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Andrew Scholfield

HOW CAN THE ENTREPRENEURS OF SOUTHWEST FINLAND CONTRIBUTE AND BENEFIT FROM THE PRACTICES OF OPEN INNOVATION?

TURUN AMMATTIKORKEAKOULU
TURKU UNIVERSITY OF APPLIED SCIENCES

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Instructor(s): Alberto Gonzalez

Author: Andrew Scholfield

TURUN AMMATTIKORKEAKOULU THESIS

The following thesis investigates the specific theory of Open Innovation (OI), the categorisation and understanding of entrepreneurial activity as well as other relevant aspects of innovation theory more generally. The objective of the research paper is to study how well the entrepreneurial community of Southwest Finland understands the concepts of OI and to what extent they have the motivation and opportunity to participate and contribute to the innovation processes of a second party.

The first section of the literature review, OI theory is explained along with the different ways in which the theory has been applied, examining both the traditional and the non-traditional methods. The second section of the literature review examines the general understanding of entrepreneurs, what defines entrepreneurial activity and then presents a working typology of entrepreneurs constructed in order to identify the categories most at risk of marginalisation. The third section of the literature review presents some other important aspects of general innovation theory which contribute to a richer holistic understanding. The research questionnaire surveys entrepreneurs of Southwest Finland regarding 1) their general entrepreneurial circumstances, 2) their motivations and attitudes regarding contributing towards innovation process, and 3) their awareness of, and level of opportunity to engage with, OI processes.

The findings identified a significant proportion of those surveyed who were operating as an entrepreneur in only their first enterprise, earning an annual turnover of below €50,000 and employing less than 5 people. There was also a significant proportion of respondents who valued innovation and the access to ideas as important and were positive about the ease with which they could innovate. Whilst there was a relatively equal split between those who had been involved in the innovation processes of a second party, there was a significant proportion of respondents who were not familiar with OI and a large number who had not been involved in the specific practice of OI. The findings demonstrate that there is justification for further analysis of entrepreneurial involvement in OI and the development of collaborative projects that seek to more efficiently harness and cultivate the enthusiasm and experience of the entrepreneurial community.

KEYWORDS:

Open innovation, closed innovation, entrepreneurs, the Individual Entrepreneur, innovation, creativity, collaboration, involvement in processes, contribution, Southwest Finland.

OPINNÄYTETYÖ (AMK) | TIIVISTELMÄ
TURUN AMMATTIKORKEAKOULU

Koulutusohjelman nimi | Suuntautumisvaihtoehdon nimi

Opinnäytetyön valmistumisajankohta | Sivumäärä

Ohjaaja(t)

Tekijä(t)

OPINNÄYTETYÖN NIMI

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LIST OF ABBREVIATIONS (OR) SYMBOLS

OI	Open Innovation.
IE	Individual Entrepreneur.
IP	Intellectual Property.
SME	Small Medium sixed Enterprise

1 INTRODUCTION

1.1 Academic relevance

At present, the available research and studies on the practical use of Open Innovation (OI) and its sub-theories seems only to focus around large organisations and how they can maximize the value obtained from their internal R&D. The processes identified in seminal works such as that of Henry Chesbrough show that they do this by outsourcing their own intellectual property (IP) so that it might find new paths to market, whilst at the same time engaging with other partners to bring in fresh impetus to their internal development process. The easiest and most logical partner in this endeavour is the small to medium-sized enterprise (SME) because it is small enough to pose an insignificant threat in the short term, but large enough to provide tangible results and greatest return on investment. In this researchers opinion it makes practical sense that the further down the market hierarchy one goes, the less engagement you see in the OI paradigm. Based on personal reading and observation this could be down to three possibly reasons: firstly, that OI is relatively new and so research efforts have not yet proliferated to the extent they have begun to investigate the involvement of entrepreneurs; secondly, that innovation as a concept is difficult to measure and so investigating corporations or indeed medium sized enterprises would deliver results that might possibly demonstrate more tangible cause and effect; or thirdly, that entrepreneurs have simply been ignored because the strategy for involving them would need to be too broad or complex. A recognition must be made at this point that a combination of all three causes is more than likely.

OI is a theory that not only appears to provide a practically efficient use of resources within an industry as a whole, but also a method by which knowledge

and ideas can be shared and through which the minds of creative thinkers are given the best possible chance to collaborate. The theory, practice and extent literature on the topic seems to neglect the potential role that can be played by Individual Entrepreneurs (IE's). For a range of reasons, it is either deemed impractical or ineffectual to engage with IE's in the OI process. There is also the problem that the concept of OI is not widely understood as it is quite a recent theory and there is a good chance that most entrepreneurs themselves haven't even heard of it, let alone fully appreciating their potential role in the process.

1.1.1 The Value of Finnish Entrepreneurs

An individual will encounter significant psychological, physical and financial obstacles to becoming an entrepreneur and will no doubt have contemplated the idea for many years before he or she begins their own enterprise. What is more, there is a prevailing mindset in most, if not all, human society that success is good and failure is bad. Although the US has long been exporting the concept that an entrepreneur's failed business is a 'badge of honour', failure itself is still a notion that goes against most cultural orientations, and is especially obtuse in the risk averse, academically rooted culture of Finland. It is this researcher's observation that when examining the value of a failed business, the critical element that can be gained is the confidence and knowledge of experience. However, the bravery which is required to pursue and fail in one's own business venture is not a common characteristic, even for those of us possessing a higher share of business acumen or with an expert level of knowledge in a particular field. However, it is these sorts of characteristics and types of experience that make entrepreneurs ideal candidates to engage and incorporate into OI programmes. Not only have they the courage, motivation and comfort with risk to explore and develop new ideas, they also have the experience (whether successful or unsuccessful, either are equally beneficial) of starting and implementing their own business venture. (Hisrich, 1990) It is worth noting that with the proportionally small number of entrepreneurs in Finland (because of the reasons stated above), this group holds arguably even more potential than in other areas of the world because

their average level of education may well be higher than in other developed nations. In addition they have overcome the cultural uncertainties that have inhibited many of those around them. (Hofestede, 1980)

1.1.2 A Mutual Benefit

It is the writer's hypothesis that at this juncture the practices of OI can not only provide the entrepreneur with access to people and ideas that can stimulate innovation within their own business enterprise, but the collaborative input that they can provide in such situations is how IE's can be brought into the OI paradigm. It must acknowledge at this point that entrepreneurs are, and always have been involved in the practices of OI (much of the research into OI is based on the partnerships between larger firms and small, *start-up* companies, founded by the entrepreneur). The differentiation that will be made explicit here is that a *start-up* is different from an *individual entrepreneur* (to which further examination is provided later in the thesis). The *individual entrepreneur* has not yet overcome the obstacle that prevents them from expanding the scope of their operations. However, unless they fall into the category of *expert consultant* (see part 2.4.2), their practical involvement in the OI paradigm is relatively limited.

1.2 Contextual Motivations

During the first decade of the 21st Century, Finland, like many other developed and developing nations, enjoyed the benefits of steady economic growth. Finland also, like other nations, suffered from the financial crises of 2008 and the prolonged global economic recession that followed. During the time of economic growth, Finland began to identify a dearth in the entrepreneurial sector of its economy. It began to take measures in order to encourage more small business growth and activity, and according to Statistics Finland (see Enterprise Openings and Closures 2005-2013), the figure for new enterprises opened annually increased from 6,376 in 2005 to 7,692 as late as 2008. However, 2008 & 2009 also saw higher numbers of closures (5,332 & 5,525

respectively), as well as a steady decline in enterprises opened since 2010 coupled with an upward trend for closures up to 2013. Finland's activities toward cultivating a more entrepreneurial economy clearly began before the fallout of 2008 with organisations such as Tekes, Finnvera and Aalto University promoting entrepreneurship, as well as a proliferation of business accelerators (Murray et al, 2009). However, it can be reasonably argued that the economic repercussions of the global recession accelerated the scope and urgency of such activities. The global recession also brought into stark clarity the weaknesses that were eroding the fortunes of the mobile phone giant, Nokia. Not only Finland's largest wholly Finnish owned single employer, Nokia also represents the country's flagship multinational, drawing in expertise from all over the world, attracting investment and providing a bridge for partner Finnish companies to internationalise. It's little surprise it is such a going concern for the government in respect to the effort and resources required to keep the company from its ominous decline.

The Finnish economy is currently undergoing a transition, spurred by three critical factors: firstly, the government-led drive to diversify the economy; secondly, the pressure being applied to larger firms by contracting global exports; and thirdly, the fallout associated with the decline of Nokia.

To tackle the last of these issues first, it has been stated that the decline of Nokia could actually be the best thing to happen to Finland. Certainly within the walls of Nokia there is a wealth of knowledge and expertise that can drive entrepreneurial success rather than be made to benefit just one company. It is the case with Nokia that a far higher percentage of its operative and decision-making personnel were based in Finland, meaning that there is an increased percentage of potential new entrepreneurs for the Finnish economy, with connections and experience not readily available to the average entrepreneur. This is evidenced by the creation of new promotional startup events such as Slush, and the Startup Sauna, both with strong links to ex-Nokia employees. (The Economist, Feb, 2013)

Secondly, in essence it is a risky situation for any single economy to depend too heavily on one company or industry. The Finnish Ministry of Employment and the Economy (MEE) recognises the need to diversify Finland's economy and supports endeavours such as Slush and by strengthening the venture capitalist ecosystem in Finland. The MEE is also well aware that innovation and entrepreneurialism are cornerstones of a more diverse and robust economy. (Murray et al, 2009) Finding ways and means of stimulating innovation amongst Finnish entrepreneurs achieves two objectives. Not only does it tackle head on the recognized aversion within Finnish culture to taking risk (and by that we can assume running your own business is a risky endeavour), it also stimulates the creative and innovative thinking of those engaging within this sector of the economy, thereby increasing the likelihood of sustainable success for those enterprises. (Nonaka, 1994: Leiponen, 2005)

Thirdly, the recession of 2008 has brought into stark clarity trends which were becoming clear before the financial crises. The BRIC countries (Brazil, Russia, India and China) are really imposing themselves on the world market, causing stifling export competition for European economies. The Euro-Zone crises exacerbates this competition because governments have not even been able to devalue the currency in order to improve the competitiveness of their exports. (Flassbeck & Lapavitas, 2013)

1.3 Objectives

The thesis seeks to investigate the following four questions:

1) has the individual entrepreneur been made comprehensively aware of the concept of open innovation;

2) has the individual entrepreneur been given any opportunities in which to become involved (directly or indirectly) in the processes of open innovation;

3) what are the attitudes and actions of the individual entrepreneur toward sharing and collaboration for the benefit of innovation;

4) what different compensatory factors offered in exchange for involvement in the practices of open innovation are most attractive to the individual entrepreneur.

2 LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 History and Background

The theory of OI was first brought into academic discourse through the work of Henry Chesbrough whilst he was an assistant professor at Harvard Business School. It must be noted that although there will have undoubtedly been previous studies and research conducted into related topics to the over-arching theme of collaborative innovation within business and industry, Henry Chesbrough is credited not only with coining the term OI , but also bringing it into clarity against its antithesis of closed innovation and, more importantly in my opinion, the deficiencies of this as a business model.

Chesbrough describes OI as “a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology.” This theory takes note of how companies with large internal R&D facilities such as Lucent (now Alcatel-Lucent), IBM and DuPont, who had invested heavily in R&D to then reap the rewards of this intellectual property in what has been called the ‘virtuous cycle of innovation’, now saw what had once been a prized asset and major barrier to external competition, now become an overburdening weight that inhibits flexibility and manoeuvrability in the market place. (Chesbrough, 2003)

2.1.2 Descriptions and understanding

Chesbrough describes the traditional view of innovation strategy as closed innovation, so called because ideas, innovations and product developments were protected at all cost in impregnable towers to avoid competitors stealing a march on a company’s new ideas. Companies that had already created, or were seeking to create large R&D facilities would have to embark on massive and

long-term investment. As has been already stated the attractiveness for such a strategy (if a company could afford it) was the ability to outmuscle competitors with radical and breakthrough technologies and to maintain that stranglehold on the market through patents. However, although this provided the short-term control, growth and market position they sought, when the mighty fall, like in the classic example of Xerox (losing out to innovative Japanese companies such as Canon), it sends shock waves to other established industry leaders.

