the purpose of this project, all 'Free' software would be considered as part of OSS.

RESEARCH METHODOLOGY

The authors selected the exploratory methodology (see Peil et al., 1982; Spencer, 1982) using interview-based case studies to identify the role played by OSS in the 'successful' operation of e-Entrepreneurs. Murray (1996) for instance used case studies to identify the role of venture capital investments in newly established technological firms. Interviews offer a numbers of advantages (see May, 1993; Burns, 1998; Peil et al., 1982; Spencer, 1982; Reddy, 1987; McNiff, 1988; and Yin, 1994). e-Entrepreneurship is a new and under-researched area, hence the authors decided to use exploratory interviews and case study methodology which is suitable in overcoming the uncertainty of having clear measuring instrument (see Wallace, 1984; McCutcheon and Meredith, 1993; McGuire, 1995; Palmer and France, 1999; and Corbett and Cutler 2000).

Semi-structured interviews were conducted with the Chief Executives of two entrepreneurial organisations to gain an understanding of their businesses' life-cycles in the light of technological changes. Some of the issues explored in the interviews included:

- Attributes of an e-Entrepreneur,
- Role played by Open Source Software (OSS) in their respective firms, and
- Impact of OSS on existing and future e-Entrepreneurs

According to the Australian Bureau of Statistics (ABS) classification, company A can be classified as 'micro' with only four employees whilst company B can be classified as 'small' with 25 full-time employees (see also Steinberg, 2004). After receiving consent from the interviewees, the interviews were tape-recorded and subsequently transcribed and written up as case studies. They were then sent back to the interviewees for verification of the content, and any changes as required, were accordingly made. This step was undertaken to reduce limitations (for example generalisation, reliability,

information overload, validity, rigour) accompanied by the case study methodology (see McNiff, 1988; McGuire, 1995; Burns, 1998; and Kitazawa and Sarkis, 2000).

To protect the confidentiality of the interviewees and their respective organisations, they are referred here to as Company A and Company B respectively.

COMPANY BACKGROUND

Company A: Currently based in regional New South Wales (NSW), Australia, the company was founded in early 2003. The company is focused on developing and deploying web commerce and Linux based network solutions and has successfully secured and completed projects in both the open source area and commercial world projects for both Australian and Foreign-based companies including in the UK and the USA. The company's open source content management product has been ranked in the top two percent of the active projects at the SourceForge dot net site which has over eight thousand projects and downloads listed on its website. Even though the company and its members have a strong background and focus on Linux, it also provides software solutions for pocket PCs, the Palm Operating System (Palm OS) and Microsoft Outlook.

Company B: The company has been providing innovative, competitive solutions based on Open Systems and Open Source technology to its customers since the late 1980s. The company aims to "develop strong, ongoing relationships with its clients and long-term partnerships, based on mutual growth and respect with industry vendors". Company B has also successfully completed projects and provided training to a number of large organisations including Hitachi, Telecom Australia, Kodak Australasia, Mobil Oil Australia, CSIRO, and Rockwell Areospace.

SOME FINDINGS FROM STAGE 1

One of the themes that intrigued the interviewers was how the concept of Open Source Software (OSS) that involves freely distributing your knowledge can result in generating business for the company. Under an open source license the 'source code' is distributed along with the ready-to-run version of the software product. The interviewers were keen to ascertain how this apparent giving

away of intellectual capital could result in profit for the person/organisation involved. It appears that OSS is gaining momentum and acceptance around the world and that these issues are becoming more relevant, especially for e-Entrepreneurs.

To answer the above query, interviewee A commented that the writers of a program are generally accepted as having the authoritative knowledge. To elucidate his point he gave the following example: if a program is released as OSS, the writer not only shares but also demonstrates his/her knowledge in a manner that can be subject to scrutiny by experts. In addition, other organisations that require tailoring of the program to their specific needs may contact the writer to do the customisation.