The diagram below shows the difference between open and closed innovation:

Closed Innovation

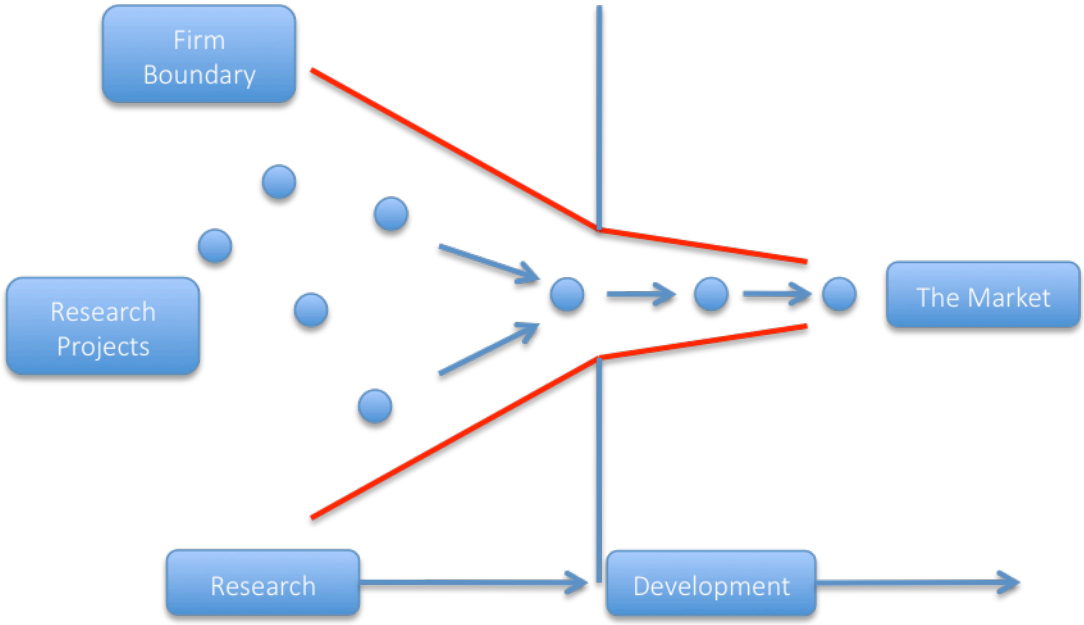

Figure 1. Source: Chesbrough 2003

Open Innovation

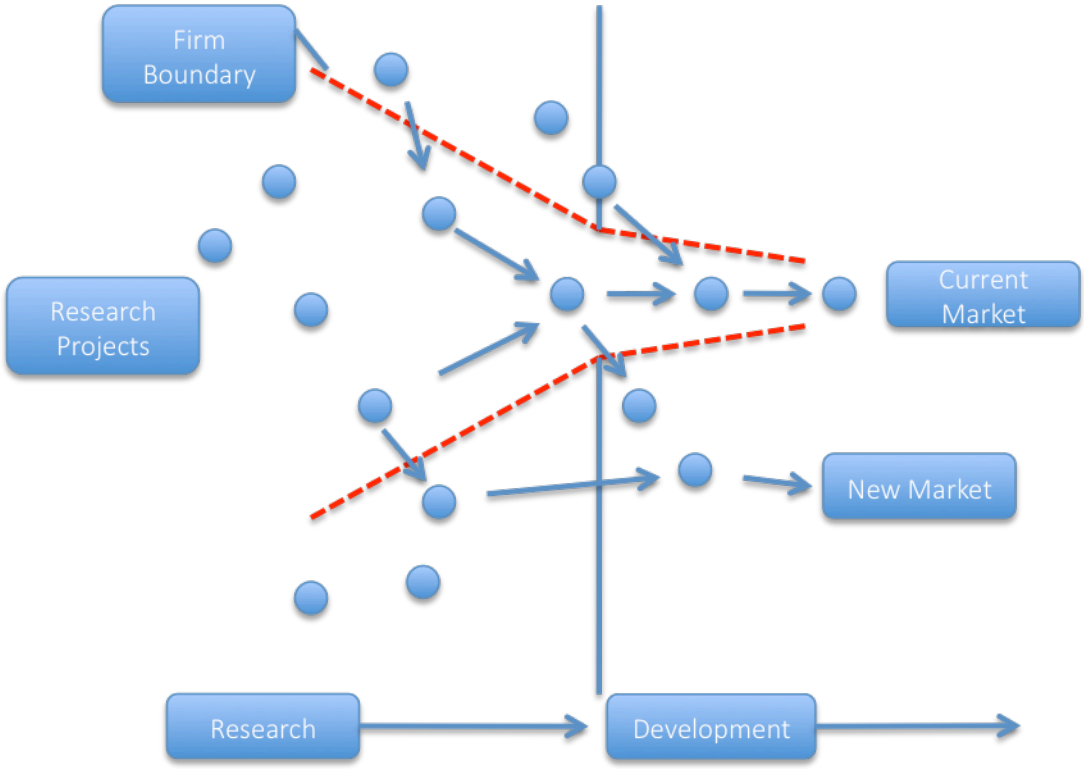

Figure 2. Source: Chesbrough 2003

For larger companies the R&D department was producing many patents but only some were making it though to the market. This became a frustration for those executives and managers who could see potential in new ideas and innovations being proposed, but then seeing only a handful of them being actually given the chance to make it to the market place. This is where the significance of the business model comes in. (Chesbrough, 2003)

2.1.3 Don't Forget the Business Model

When people think of innovation they think of ideas and ideation, but in business vernacular these are in fact different concepts. The confusion lies in that the regular dictionary definition simply describes innovation as, "A new method, idea, product etc."(Oxford Dictionary, n.d.) If you look at the definition in business terminology, it is "The process of translating an idea or invention into a good or service that creates value or for which customers will pay."

(BusinessDictionary.com) A similar problem lies in people's cursory understanding of OI:

"Open innovation combines internal and external ideas into architectures and systems whose requirements are defined by a business model." (Chesbrough, 2003)

The second part of the sentence in this preceding quotation is the part most underappreciated. I draw attention to this fact because it highlights more clearly a fundamental aspect of the theory, which is the incorporation of external ideas into 'architecture' as set within a specific business model. The basic process of product innovation is that people are given the task of coming up with new ideas or solutions to problems. Those ideas are presented to a decision-making authority, which then has to take into consideration many other aspects (such as cost, feasibility, risk etc) and align their selection based on company-identified criteria. Basically these 'aspects' and 'company criteria' are formed by the company's existing business model. If the product doesn't fit then it is left on the shelf and may never be implemented. Worse still, if the product is a good idea and does fit with the company's business model, but is proposed alongside other equally good ideas, it may still lose out by nature of being proposed at an inopportune point in time.

All of this indicates that large companies and corporations are severely inhibited in their ability to maximise the potential of the ideas produced by their R&D departments. They have developed a very successful business model and they have filled their ranks with people who not only accept this as the preferred way of doing business, but also are often recruited because of their suitability to such an enterprise system. This coupled with the often hierarchical nature of large companies means that people are looking to the top for instruction from fewer and fewer minds with less and less diversity in their opinion. It also means that those on the creative side are becoming increasingly frustrated at seeing their great ideas being left to gather dust on the shelves of the R&D warehouse.

These are the problems which Chesbrough was presented with. The solution he devised was OI. It may help here to list the problems of the antithesis of an OI model, that of closed innovation, into two categories; those related to creativity, and those related to implementation. These are some of the main problems but this is by no means an exhaustive list:

Creativity problems of a closed paradigm

- Ideas created in isolation of technological or scientific developments
- Ideas created by teams with little or no customer interaction
- Products developed with low iteration opportunities
- Too high-tech products developed without a clearly identifiable target market
- Long-term development of solutions which then became obsolete in light of new technologies
- Breakthrough technologies blocked by incremental innovation targets

Implementation problems of a closed paradigm

- Little or no traction with market research
- Too high cost of developing prototype
- Poor strategic fit with overall business strategy
- Products developed with low potential margins
- Poor vision of supervisor and/or decision-maker
- Internal competition with other products solutions
- Silo mentality (a mind-set present in some companies when certain departments or sectors do not share information with others in the same company) (Chesbrough, 2003)

2.2 Traditional Types of Open Innovation

2.2.1 External Research Projects

Many universities around the world promote the research of their academic departments in order to raise money for the efforts of the university. This has been going on for many years and probably makes it one of the oldest examples of OI, albeit perhaps less of a collaborative effort by companies and more as a simple funding agreement to continue or begin the research. There is a good example in the article written by Wim Vanhaverbeke (2010) concerning the company Quilts of Denmark (QoD) and the Glostrup Hospital of the University of Copenhagen. Together they enabled QoD to better understand the science of sleep and to develop the know-how to improve their products. Although the research project was not instigated by QoD, it was still a research project which was of general interest and coupled with the relevant industries would help to broaden understanding and give insightful ideas for new areas of opportunity. (Vanhaverbeke, Jan. 2011)

2.2.2 Science Parks and Incubators

Some of the most common examples of OI are Science Parks and Incubators. These are actually not mentioned so much by Chesbrough because they were in existence before OI came out as a theory. They often evolved organically as technology proficient academic institutions grew or companies relocated for a myriad of different reasons, whether motivated by network theory or piggy-backing on industry leaders. Perhaps they were sponsored to do so by governments or in the case of the Innovation-Lab in Germany, they moved to a science park based on the desire to fully exploit a breakthrough technology. “InnovationLab GmbH, [is] a joint R&D and incubator enterprise of the universities of Heidelberg and Mannheim and its industry partners BASF SE, Freudenberg & Co. Kommanditgesellschaft, Heidelberger Druckmaschinen AG, Merck KGaA, Roche Diagnostics GmbH and SAP AG.”(Schweizer, Mattes 2010) The basic idea behind the project is to have the full cooperation, from the

outset, of all the potential partners in the value chain, in order to take full advantage of the complex industry of 'Organic Electronics'. Not only can this be seen as a traditional incubator approach but also as a demonstration of OI. This is because in order to fully exploit the potential for growth in the industry the partners "will require skills, technologies and innovations not currently available."(Schweizer, Mattes 2010)

Along with the benefits of incubator collaboration from a technology, expertise and production capacity, it also has benefits regarding Intellectual Property (IP). The InnovationLab's raison d'être was to develop and exploit the Organic Electronics industry. Because this was a new industry with a lot of potential, the value of sharing the IP benefits proportionally amongst all parties involved was great because collaboration would increase this benefit immeasurably more than working separately would.

2.2.3 Licensing and Leveraging IP

In Chesborough's 2003 book on OI, one of the well-documented cases is IBM. Like most companies who seek to benefit from their IP, IBM licenses it to other companies. Unlike most other companies, though, IBM is creative about how it leverages this asset. Whilst some companies lie in wait for any new startup to happen upon an idea they have patent protection on, IBM actively improves (out of their own funds) the rather poor national U.S. database of patents. Because it holds so many patents it is beneficial for companies to have positive search results that lead to them to IBM. In this way they can maximise their income and opportunity from licensing. This is a clever strategy as rather than preventing a company from entering the market, IBM can then partner through licensing or other means. Not only does this maximise the potential of its IP, it also continues to integrate IBM's IP into the development of the industry because it can provide its IP to new startups.

2.2.4 New Ventures

Another recognised method and case example of OI at work was the new venture of Lucent Digital Video. This was an idea for digitised video content for video networks that had been overlooked by Lucent's established business units because the forecast market was too small (see problems p.17 above). This concept was then picked up by Lucent's New Venture Group (NVG), an entity created to commercialise technologies from Bell Laboratories that didn't fit with any of Lucent's established businesses. The NVG then in turn brought into the fold an executive in charge of running "Lucent's North American marketing for all channels other than the core telephone companies and who was therefore tuned into the marketplace then emerging." A mutually beneficial collaboration, not only did the NVG get great feedback from potential customers (information normally hard to obtain), but the marketing unit also benefited from getting a first look at new technologies and an idea of what the future might have in store. This was an innovation process that was rapidly accelerated by the new venture group and brought Lucent much earlier to the market of digitalisation. (Chesbrough, 2003)

2.2.5 Collaborations

Collaborations can come in many forms and really the only prerequisite is that they involve two or more organisations. However, to distinguish them from other types of endeavour I would add that there needs to be a strong mutual benefit for both parties and that they are leveraging there knowledge and expertise without monetary compensation being involved because they see that which they will gain from the other party of being of relative equal value. The main point is that the expertise of the company they are collaborating with will help accelerate their own understanding and skill level in the areas in which they are deficient. This difference between collaborations and partnerships is that collaborations are regarding single issues, projects, products and services, and so are separable from the activities of the rest of the firm.

2.3 Non-traditional forms of Open Innovation

2.3.1 Crowdsourcing and Crowd theory

A few other examples of OI and their benefits include crowdsourcing, collaborations and external research projects. Crowdsourcing is one of the more well-known examples of OI (although something that Chesbrough himself didn't foresee). It is one of the more easily comprehendible ways to begin OI as it requires little effort other than to outsource a problem or idea to a group of people of community of 'solvers'. There are problems in that the 'crowd' that is created could have creative potential that is unpredictable and certainly unmanageable for a host company or client. In the case of iStockphoto, a group of amateur photographers was created via the Internet and people could share for free their amateur photos. The royalty based stock photo companies for professional photographers weren't concerned by this until iStockphoto started charging. This wreaked havoc in the industry because iStockphoto had a much larger database of photos and were cheaper, and even though they were of lesser quality, they became the market leader. (Hopkins, Chapt. 12, 2011)

2.3.2 Social projects

The company Hewlett-Packard (HP) is a multinational company with a global social innovation division. The company has more than three hundred thousand employees and one of the main objectives is to get more of these employees to take advantage of the company's policy on volunteering. Although this could be any kind of volunteering, there is a benefit in seeing employees using their expertise to the benefit of the communities they engage with. Even though this has been started as a form of corporate social responsibility, there is also massive potential for OI opportunities here. If the employees were to engage with projects and to see firsthand some of the issues people in different circumstances were having with the running of their projects and operations, with the likely reoccurrence of these problems in other sectors, the potential for

then using this information to help form innovation solutions could be significant. (Ries, p58, 2011)

2.3.3 Open Innovation through Sustainability

Sustainability can always be a source of innovation and the article *Why Sustainability Is Now the Key Driver of Innovation,* by Nidumolu, Prahalad and Rangawami (2009) best summarizes the benefits and considerations that should be made in a company's approach toward sustainability. It identifies five stages, or in my opinion what could be considered five levels, of sustainable activity for companies. I call these levels because you can consider that, in many ways, you have to complete the previous level to move up to the next. The first stage is *Viewing Compliance as Opportunity* which address the concerns of standards and regulations and how rather than seeing it as game of cat and mouse between companies and authorities, companies actually have a privileged position in that they can use their actions to affect the rules of the market. Being intimately familiar with these regulators puts companies at the forefront of changes and developments and are sources of OI. The second stage is *Making Value Chains Sustainable,* which means taking a more comprehensive and evaluative look at the value chain and affecting the actions and behaviours of a company's network of partners. This normally boils down to efficiency, and innovations are fundamentally at the heart. The third stage is *Designing Sustainable Products and Services* which as you can see speaks for itself in terms of how innovation might be achieved. What I would say is that those involved, particularly in the creative process need to be interacting with "innovators and the stakeholder groups whose cultural and political realities may not be prepared to accommodate innovation." (Dormann & Holliday, 2002*)* The fourth stage is *Developing New Business Models,* concerned with how a company needs to reassess their current practices and business objectives in order to take advantage of the new innovations, products and services that have come as a result of their previous actions. Finally, stage five is *Creating Next Practice Platforms* which then takes the new mentality (achieved through the first four stages) and tries to actively seek out new opportunities by

questioning established principles. If a company was to do no more for there OI strategy than follow these five dictums, they would be well on their way to become more open and more innovative.

2.3.4 Customer led innovation – The lean approach

Inspired by the work of Eric Ries in *The Lean Startup*, it is this researcher's opinion that the ways in which companies and businesses can collaborate and interact with customers are only just being appreciated. As we have seen crowdsourcing has been a new way of openly exploiting the collective ingenuity of a 'crowd'. But as Ries constantly reiterates, bringing the engineers and designers of a company into closer contact with the customers, and especially the 'early adopters' can be of great benefit. The Lean Startup approach is to provide what Ries terms as a 'Minimum Viable Product' or MVP, and to release this as quickly as possible to test assumptions about consumer desires, habits, needs and abilities. Rapid turnover of new iterations (along with careful analysis of what has been learnt) will lead to product improvement. One of the keys to this process and also one of the most valuable learning experiences is to better understand the customer. Ries is careful to state that the customer is not always right and doesn't often know what they want. But through the constant interaction and series of testing, the innovators will become tuned to knowing how to ask the right questions and to change what needs to be changed more quickly. (Ries, 2011)

In the work by Prahalad and Ramaswamy, the involvement of consumer is termed as co-creation and the market is seen as a forum for these types of experiences. It challenges traditional economic theory, "the firm and the consumers are [no longer] separate, with distinct, predetermined roles". They further point out that:

> "As Long as firms believe that the market can be separated from the value creation process, firms in search of value will have no choice but to squeeze as much costs from their 'Value Chain' activities as possible."

The outdated mode of thinking is indicative of a firm-centric view of the world, but the proliferation of PC's, mobile phones and the internet is giving everyone access to all types of information, so no surprisingly the demands and expectations consumer have are much greater. Prahalad and Ramaswamy point out that co-creation is not an easy thing to achieve, but the rewards in terms of efficiency and customer satisfaction will outweigh the costs. (Prahalad and Ramaswamy, 2004)

2.3.5 Spin off's

One of the other benefits of OI are the so-called 'spin-off' ideas and companies. Although not necessarily a classic example of such, the case of Quilts of Denmark (QoD) is a close and interesting example. Here a new startup entering a mature and saturated quilt market that had seen its product 'commoditised', had a vision but lacked the technology by which to achieve that vision. Through networking and collaboration they eventual partnered up with Outlast Technologies who were the accredited licensee for NASA spacesuit technology. The spin-off here was that a solution developed to solve temperature variation in space suits could be applied to quilts to help them adjust the temperatures of customers whilst they slept. This was a spin-off idea that was never the intended application of such a concept. (Vanhaverbeke, 2010)

2.4 Entrepreneurship – Definitions, Typology and Relevance

2.4.1 Who is an Entrepreneur?

The title of this section is meant to stimulate and question the current logic and extent literature about entrepreneurship. When reading and investigating types of entrepreneurship and what characteristics are displayed by entrepreneurs, the question that kept echoing in my head was, 'Isn't everybody an entrepreneur?' I raise this as the starting point because I feel that not only does the field of innovation need and benefit from opening itself up to new ideas and

ways of doing, but similarly entrepreneurship can benefit from being embraced as a much broader concept than the majority of people regard it to be. Certainly the confusion about what defines an entrepreneur makes this questionable.

Below is a Table that summarises some the definitions of entrepreneurs and entrepreneurship from some of the key theorists over the last 50 years:

Theorist/Year	Keywords	Description
Schumpeter 1965	*Individuals Innovation*	"entrepreneurs [are] individuals who exploit market opportunity through technical and/or organizational innovation"
P.Drucker 1970	*Risk*	"entrepreneurship is about taking risk"
Hisrich 1990	*Initiative Creative thinking Accepts failure*	"someone who demonstrates initiative and creative thinking, is able to organize social and economic mechanisms to turn resources and situations to practical account, and accepts risk and failure"
Bolton/Thompson 2000	*Creates Innovates Opportunity*	"a person who habitually creates and innovates to build something of recognized value around perceived opportunities"
Onuoha 2007	*Starting new Revitalising old*	"the practice of starting new organizations or revitalizing mature organizations, particularly new businesses generally in response to identified opportunities"

Figure 3.

Thomas and Mueller argue that the study of entrepreneurship should be expanded to international markets to investigate the conditions and characteristics that encourage entrepreneurial activity in various countries and regions. It is reasonable to expect that entrepreneurs reflect the dominant values of his or her national culture and national culture has definite effect on entrepreneurship. (Thomas & Mueller, 2000) For Eric Ries, "Entrepreneurs are

everywhere" – inside and outside companies, social entrepreneurs etc – but also 'Entrepreneurship is management." Here he is referring to a startup, and says it is an institution, he believes "'entrepreneur' should be considered a job title in all modern companies that depend on innovation for their future growth." (Ries, p.8, 2011)

2.4.2 A Working Taxonomy of Entrepreneurs

For the benefit of illuminating the focus of my hypothesis, I will endeavour to make a list of the types of entrepreneur that I think will fit the criteria for supporting OI (however, it must be recognised that any entrepreneur has the potential to provide benefit, but there must be some archetypal analysis made for there to be a full understanding of the gaps in theory). All the following defined types of entrepreneur are categories which I have comprised myself and are not drawn from any other research (although they are informed by reading, experience and observation and are connected to the survey design):

- firstly, that they are easily recognisable to both the general public as well as the OI community;
- secondly, that they have a clear skill set or purpose for being highlighted as potential collaborators in an entrepreneurial OI project;
- thirdly, that they would likely find some own personal benefit in engaging with such a project. This list is a working typology and follows no scientific or accepted taxonomy proposed by either policy makers or experts in the field of academia.

The following is a list of the types of Entrepreneur which I have identified as sources for sustained engagement in the OI process. I go on to provide more detailed descriptions after the list. It is this researcher's opinion that there is cause to believe that most, if not all, of these types of Entrepreneur are not contributing or benefitting as mush as they could from the OI paradigm.

- The Startup

- The Social Entrepreneur
- The Expert Consultant
- The Frustrated Academic
- The Serial Entrepreneur
- The Professional
- The Life-Cycle Entrepreneur

The Startup

These types of entrepreneur are the ‘marquee’ players that get everyone around them excited. Usually quite young and technologically proficient they have lots of ideas, energy, time and motivation which creates a buzz and draws people attention. It is little wonder that these are the most likely candidates for OI cooperation, especially given that they can transfer so much positive optimism to the projects they engage with, having relatively little baggage of failure and the cynicism of bad experiences. There is also the added benefit that because they are usually from a younger generation, they see the market, products and the world in general differently from more established innovation experts. This is a major attraction for companies as it is easy for them to conceive that what they are getting is a different perspective from their established teams.

The Social Entrepreneur

The main and obvious characteristic trait with a social entrepreneur is that their motivation is not rooted in monetary success. Their involvement in OI projects might take a more peripheral role as a result, but they can and should be a highly valued contributor as they can provide a totally unique perspective. Social entrepreneurs can also be highly efficient individuals, as they understand that they are likely to be required to work with little resources in order to achieve their objectives. They also tend to have a greater awareness for the broader

issues that might frame any future product release and could well be important players in seeking government and community support for any ongoing project.