In interviewee A's view, the Internet, due to its ubiquitousness and near universal accessibility, can be very effectively used as a marketing medium and MySQL AB, the popular open source database product vendor, is a classic example. In less than a decade the MySQL database server has become internationally recognised and widely used, including in customised forms. High-profile clients include Sony, Suzuki and Sabre Holdings (MySQL, 2004).

It should be noted that not all the software produced by company A is OSS. Some software is released under the 'General Public License' (GPL) (Derekgnu, 2004) and qualifies as OSS. In other cases, clients may purchase software under a 'commercial licence agreement' from company A. This agreement allows the client to use the product and to view the source code and covers the provision of regular service by company A such as providing further customisation and enhancements. Under this license the clients are not allowed to modify the source. Essentially, this is company A's strategy to be able to effectively support their clients. If too many modifications are made to the code, company A would have to extensively study the modified version before being able to provide enhancements. It can also be seen as a precaution taken by company A to avoid legal repercussions arising from claims of failing to provide adequate support as per the license agreement of the customised program.

When interviewee B first started working in the computer industry, not only was the industry in its infancy with huge-sized computers, but also the percentage of people with access to a computer was

much smaller than it is today. The interviewee's introduction to the potential for online collaboration and the spirit of OSS occurred in the late-1980s. At the time only a small team of professionals had access to the Internet. One of the areas in which company B has competitive advantage is in the area of OSS as it was one of the pioneering companies. The company also has a very high reputation in providing superior client service and catering to clients' specific needs. The company accordingly receives many of its projects through referrals as has happened in one of its recent projects when an Australian University on recommendation from another University contacted the company to tailor its student database to comply with Federal Government's reporting guidelines by using the ERP system. In this instance the company made use of existing codes from "open source framework called Open for Business" along with their expertise in programming to successfully complete the project in less than half of the time and cost than if the company had to write the source code from scratch.

Interviewee B strongly believes that for existing and future e-Entrepreneurs and information technology companies, existing patent legislation can cause progress to come to a standstill. Entrepreneurs also need to be aware and cautious of the situation and take comprehensive legal consultation and protection. He further suggested that it was essential that the software patent system be either made redundant or more flexible with clear guidelines with a database for searching all the existing patents.

RECOMMENDATIONS FOR E-ENTREPRENEURS

To survive in this technological world, a 'successful' e-Entrepreneur needs to consider the following key factors that have been identified following discussion with the interviewees.

Technical competence and client liaison: Both interviewees recognised the critical importance of technical ability. An e-Entrepreneur in addition to having technical skills also needs to possess an in-depth understanding of the relevant technology to be able to analyse trends and foresee opportunities. The interviewees also mentioned that even though the technical staff are experts in their respective areas and they find it difficult to communicate with their customers in layman's terms.

Customer service: Interviewee A, while emphasising the technical quality of the product, insisted that the focus should be on what technology can do for the consumer. As an example, Interviewee B mentioned a turnkey product called the small business server which provides small businesses commonly needed functionality such as Internet connection sharing, e-mail, and printer sharing. The software installed on the server is OSS. However, the customer may not necessarily care that this be the case, as long as they are instructed on how to use and administer it.

Be clear on the reasons for going OSS: Both the interviewees emphasised that a number of factors influenced their choice of whether to release a product as OSS or to keep it proprietary. e-Entrepreneurs should not perceive OSS as the next ‘bandwagon’ or something to be done purely out of ideological reasons (see also Cusumano, 2004). Nonetheless, there can be solid business reasons for focussing on OSS (Mahoney and Naughton, 2004). The following reasons have been compelling enough for both companies A and B to go open source:

- *To harness the distribution and marketing power of the Internet*

Interviewee A released a content management system under an open source license over the Internet so that prospective customers could download and use the product. Some of the users subsequently became its customers by requesting paid for services and ongoing support. This enabled company A to enter the market without incurring conventional marketing costs. In views of Interviewee B providing software as open source provides incentive and assurance to potential customers as they do not have to solely rely on the vendor for modifications to the code because they have access to it.

- *Avoid re-inventing the wheel*

An e-Entrepreneur can make use of the readily available OSS rather devoting valuable resources to rebuild software for which alternatives exist. In the experience of Interviewee B avoiding duplication of Research & Development costs is financially effective.

- *Get an edge over proprietary software vendors*

By releasing their product as OSS, the e-Entrepreneur can acquire customers who are deterred by the higher prices or the closed nature of the proprietary vendors. These customers often

become a source of revenue by requesting modifications and support as experienced by interviewee A.

The above findings agree with Mahoney and Naughton (2004) that for some companies, OSS can be a strategically valuable weapon.

CONCLUSION AND FUTURE RESEARCH AREAS

Findings of the first stage of a larger project were presented in this paper. Interviews with two e-Entrepreneurs provided in-depth background knowledge of their use of OSS. Authors found similarities in the underlying attributes and skills of an e-Entrepreneur and entrepreneur, such as being a visionary, the ability to develop strategic plans and being responsive to changing market demands. Interviewee B also commented that to be 'successful' both need to be able to "visualise future potential [that is] above and beyond just the vision for making money". One major difference highlighted by interviewee B was that an e-Entrepreneur requires comparatively less funds and infrastructure when starting a business and consequently less total investment dollars. Once a comprehensive market and competitor analysis had been undertaken and the service that would be delivered been finalised, only access to the Internet is required to start the business, which can be done from any location.

Literature has highlighted the need for future research in the study of small businesses with Internet usage (Steinberg, 2003). Gaps in the existing literature in the area of OSS and e-Entrepreneurship need to be filled with more studies. One way this could be initiated is by more qualitative studies incorporating both in-depth case studies and focus-group discussions exploring experiences of e-Entrepreneurs in the current technological environment. The experiences of entrepreneurs who have now become e-Entrepreneurs also need to be further explored.

REFERENCES

- Amazon.com (2004). Amazon.com, viewed 19 November 2004. <<http://www.amazon.com>>
- Becker, M., C. and T. Knudsen (2004). 'The Role of Entrepreneurship in Economic and Technological Development: The Contribution of Schumpeter to Understanding Entrepreneurship.' Paper to be presented at the *DRUID Summer Conference 2004: Industrial Dynamics, Innovation and Development, Elsinore, Denmark, June 14-16*.
- Borders (2004). Borders Australia: Books Music Movies Cafe. Australia, viewed 19 November 2004, <<http://www.borders.com.au>>
- Burns, R., B. (1998). *Introduction to Research Methods*. Australia: Addison Wesley Longman, Australia Pty Ltd.
- Cherwitz, R., A. and C. Sullivan, A. (2002). 'Intellectual Entrepreneurship: A Vision for Graduate Education.' *Change* Vol 34 No 6 pp 22-27.
- Corbett, L., M. and D. Cutler, J. (2000). 'Environmental Management Systems in the New Zealand Plastics Industry.' *International Journal of Operations & Production Management* Vol 20 No 1 pp 204-224.
- Cusumano, M., A. (2004). 'Reflections on Free and Open Source Software.' *Communications of the Association for Computing Machinery* Volume 47 No 10 pp 25-27.
- Derekgnu (2004). The GNU General Public License, viewed 20 November 2004, <<http://gnu.rtin.bz/licenses/gpl.html>>.
- FSF (2004). Categories of Free and Non-Free Software, viewed 19 November 2004, <<http://www.gnu.org/philosophy/categories.html>>.
- Jablecka, J. (2001). 'Entrepreneurship, Innovation and Quality: The Successful Strategy of a Newly Established Institution: The Example of Wyższa Szkoła Biznesu-National Louis University in Nowy Sacz.' *Higher Education in Europe* Vol 26 No 3 pp 367-379.