The Expert Consultant

In some fields this job title has drawn negative connotations because not all consultants live up to the professional expectations that are the norms within their sectors. That being said they still have the potential to be vital players within the OI landscape. The consultant entrepreneur does not necessarily have to be an expert on entrepreneurship or innovation, but they should carry a level of expertise, both of academic sophistication and professional experience, that can make a significant contribution to an OI project. The consultant entrepreneur will have a role to play at many stages of an OI project because their advice and experience has usually been adapted to advise a variety of different clients.

The Frustrated Academic

The 'frustrated' academic isn't genuinely frustrated, but they do possess a strong desire to see or be involved with the practical application of theory. They are categorised as an entrepreneurial type because they may either be conducting consultancy work in addition to their academic research/teaching, or they have previous experience in business or entrepreneurial activity. They are a critical element for good OI projects because unless the project is specifically cooperating with an academic institution (and even if they are), their network of academic resources (human and intellectual) will undoubtedly provide fuel for creativity, as well as instilling an academic rigour in the project's research and processes. Some key elements for creativity and innovation are a broad range of perspectives and professional disciplines, as well as the skills to be able to disseminate the ideas and specifics across the gamut of actors involved in the project. Academic entrepreneurs fulfil both these elements.

The Serial Entrepreneur

These are fantastic people to have involved, especially at the instigation of a project. They are highly energetic and motivated to take new ideas and innovations and start rolling them out as businesses as soon as I possible. As the Lean Startup methodology dictates, it is essential that a minimum viable product is released as can be, giving the business the maximum amount of time to test assumptions about their idea and product. This is not an easy process to grasp and often those who have been instrumental in the creation of the idea or design of the product will delay a product launch in favour of having the best possible prototype available to release. However, this reduces the opportunities for learning and may end up being a waste of time and resources if certain assumptions turn out to be false. A serial entrepreneur not only has experience of rapidly delivering a business concept to the market, they are also highly motivated to do so and will act as a key driver in moving the operation forward to the next stage.

The Professional

The professional entrepreneur is more commonly referred to as a freelancer or self-employed person. In the typology of this thesis they are given a special category of their own. This is due to the fact they may not yet possess a high enough level of expertise to fall into the category of consultant, but they have a special set of skills or abilities that are useful (or perhaps vital) to the start-up processes and growth stages of a business. Having people around who can be brought in for certain functions and to fulfil a specific role, or who can provide intermediate support for say the marketing team or the design effort, will be an important element of a successful project. Involving such people in the entire process will mean that they are familiar with the project and so can lend their support at certain points and help accelerate the enterprise to the next stage of development.

The Life-Cycle Entrepreneur

In this final category we examine the entrepreneur who has begun a business idea and developed it through an entire life-cycle and may still be in the process

of running that business. They are not a serial entrepreneur because they may have only begun one or two enterprises, and those that they were involved with they wanted to see develop to their full potential, with the founder still at the helm. This is a critical role for any project because there must always be at least one person who can take ownership of the business and if that is not the 'Life-Cycle Entrepreneur' themselves, then they are good people to help identify those who do have the leadership and visionary qualities.

2.5 Other Important Factors of General Innovation Theory

2.5.1 Metrics

There is a strong voice of opinion from those involved in innovation and creative aspects of industry that metrics can be the best friend or the worst enemy of innovation. The problem is that traditional measures of progress in business and project management are not suitable for measuring the innovativeness of an individual, team or organization. It doesn't mean that innovation can't be measured, but only up to a certain point and only in certain ways. In an interview this researcher conducted with Sir Ken Robinson, I posed the following question:

How would you answer a manager or leader who asks, how can I measure creativity to reward the person who is performing better? Or is measuring performance at complete odds with a creative culture?

His response was to state that they are not at odds but the answers are determined by the sort of questions asked. *"As soon as you start taking about 'measurement' it pushes your mind in a particular direction. People start thinking about numbers and quantities, but we would never start to think about how we can measure the quality of Beethoven's 9th symphony – what is the metric for that!*"

Sir Ken Robinson goes on to say that business thinking has become rooted in the “metaphors of industrialism”, which appears in the vernacular using words like measurements and metrics, performance, standarisation and compliance. His argument is to change the approach and way of thinking of measurement. (NBR interview, Appendix 2)

In his article ‘Measuring Innovation’, Keith Smith references the work of Nathan Rosenberg as providing the “conceptual foundations of innovation indicators”. He goes on to highlight that Rosenberg, “[*first*]…*challenged the notion of research-based discovery as a preliminary phase of innovation. Second, he challenged the idea of separability between innovation and diffusion processes, pointing out that most diffusion processes involve long and cumulative programs of post-commercialisation improvements.*” This is very illustrative because not only does it question the value of focusing primarily on the inputs and outputs of a research and development team (and what that measurement process might ignore), it also highlights the many and significant improvements made after a product or service has been launched. (Smith, 2005)

To bring the above ideas together, the work of Eric Ries takes both of these points of view and offers an alternative approach which is rooted in entrepreneurial practice. The approach he describes in *The Lean Startup* begins by realigning the basic unit of measurement for the progress of a business by setting milestones based on the acquisition of knowledge and learning outcomes. This is in contrast to more traditional milestones which might be based on increases in revenue or number of registered clients. Appropriate metrics are then used as part of the ‘build, measure learn, feedback loop’ which again looks at reassessing the value of traditional indicators. These traditional indicators (e.g. increases in revenue, product optimization etc) are in most cases irrelevant, as they don’t answer the simple question, ‘Is what is being produce of value to the consumer.’ The solution to this, as Ries explains, is to create a minimum viable product (MVP) and to use that to test critical assumptions about the product and the consumer to ensure value is being achieved. The faster you can test assumptions and the more quickly you can

produce iterations that validate or disprove these assumptions, the more innovative you will be. This demonstrates more appropriate and enlightening metrics and indicators of progress and performance. This is how and why small units of entrepreneurs can offer a unique and measureable alternative to established innovation approaches. (Ries, 2011)

2.5.2 Leadership

One of the oft-cited factors in effective innovation practices is the issue of leadership. Leaders of companies are frequently being told that they must 'innovate or die' and that the innovation strategy and building a climate for innovation is down to the company leadership. To expand on this issue I will reference again the interview conducted with Sir Ken Robinson on creativity in business and leadership (NBR interview, Appendix 2). One of the most insightful statements made by Sir Ken in the interview was when he was asked about recruiting creative individuals. He states the following:

> "I don't associate creativity with people who have the wildest hairstyles or the most unusual dress sense. The question is not how creative you are, but how are you creative?"

This fantastically illustrates the problems with developing innovative teams of people. The tendency is to gather together the best minds or people with the best track record of patenting products. However, in order to make a product successful the process must also include people who are innovative in marketing, or developing a business model, etc. Sir Ken also sayd that in companies a lot of leaders believe that being "in control means being in command; it is command and control. I will decide what needs to be done and I will tell you how to do it." He points out that a new type of leadership is required, particularly one where those in authority need to ask themselves "what type of leader you want to be?" It is clear to Sir Ken that leaders who centralise authority and aren't prepared to try new initiatives and ways of doing things are heading for failure. He states that, "what the leader has to do is control the climate in which people operate. To create conditions in which

people will feel they are able to come up with new ideas, they won't be penalised for it, they will be rewarded for it, even if the ideas turn out not to be successful." (NBR interview, Appendix 2)

2.5.3 Intersectoral flows

In a piece written by Keith Smith entitled Measuring Innovation, he refers to a database of recorded innovations known as the SPRU. In his article he explains that the database was constructed to identify "major technical innovations in Bristish industry."(Oxford Handbook, 2006) It covered sources and types of innovation, industry innovation patterns, cross-industry linkages, etc. Studies that have used the information from the database have recorded what is known as ' intersectoral flows of innovations'. He highlights the work of Geroski (1994) in this regard, who shows the system of innovation in engineering sectors (see diagram below). Smith describes collaboration as "widespread among innovating firms, to such an extent that it appears almost a *sine qua non* for innovation activity.

The SPRU innovation database: The intersectoral flow of innovations

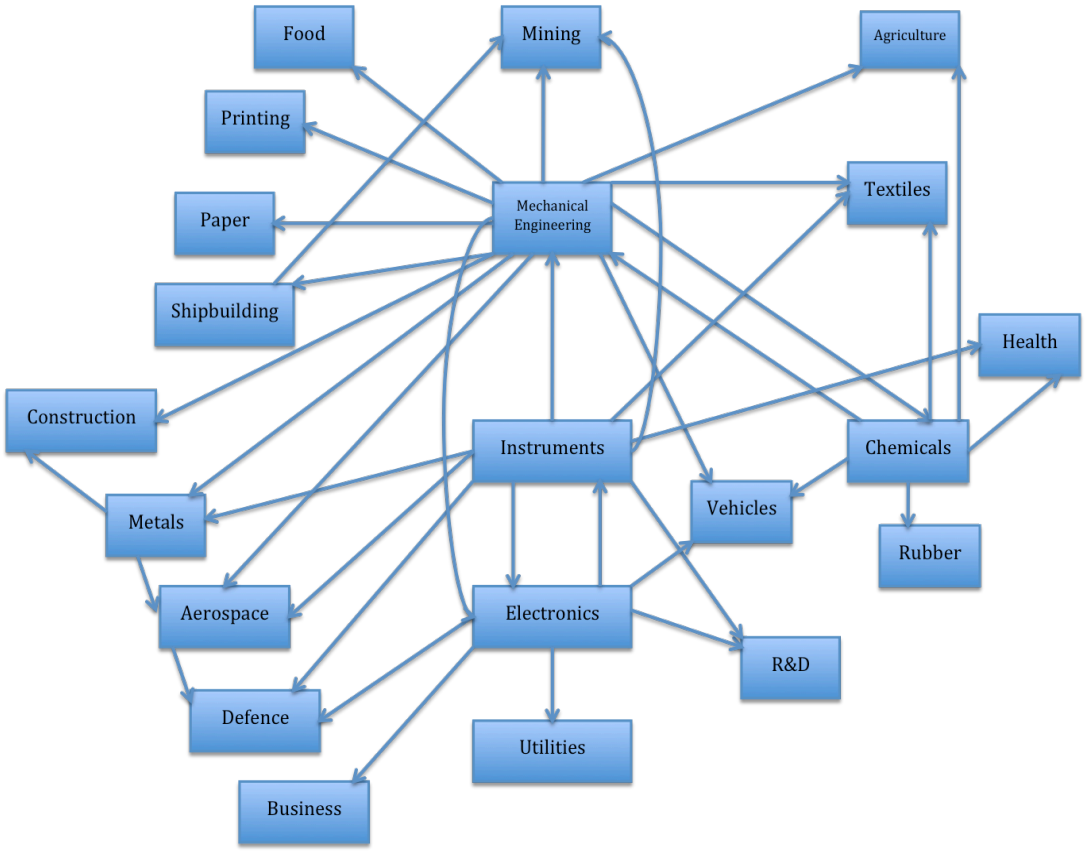

Figure 4.

Source: Geroski (1994), found in Smith, Oxford Handbook 2006

2.5.4 Associated Learning

In the article by Aija Leiponen on the organisation of knowledge and innovation, she brings up the work of Löwendahl and Hansen in respect to the theory on knowledge creation strategies. This work differentiates between individually applied resources, where the main beneficiary of tacit learning is the individual expert, as compared to collectively controlled resources where associated learning is able to take place. Leiponen explains that associated learning will lead to the socialisation and combination effects discussed in the seminal work by Ikujiro Nonaka 1994, who examined the managing of the dynamics of

organisational knowledge being created between tacit and explicit knowledge (see Figure 5 below). Leiponen states:

> "[When] key resources are more collectively applied, associated learning is more likely to support socialisation and combination (see Nonaka, 1994: 19) which may lead to more radical new service concepts."

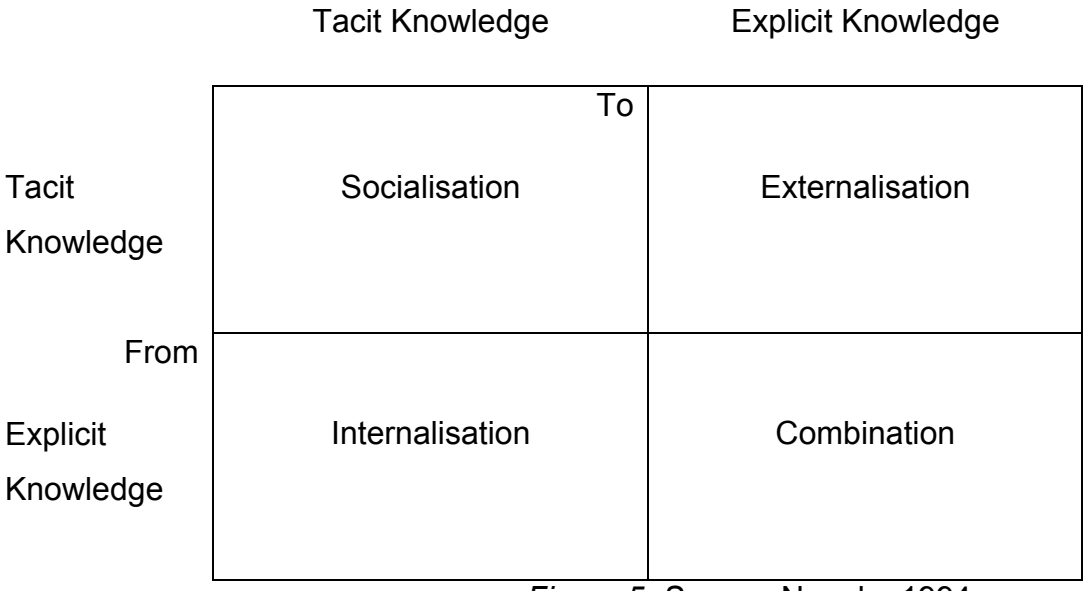

Figure 5. Source: Nonaka 1994

The model above demonstrates that the flow of knowledge from Tacit to Explicit (and vice versa) results in the more collective aspects of the theory and means that understanding and information is shared and power and control is more evenly distributed. Even though some might see dangers in the unfettered sharing of knowledge with entrepreneurs, there is a strong argument to suggest that those companies who don't seek ways of engaging more collectively will squander the depth of knowledge and creativity they have accumulated.

3 METHODOLOGY

3.1 Problem and Approach

The assumptions for this investigation are that entrepreneurs are willing and able to provide additional support and ideas to the innovation processes of external partners. The problems lies in that there is no empirical evidence that entrepreneurs understand or are even aware of the theory of OI, nor is it known if they would have the desire to exploit such an opportunity even if it was presented to them. It also needs to be established that there are no immovable impediments to individual entrepreneurs actually participating in the processes of OI. Below are the four questions that need to be answered as set out in the introduction:

1. *has the individual entrepreneur been made comprehensively aware of the concept of open innovation;*
2. *has the individual entrepreneur been given any opportunities in which to become involved (directly or indirectly) in the processes of open innovation;*
3. *what are the attitudes and actions of the individual entrepreneur toward sharing and collaboration for the benefit of innovation;*
4. *what different compensatory factors offered in exchange for involvement in the practices of open innovation are most attractive to the individual entrepreneur.*

The researcher chose to utilise secondary resources in the literature review to investigate the broad concepts of OI, Innovation and Entrepreneurship. Once the literature review had been exhausted, the researcher then sought primary data through a survey utilising both quantitative and qualitative questioning in a mixed method approach, to investigate the focus areas of the thesis more specifically.

Quantative research includes such things as demographics (numbers of households, population aged 25-40, etc), market size, brand shares and price points. Problems usually lie in the definitions and interpretations. **Qualitative statements** deal with preferences, opinions, latent wants and needs. Such comments are often prompted by the much-vaunted and oft- maligned focus group. (Cheverton, ps.57-58, 2004).

Mixed method research uses quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential) but does not combine them. This means that, although mixed method research uses both quantitative and qualitative world views at the research methods stage, quantitative data are analysed quantitatively and qualitative data are analysed qualitatively. In addition, often either quantitative or qualitative techniques and procedures predominate (Saunders et al. p.153, 2009).

3.1.1 Sampling

The target population for this thesis was entrepreneurs in the region of Southwest Finland. Provided each candidate is, or had been an entrepreneur then they were permitted to answer the survey. However, it was identified by the researcher that certain types of entrepreneur engaging in less technologically specific sectors would be targetted in order to offset the likelyhood of bias – *Purposive Sampling*. This bias would have resulted from the enthusiasm of those entrepreneurs more willing to answer the questionnaire because of their familiarity with the themes. Unfortunately, this researcher was unable to obtain appropriate statistics on the number and diversity of entrepreneurs in Southwest Finland. However, it was deemed that this (along with the low number of respondents) would simply mean that more sophisticated analysis techniques could not be run, but the study was still able to analysis well the data available. (Saunders et al. 2009)

3.2 Rationale and Justification

To elaborate further the justification for the approach detailed above, the literature review would only help in identifying what research has been already conducted and where there might be gaps in the theory. It was already the assumption of the researcher that individual entrepreneurs would be a sector of the business community that could be better incorporated into the processes of OI. What was unknown was to what extent this might be the case. Being already familiar with the theories of OI and the activities it is traditionally associated with, the researcher was confident that there would be opportunities to continue the research and gather primary data to fill the empirical void that, if not universally pertinent, would at least be applicable to a given geographical region (that of Turku and Southwest Finland).

The rationale for employing a general survey lay in the primary concern of identifying what sections and percentage of the entrpreneurial community might be marginalised by the processes of OI. To this end the researcher needed to gather data from all types of entrepreneur. Given this objective underpins any future research into the involvement of entrepreneurs in the processes of innovation, it preceded any other type of research. To cite an example of a weak methodological approach to this objective would be the conduction of a questionaire to a specific company or section of the entrepreneurial community. This would have ignored a key tenet of the assumptions being made that a broad range of ideas and experiences can help to enrich creative and innovative activity in business. The researcher also rejected the possibility to interview an experienced consultant or manager of a OI firm because, despite the value of this person's contribution, they will not have had the diversity of interaction required to justify statements about the general entrepreneurial community, and nor can they speak with certainty on the motivations and experiences of that community.

3.3 Design and Reproducibility

The design of the questionnaire was such that it considered the need to gather basic data and information on the level of experience and activity of the entrepreneurs answering the survey.

Section one asked important basic questions, such as age, which were significant because correlations might be drawn between these and the participants awareness of OI theory, or indeed the participants attitude towards engagement (both of which could reflect generational variance). There are other questions about the participants areas and levels of experience, including industry sector activity which again could reflect a more or less sophisticated understanding of innovation and the concepts under discussion (such as the IT industry and an increased familiarity with crowdsourcing).

Section two asked questions on attitudes and behaviours towards innovation in general. This again is critical information to ask as it would be irrelevant to state that entrepreneurs are an under-utilised resource in OI processes if you were not to assess whether that was because they have no interest in collaborating or sharing their expertise in such an open context.

Section three asked the fundemental questions about participant awareness of OI theory. This is the central objective of the thesis as it frames the entire study and the awareness of OI in relation to Entrepreneurs in Southwest Finland. It also asked the really interesting questions concerning their involvement OI as well as what form that involvement currently takes or might take if given the opportunity.

The questions were designed to be as simple and as easy to follow as possible. They were also designed (in most part) using a likert scale so that the participants were restricted to predetermined answers but could find an answer applicable to their experiences. Some questions were inevitably more complex, however there were translations in Finnish to help with the basic understanding as well as other complementary questions that were more simple. The survey was constructed with the intention of being reproduced. It is the intention of the

researcher to continue the investigation for a Masters level study to analyse a more specific subsection of entrepreneurs in Southwest Finland and compare the results against interviews with regional and organisational actors.

3.4 Reliability, Validity and Generalisation

There were three important elements that affected at whom the survey was targeted and what sort of sample needed to be analysed. These elements can be summarised as *geography*, *range* and *size*.

Firstly, it was important that only entrepreneurs active in the targeted geographical region were allowed to answer the questionnaire. This is not only to provide a data set that can be deemed more representative because the sample is of a greater percentage proportionally, but also because it provides a more relevent cross section and will reflect the regional variations that are inevitable.

Secondly, the range needed to include entrepreneurs with different levels of experience and those engaging in different types of activity. Activity here doesn't mean different industry sectors (although this is also preferred) but that the entrepreneurs smapled are not all startups or all consultants or all restauranters (see part 2 of the thesis, A Working Taxonomy of Entrepreneurs). This is so correlations can be draw between the different entrepreneurial roles and their respective level of involvement.

Finally, size was also a key concern. Like all survey results the data set must be of a significant proportion of the overall population to make the generalisation of the findings valid. Unfortunately the researcher came up against two major problems in this thesis. The first was identifying how many entrepreneurs were currently active in the region of Southwest Finland. This presented problems as there could be no reliable statement about the proporation of the sample taken. The second problem is that the researcher couldn't obtain the cooperation of the regional entrepreneurial association(s) in order to target a large enough number of potential participants. This made the actual participant figure (22)

very small. These issues do not take away the value of the survey results entirely. However, the value of running more sophisticated analysis techniques and correlations seemed mute given these circumstances.

4 DATA ANALYSIS AND INTERPRETATION

4.1 Establishing Entrepreneurial Experience

As was acknowledged at the end of the last chapter, these findings are unfortunately based on a very small sample and so all statements must be read with that fact in mind.

The first section of the survey included basic question about the background of the participants as well as their entrepreneurial experience.

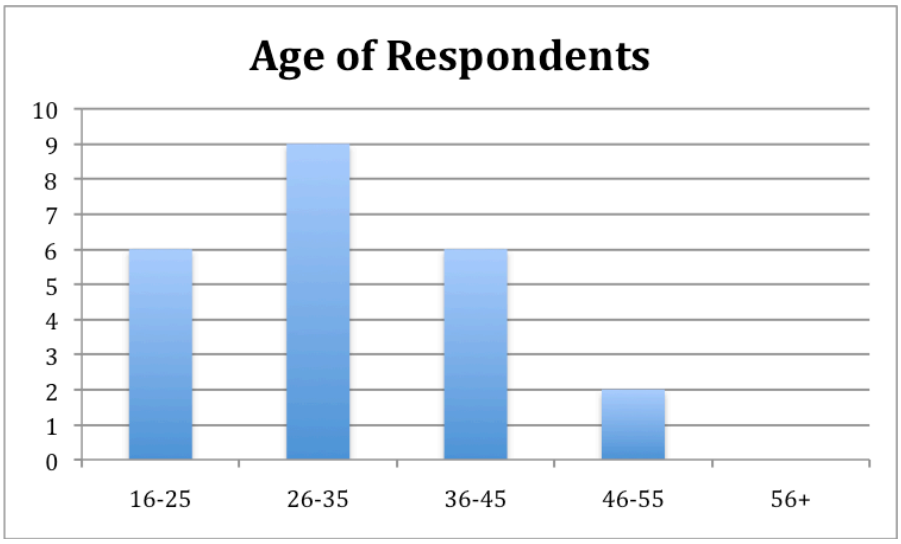

Figure 6

From the graph we can see that the average age of the Entrepreneurs would have fallen somewhere between 30-35 years, with only 2 above 45 years of age. These statistics do not correlate with the findings of the Global Entrepreneurship Monitor Report in Finland by Stenholm et al. (2013), but they do correspond more with those of Innovation-driven economies (see. Figure 13, Stenholm et al. 2013). (However, it must be noted that the age-group statistics in this report represent the % of entrepreneurs as a proportion of each age group, and so could be affected large variances in generational demographics). From this type of finding we could argue that Entrepreneurial activity is much 91.3% more likely amongst people aged 45 and under, with a 65% probability if you are 35 or under.