- Kitazawa, S. and J. Sarkis (2000). 'The Relationship Between ISO 14001 and Continuous Source Reduction Program.' *International Journal of Operations & Production Management* Vol 20 No 2 pp 225-248.
- Kuratko, D., F. and R. Hodgetts, M. (2001). *Entrepreneurship A Contemporary Approach* (Fifth Edition). USA: South-Western (a division of Thomas Learning).
- Legge, J. and K. Hindle (1997). *Entrepreneurship: How Innovators Create the Future*, Australia: Macmillan Education Australia Pty Ltd.
- Mahoney, I., G. and E. Naughton, J. (2004). 'Open Source Software Monetized: Out of the Bazar and into the Big Business.' *The Computer and Internet Lawyer* Vol 21 No 10 pp 1-17.
- May, T. (1993). *Social Research: Issues, Methods and Process*. USA: Open University Press.
- McCutcheon, D., M. and J. Meredith, R. (1993). 'Conducting Case Studies Research in Operations Management.' *Journal of Operations Management* Vol 11 pp 239-256.
- McGuire, L. (1995). *Case Studies for Research: Story Telling or Scientific Method*, Working Paper 06/95. Victoria, Australia, Department of Management, Faculty of Business & Economics, Monash University.
- McNiff, J. (1988). *Action Research: Principles and Practice*. Hong Kong: MacMillan Education.
- Mulcahy, K., V. (2003). 'Entrepreneurship or Cultural Darwinism? Privatization and American Cultural Patronage.' *The Journal of Arts Management, Law, and Society* Vol 33 No 3 pp 165-184.
- Murray, G. (1996). 'A Synthesis of Six Exploratory, European Case Studies of Successful Existed, Venture Capital-Financed, New Technology-Based Firms.' *Entrepreneurship: Theory and Practice* Vol 20 No 4 pp 41-61.

- MySQL (2004). MySQL Case Studies, viewed 20 November 2004, <
<http://www.mysql.com/it-resources/case-studies/>>.
- OSI (2004a). Open Source Initiative: Welcome. viewed 19 November 2004, <
<http://www.opensource.org/>>.
- OSI (2004b). Open Source Initiative: The Open Source Definition, viewed 19 November
2004, < <http://www.opensource.org/docs/definition.php>>.
- Palmer, J. and C. France (1999). 'Informing Smaller Organizations about Environmental
Management: An Assessment of Government Schemes.' *Journal of Environmental
Planning and Management* Vol 41 No 3 pp 355-374.
- Peil, M., P. Mitchell, K. , et al. (1982). *Social Science Research Methods: An African
Handbook*, Great Britain: Holdder & Stoughton.
- Reddy, C., R. (1987). *Research Methodology in Social Sciences*, Delhi, India: Daya
Publishing House.
- Spencer, D., L. (1982). *Researcher's Guide: How and Why*, USA: College-Hill Press.
- Steinberg, A. (2003). On 'Community-expertise' in E-entrepreneurship: A Study on Changes
in the Sense-making of Success and Decision-making amongst E-entrepreneurs in the
Wake of the Dotcom Crash.' In F. Avallone & H. K. Sinangil & A. Caetano (Eds.),
Identity and Diversity in Organizations - Quaderni di psicologia del lavoro, vol. 11.
Rome: Guerini Studio.
- Steinberg, A. (2004). *Entrepreneurship and Success in e-business: on Changing Meanings of
Expertise and Community in E-entrepreneurship*. London, UK, Department of Social
Psychology, The London School of Economics and Political Science, Houghton
Street.

- Tams, E. (2002). "Creating Divisions: Creativity, Entrepreneurship and Gendered Inequality - A Sheffield Case Study." *City: analysis of urban trends, culture, theory, policy, action* Vol 6 No 3 pp 393-402.
- Telstra (2004). Welcome to Telstra. Australia, viewed 19 November 2004, <<http://www.telstra.com>>.
- Thompson, A., A. and A. Stickland, J. (2003). *Strategic Management: Concepts and Cases*, USA: MCGraw-Hill Irwin.
- Thompson, P. and B. Randall (2001). 'Can E-Learning Spur Creativity, innovation and Entrepreneurship.' *Education Media International* Vol 38 No 4 pp 289-292.
- Wallace, R., M. (1984). 'The Use and Value of Qualitative Research Methods.' *Industrial Marketing* Vol 13 pp 181-185.
- Yin, R., K. (1994). *Case Study Research: Design and Methods*, California: Sage Publications.