The next graph shows the educational background of the entrepreneur resondents.

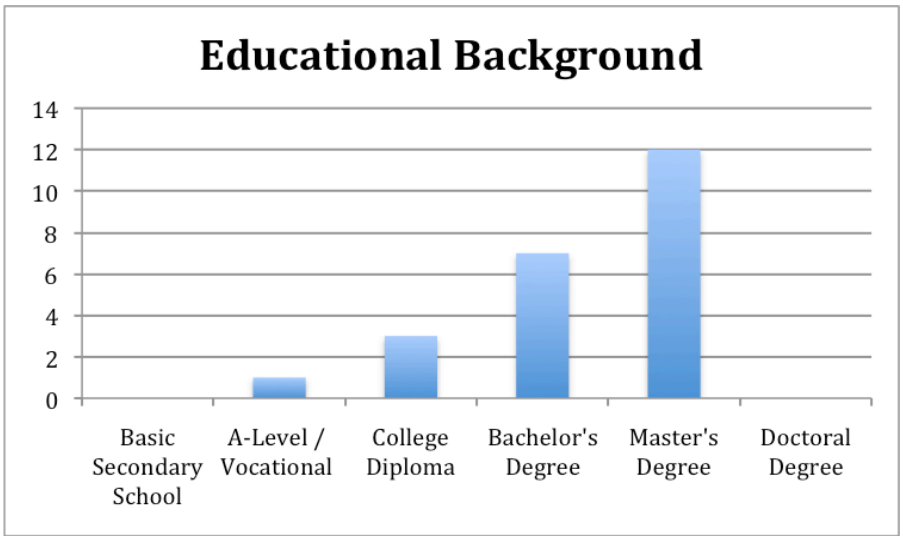

Figure 7

From this graph we can see that there is a steady upward trend towards higher education amongst entrepreneurs who responded to the survey. Of the survey participants 83% of them had at least a Bachelor's degree (however non of the respondents carried a PHD). This statistic did correlate to the findings of Stenholm et al. However, again this held more similarties to the innovation-driven economies listed as those Finland carried equal weight with the Secondary schooling category as they did with the Graduate category (see p.38 Stenholm et al.).

The next analysis is regarding years of working experience.

	Years of Experience						
Type of Experience	None	0-1	1-2	3-5	6-10	11-15	15+
Entrepreneur	0	6	2	6	4	1	1
Public Sector Employee	6	5	2	2	1	0	0
Private Sector Employee	1	4	4	7	2	0	1
Consultant	9	1	2	2	0	0	1
As a Supervisor/Manager	6	4	4	1	0	0	2

Figure 8.

From the table in Figure 8 we can see that the the overall increased years of entrepreneurial experience are matched by the experience as a private sector employee. This would indicate that there is a stronger propensity for entrepreneurs to also hold greater years of experience working in the private sector. Discluding one outlier who had more than 15 years of experience as a consultant, only 21% of respondents had any consultancy experience and all less than 5 years. From the graph below 78% of respondents had less than 10 years experience as an entrepreneur.

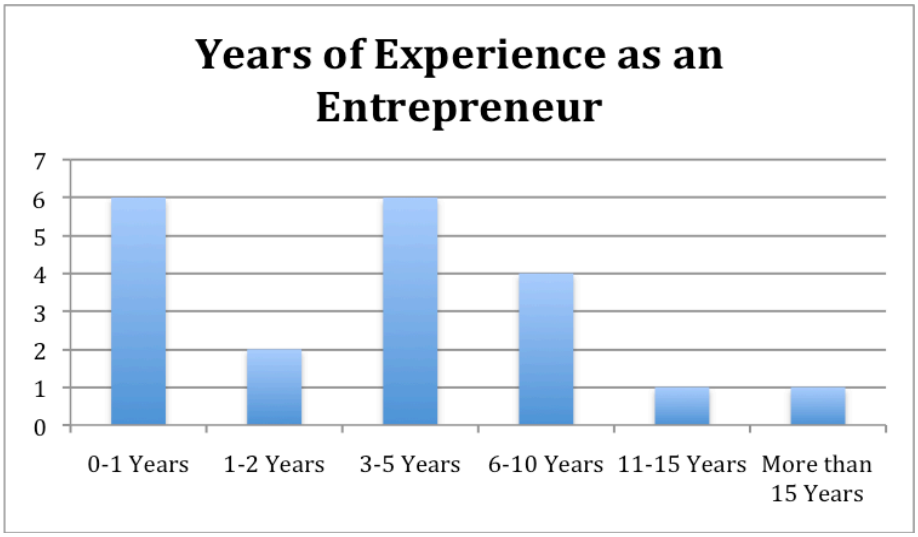

Figure 9

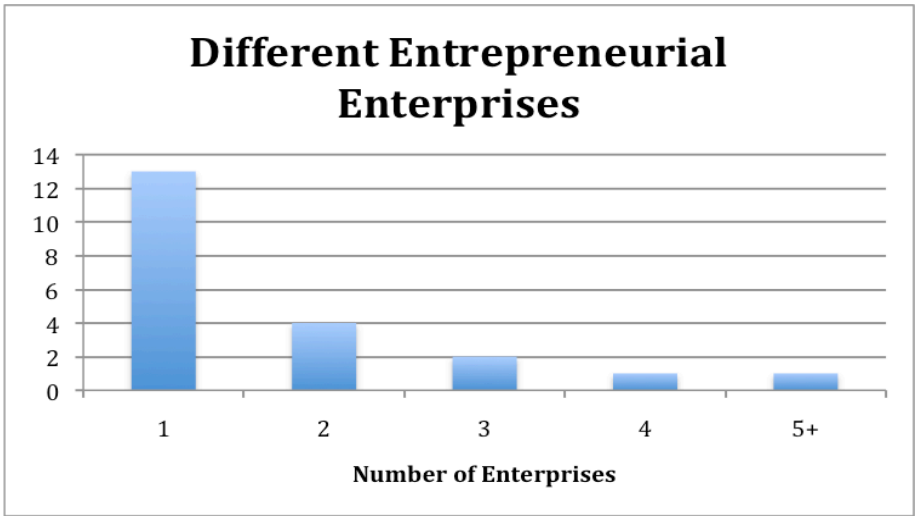

Figure 10

From the graph above we can see that over half (57%) of respondents had created only one enterprise. When we couple that with the information on annual turnover in the graph below (Figure 11) we see that 74% of respondents are producing a revenue of under €50,000 which can be considered only enough earnings to cover costs and salaries for an individual (although Question 7 regarding number of employees does indicate that 70% of respondents were able to employee at least one other person. See Appendix).

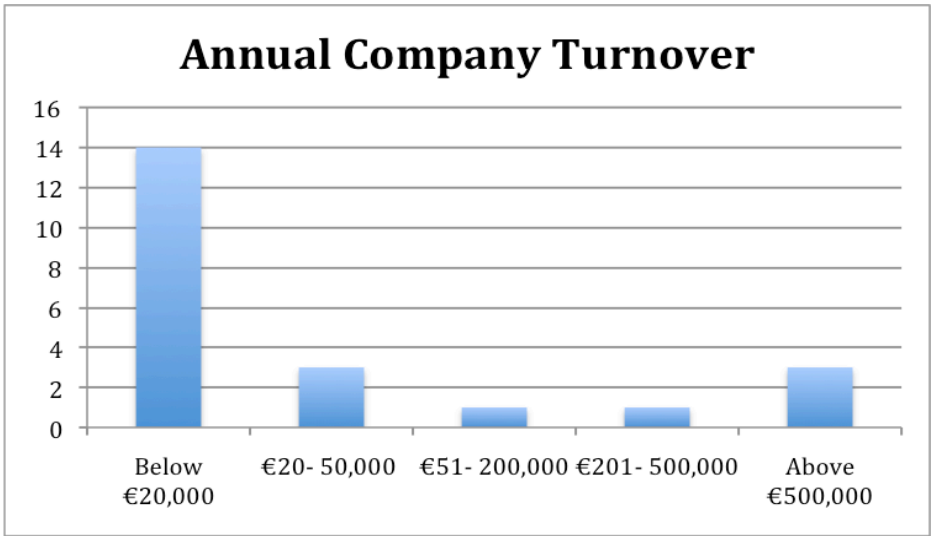

Figure 11

4.2 Evaluating Attitudes and Behaviours to Innovation

Evaluated in the next section of questions are the attitudes and behaviours towards innovation. Figure 12 below shows that 74% of respondents consider innovation to be either Important of Very Important to their company's development, with no one considering it unimportant.

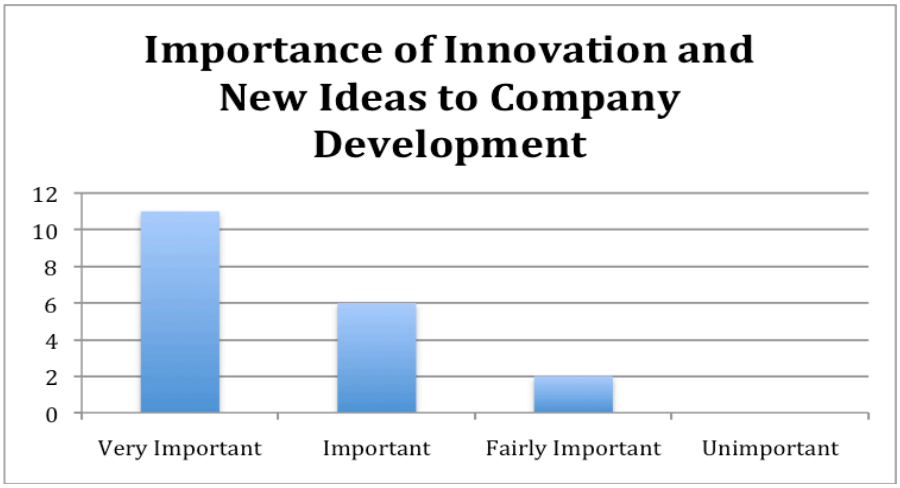

Figure 12

Figure 13 shows that 35% of respondents consider development of new products and services as Easy or Very Easy. Although only 9% or respndents

considered it to be difficult, there were 44% who were neutral in their opinion. This is likely to reflect an issue of circumstance, and the respondents that answered neutrally were either doing so because they have not had any experience of innovating new products and services or because those experiences were evenly mixed, positive and negative.

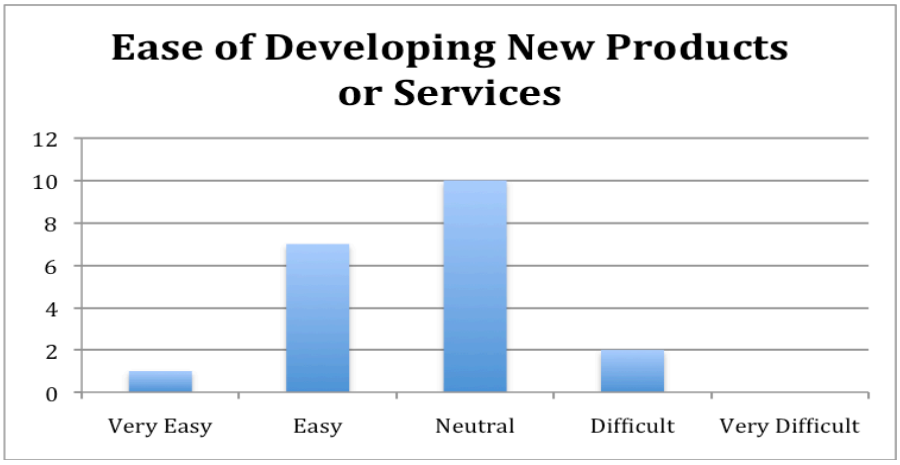

Figure 13

The graph below shows that 65% of respondents have been involved in developing a new product or service. Of the rest, 17% responded that they hadn't and 17% didn't provide an answer. This may indicate reasons why so many in Question 10 (Figure 13 above) answered Neutral as there had no experience on which to base an answer. It seems strange that as many as 34% would answer 'No' or not give and answer when you would have expected them to have created something novel in their capacity as entrepreneurs.

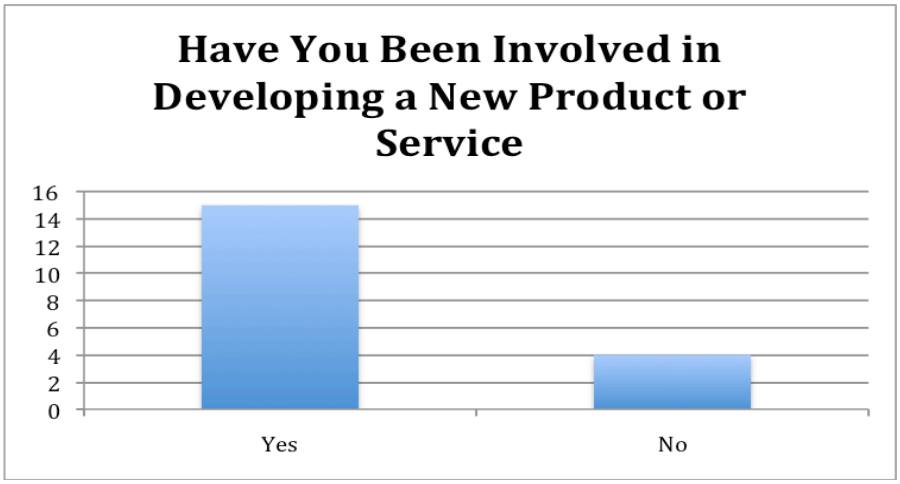

Figure 14

Figure 15 shows an even split which demonstrates that 44% of respondents have had some creative experience with products and services of another company. Furthermore, 39% of respondents also answwered that they had never been given the opportunity to contribute to other the innovation processes of another company (see Question 13, Appendix 1).

Figure 15

4.3 Assessing Awareness of Open Innovation Theory

The third and final section reveals the extent of involvement and understanding in OI. There seems to be a broad range of awareness regarding the theory of OI as indicated by Figure 16, with 17% not being familiar with the concept. (As many as 39% didn't answer the question and this may indicate a lack of understanding of the concept and question as well.)

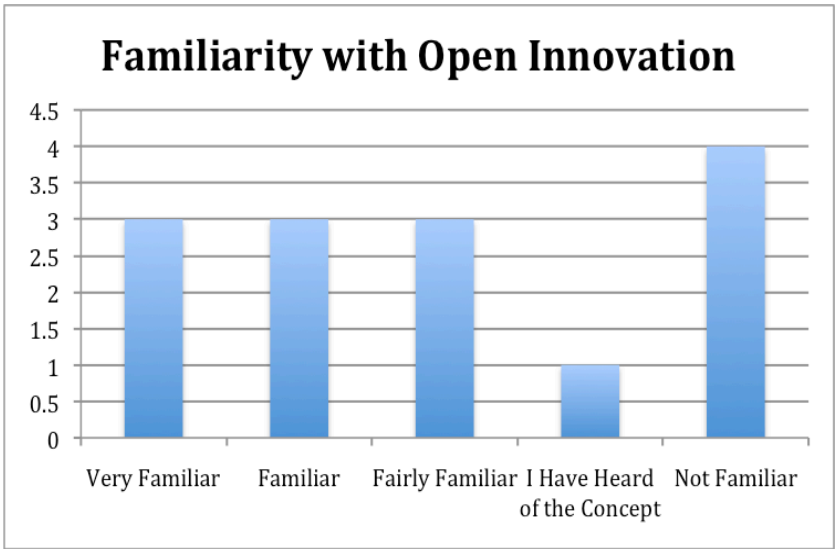

Figure 16

In the graph below most of the categories provided for communicating the respondents ideas to the wider business community had some relevance, however again it was the lack of responses to this question which was more noticeable. Again this may indicate that only some (44%) of the entrepreneurs actually utilise these or any methods of cummincation and collaboration to the wider business community (an 'Other' option was provided but only two responses were made).

Figure 17

The table below (Figure 18) shows the ratings that the respondents gave to the various compensatory benefits that were provided as examples of how

entrepreneurs might like to be rewarded for their involvement in OI activities. What is noticeable from these results is that *monetary payment* is second in total points accumulated to *advice and support from expert consultants.* Unfortunately, the total scores for all compensatory factors are roughly the same and so very little can be concluded from this analysis.

	Frenquency of response					
Rating	**1**	**2**	**3**	**4**	**5**	**Total**
Monetary payment	2	3	2	4	3	**45**
Free training opportunites	2	2	5	2	3	**44**
Advice and support from expert consultants	0	4	3	5	2	**47**
Free office space	3	2	3	2	4	**44**
Tax benefits for involvement	2	3	4	2	3	**43**

Figure 18

The answers to the most important question are given in the graph below. Figure 19 shows that only 5% of respondents had ever been involved as an entrepreneur in OI. Again there were 39% of respondents who didn't answer this question, but given that this was a very straightforward question to answer, this researcher's conclusion is that those who didn't answer had either not completed the survey or had decided that this wasn't relevent to them. Either way, a person who was familiar and had been involved in such processes would have been more likely to see the survey through to the end (although this can really only be classed as conjecture).

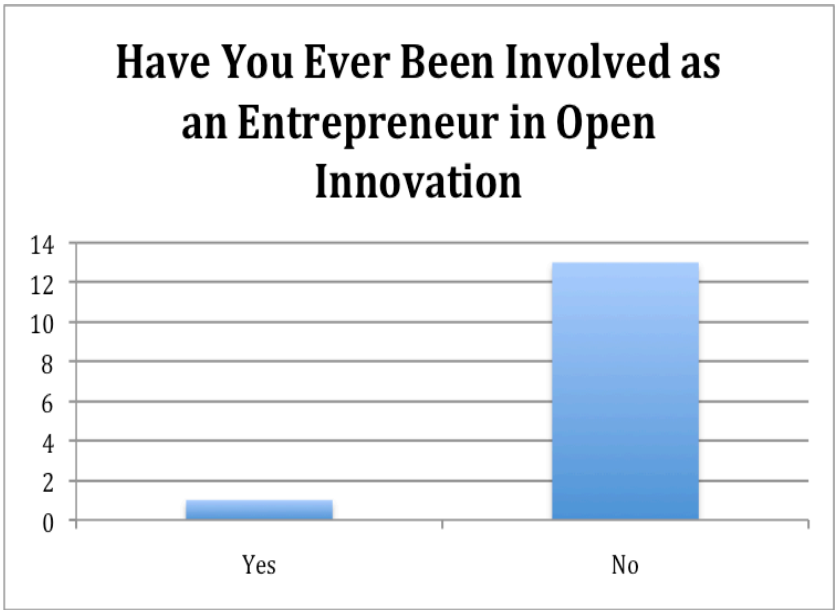
Have You Ever Been Involved as an Entrepreneur in Open Innovation
14
12
10
8
6
4
2
0
Yes
No

Figure 19

5 DISCUSSION

The introduction to this thesis brought up four questions that formed the core objectives of this study and will now be evaluated in turn.

> ***1) has the individual entrepreneur been made comprehensively aware of the concept of Open Innovation?***

The primary question regarding awareness of OI was successfully answered. Although there was an element of famliarity with the concept from the respondent Entrepreneurs, there were varying degrees of familiarity which indicated that many of the respondents were unsure about how or why they were familiar. During the literature review the researcher was unable to obtain other papers or research on the awareness of OI amongst entrepreneurs. It was also the case that the majority of the literature on OI was centred around larger companies. Due to these two facts it is reasonable to make the assumption that entrepreneurs could be made more aware of OI and the benefits it could have for entrepreneur and his/her enterprise.

It should also be stated that given so many of the respondents carried higher academic qualifications the benefit they could provide to other companies in regard to critical thinking and differentiated ideation could be significant. On the flip side, most enterprises employed fewer than 5 people and most entrepreneurs were under the age of 35 and had little experience outside of being an entrepreneur. Given these findings it would be justified to state that the benefit to the individual entrepreneur of collaborating with other companies could provide the entrepreneur with vital business experience and access to greater diversity of tacit knowledge, mentoring and support.

> ***2) has the individual entrepreneur been given any opportunities in which to become involved (directly or indirectly) in the processes of Open Innovation?***

The direct involvement of entrepreneurs in OI was another area of the thesis with clear results. When asked the direct question 'Have you been involved as an entrepreneur in OI', only one respondent (5%) was able to answer 'yes'. As stated previously there were 39% of respondents who didn't answer and it was the assumption of this researcher that a person who had been involved in OI would have been more likely to answer every question, therefore leading to the belief that there lack of a response is more likely to have been negative if forced to answer. In regards to the indirect involvement in OI (see Q.12, Appendix 1), there were more responses in general and also the responses were much more positive as 44% of respondents had some experience in the creative processes of another company. This may well have been in a capacity as an employee rather than an entrepreneur, but the experience is still valid in the context of what they could provide to the processes of OI. Of those who answered 'no' to the same question, 82% then stated it was because they had not been given the opportunity to do so. This is a very important statistic as it shows that there is a significant proportion of entrepreneurs left out of collaborative innovation processes.

The concept of indirect involvement in OI is worth exploring in more detail. Despite the proliferation of material on both innovation and entrepreneurship, there seem to be large ambiguities about the boundaries of each concept, primarily because of the low degree of measurability (see *2.5.1 Metrics*). When you then talk in terms of OI, valuable activities and experience can becomes even less identifiable. Greater understanding of OI and where it might be happening would lead to more constructive and focused engagement. For the entrepreneurs involved, valuable by-products such as those of 'associated learning' (see *2.5.4 Associated Learning*) are intrinsic elements of OI processes and so make even indirect involvement of value for tacit understanding.

3) what are the attitudes and actions of the individual entrepreneur toward sharing and collaboration for the benefit of innovation?

Not surprisingly the general attitutde towards innovative activities is positive amongst the respondents. The data analysis shows that of the respondents 74% of them saw innovation as important or very important. In the question regarding ease of innovation, one could argue that as much as 57% can call upon positive experiences with creating new products or services. This argument is based on the fact that 65% of respondents have been involved in the development of the new product or service (as indicated in Figure 9) and when the number of participants who found innovation difficult have been subtracted, 57% is the remainder and so in this researcher's analysis the logical conclusion about the motive for neutrality is mixed but even experiences.

Positive attitude is more critical to this hypothesis than most observers might realise. In the theory it was highlighted that there are a range of different reasons why individuals become entrepreneurs. It is this researcher's opinion that most, however, do not stay as entrepreneurs purely out of necessity. Strong motivation and passion are critical drivers for the individual entrepreneur. This is usually the reflection of a positive and determined character and of someone who is used to working creatively and dynamically with a high tolerance of risk (see *2.4.1 Who is and Entrepreneur*). With these characteristics in mind, entrepreneurs with positive attitudes towards the importance of innovation, especially those with experience of innovation activities, are ideally suited to be part of OI projects, increasing the benefits to both parties.

In Q.17 of the survey (see Appendix) a range of options for the contribution of thoughts and ideas to the wider business community, were presented to the respondents, asking which, if any, they utilised. The findings were varied as most categories had respondents but non of them significantly outnumbering the rest. However, what occurred in the analysis was that entrepreneurs were utilising a wide variety of means by which to interact with their customers and peers and this demonstrated another advantage to OI of engaging with entrepreneurs. There ability to access and share ideas

and inspiration was particularly broad, and so would put them in a unique position by which to absorb and transmit new ideas and solutions.

4) what different compensatory factors offered in exchange for involvement in the practices of Open Innovation are most attractive to the individual entrepreneur?

In Q.18 (see Figure 12 and Appendix) there is not much that can be conclusively drawn from the data collected on the compensatory benefits that were rated by the entrepreneurs. It was interesting to note that the training and consultancy benefits scored equally or marginally better than the monetary and tax benefits, which shows that they are of relatively equal value to entrepreneurs. This does demonstrate that entrepreneurs appreciate the worth of accessing new or more sophisticated information and that their own level of education is valuable to their development and that of their enterprise. It also goes to show that a range of reward mechanisms would be appropriate for future activities with entrepreneurial driven OI projects.

6 CONCLUSIONS

6.1 Theoretical Implications

The first major implications of the theoretical findings is that very little engagement has been made with individual entrepreneurs into the theory of OI. This was an assumption that I based my research paper on and neither the review of extent literature nor the results of the survey have given irrefutable proof that this is not the case. It is true that entrepreneurs are involved in OI, through such methods as crowdsourcing or then by virtue of having a startup or SME that provides a larger company with with a dynamic opportunity to collaborate or outsource its IP. The first of these examples, crowdsourcing, engages with entrepreneurs (although they are more likely to be technology, science or engineering professionals rather than entirely entrepreneurs), but it does so independently of one another, thereby ignoring the collaborative potential that could be gained from team work and group dynamics. Despite the various means by which to utilise OI practices and to enhance a company's capabilities through these practices, the theory lacks a process for exploiting the collective attributes of entrepreneurs.

In contrast the collective attributes is an area of the theory on entrepreneurship that has been given too much focus. It was difficult for this researcher to find any typology of entrepreneurial activities because so much of the literature was awash with research on the characteristics of entrepreneurs and attempts to categorise entrepreneurs based on these psychological differences. What was evident from reading these category lists was that most entrepreneurs possessed all or many of these characteristics and so provided no clear differentiation. What these motivational categories did was highlight that entrepreneurs possess a range of qualities that were ideally suited for creative thinking and dynamic business development. However, clearly both the theoretical base of OI and also that of entrepreneurship can still provide rich opporunities for further theoretical investigation.

6.2 Practical Implications

The primary motivation of this thesis was to investigate an area where there could be genuine practical development and opportunity for collaboration. When you consider all the wealth of ideas and experience being accumulated in large companies and organisations, and you witness the energy, motivation and dynamism of many entrepreneurs, it immediately seems logical to place the two together. As was stated in the synthesis of the theoretical framework (see part 3.1), the architecture of the business models are just as important to the development of OI as are the ideas and innovations themselves. Amongst entrepreneurs, not only do you possess experience of developing new and different business models, and knowing how to manage them on a 'lean' budget, but you are also provdided with individuals who, if not not creatively minded themselves, have understanding of how to access new ideas and engage with the wider community to help fuel development. You might suggest that larger company's can simple employ such individuals within the company walls (see *2.2.4 New Ventures*), but such employees will not operate with the same level of independence that entrepreneurs do. Nor will they go beyond the boundaries of what has been stated as financially and strategically viable, no matter how much authority they are given, the ability to justify their decisions and preserve their job will always be that bit more important than taking certain risks or leaps of faith that might be necessary.

With all this in mind the practical implications are that a community of entrepreneurs with access to ideas and resources, working in collaboration with larger company's or organisations but with full independence of that company could be an extremely attractive investment if managed and organised appropriately. The collaborative benefits of such dynmaic individuals with such vastly different experiences coming together for the purpose of a common goal is very exciting.

6.3 Implications for Future Research

This study was always intended to be the preliminary part of a more indepth study as part of this candidates Master's research paper. At the moment this paper only touches the level of empirical evidence that is required for a robust and comprehensive investigation into the hypothesis. Although the study opens the door to the issues concerned and corroborates that there is validity in the idea of entrepreneurs being excluded from the OI process, only further and more indepth studies will truly identify if entrepreneurs will be willing with companies and organisations (and vice versa) to create open collaborative projects for the benefit of innovation and development. Future studies will definitely need to produce data on the accuracy of the taxonomy of entrepreneurs put forward in this, as well as asking a greater variety of questions about attitudes and motivations for possible collaborations. The survey will also need to be complimented and compared by interviews with senior figures in the management of companies and organisations so that their attitudes towards the entrepreneurial benefit can be assessed.

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APPENDIX 1

Thesis Survey for Entrepreneurs

1) What is the name of your company? (This is a non-mandatory question) Edustamasi yrityksen nimi (vapaaehtoinen)

2) What age are you? Minkä ikäinen olet?

- 16 - 25
- 26 - 35
- 36 - 45
- 46 - 55
- 56 +

3) What is your current level of education? Mikä on koulutuksesi?

- Basic Secondary School / Perusaste
- A-Level or vocational college / Toinen aste (lukiokoulutus, ammatillinen koulutus)

- College diploma / Opistoaste
- Bachelor's degree / Alempi korkeakouluaste ja ammatillinen korkea-aste
- Master's degree / Ylempi korkeakouluaste
- Doctoral degree / Tutkijakoulutusaste
- Education level unknown / Koulutusaste tuntematon

Other (Please Specify)

4) How many years experience do you have in the following roles? Kuinka paljon sinulla on kokemusta seuraavista tehtävistä?

	None	0 - 1 year	1 - 2 years	3 - 5 years	6 - 10 years	11 - 15 years	More than 15 years
Private sector employee / Yksityisen sektorin työntekijä							
Public sector employee / Julkisen sektorin työntekijä							
Entrepreneur / Yrittäjä							
Consultant / Konsultti							

As a manager/supervisor	○	○	○	○	○	○	○
/							

5) How many different enterprises have you created as an entrepreneur? Kuinka monta yritystä olet perustanut?

- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5 or more

6) What industry do you operate in? (Two options are allowed so you may write more specific detail in the final option box).

Mikä on yrityksesi toimiala? (Voit valita ao listasta kaksi vaihtoehtoa tai halutessasi kirjoittaa toimialan tyhjään ruutuun)

- ☐ Agriculture, forestry and fishing
- ☐ Mining and quarrying
- ☐ Utilities & energy
- ☐ Waste management

- [ ] Chemistry & pharmacy
- [ ] Consumer goods
- [ ] Transport and storage
- [ ] Telecommunications
- [ ] Mechanical repairs and motor vehicle maintenance
- [ ] Engineering
- [ ] Finance & insurance
- [ ] Legal sector
- [ ] Real estate and housing
- [ ] Scientific & research
- [ ] Administration and support
- [ ] Health sector
- [ ] Arts & entertainment
- [ ] Hospitality & tourism

Other (Please Specify)

7) What is the annual turnover of your company? Yrityksesi liikevaihto?

- Below 20.000 €
- 20 - 50.000 €
- 51 - 200.000 €
- 201 - 500.000 €
- Above 500.000 €

8) How many employees do you have? Yrityksesi työntekijöiden määrä

- Only myself (vain minä)
- One other (yksi muu)
- 2 - 5
- 6 - 10
- 11 - 20
- More than 20

9) How important do you consider innovation and access to new ideas to the development of your company and business?

Kuinka tärkeänä pidätte innovaatiota ja uusiin ideoihin pääsyä yrityksesi liiketoiminnan kehittämisen kannalta?

- Very important (Erittäin tärkeä)
- Important (tärkeä)
- Fairly important (jokseenkin tärkeä)
- Unimportant

10) Please indicate how difficult/easy it has been to create new products or services in your company?

Kuinka vaikeaa / helppoa mielestäsi uusien tuotteiden tai palvelujen innovointi on ollut yrityksesessäsi?

- Very easy (Erittäin helppoa)
- Easy (Helppoa)
- Neutral (Neutraali)
- Difficult (Vaikea)
- Very difficult

11) Have you been involved in the development of a new product or service? Oletko ollut mukana kehittämässä uutta tuotetta tai palvelua?

- Yes / Kyllä

○ No / Ei

If yes, give an example.

12) Have you been involved in the creative processes for a new product or service for another company?

Oletko osallistunut toisen yrityksen uuden tuotteen tai palvelun innovointiprosessiin?

○ Yes / Kyllä

○ No / Ei

If yes, give an example.

13) If your answer to the preious question was no, please give the reason from the following options.

Jos vastauksesi edelliseen kysymykseen oli ei, ole hyvä ja kerro vielä miksi?

○ I never had the opportunity (Minulla ei ole koskaan ollut tilaisuutta)

○ I have no interest in supporting innovation (En ole kiinnostunut

innovaatioiden tukemisesta)

Other / Muu syy (Please Specify, e.g. I have no special expertise)

14) Are there any other ways your company has tried to become more creative or foster innovation?

Onko yrityksesi jollain muilla keinoin yrittänyt tulla luovemmaksi tai edistää innovaatioit

15) How familiar are you with the concept of Open Innovation (see the short description at the top of this page)?
Miten hyvin tunnet Avoimen Innovaation käsitteen (avoimen innovaation lyhyt määritelmä löytyy sivun ylälaidasta)?

- Very familiar (erittäin tuttu)
- Familiar (hyvin)
- Fairly familiar (jokseenkin tuttu)
- I have heard of the concept (olen kuullut käsitteen)

○ Not familiar at all (ei lainkaan tuttu)

16) If you answered that you have at least heard of the concept, please say in what context?

Jos vastasit vähintään kuulleesi käsitteen, tarkenna tähän, missä yhteydessä?

17) How do you contribute or communicate your thoughts and ideas to the wider business community (i.e. outside of your business processes)? Miten edistät tai jaat ajatuksiasi ja ideoitasi liike-elämän muille yhteisöille?

○ Giving public presentations such as at universities - luennoimalla tai esitelmöimällä (esim. Yliopistot)

○ Involvement in an expert forum - osallistumalla asiantuntijafoorumeihin

○ Supporting research studies into business - tukemalla like-elämän tutkimuksia

○ Public writings (e.g. blog) - julkiset kirjoitukset (esim. Blogi)

○ Contributing to the content of professional events - ammatillisten tilaisuuksien sisällön suunnittelu

○ Belonging to project steering groups - kuulumalla projektien ohjausryhmiin

I don't contribute - en osallistu

Other / Muu (Please Specify)

18) If you were to provide your time and advice to support the creation of new products or services, please say what value you would attach to the following compensatory options by providing them with a star rating?
Jos osallistuisit uusien tuotteiden tai palvelujen kehittämiseen antamalla omaa aikaasi ja jakamalla osaamistasi, miten tärkeänä pitäisit seuraavia kompensaatiokeinoja?

Monetary payment / Rahallinen korvaus

Free training opportunities / Koulutusmahdollisuudet

Advice and support from expert consultants / Asiantuntijoiden neuvot ja tuki

Free office space / Ilmainen toimitila

Tax benefits for involvement / Veroetuja osallisuudesta

19) If you have any other ideas of how you would like to be compensated for your input and involvement, please write them here:

Muut ideat, joilla kompensoida panosta ja mukanaoloa:

20) Have you been involved as an entrepreneur in Open Innovation? Oletko ollut yrittäjänä mukana Avoimessa Innovaatiossa?

- Yes / Kyllä
- No / Ei

If yes, please provide a short explanation how / Jos vastasit kyllä, kerro lyhyesti mitten

21) What sort of role do you think entrepreneurs could play in supporting the development of Open Innovation?

Miten mielestäsi yrittäjät voisivat olla mukana tukemassa Avointa innovaatiota?

APPENDIX 2

Sir Ken Robinson

Interview Transcript for the Nordic Business Report

I heard you say in one of your TED talks (the most watched one in 2006) you said that in the future degrees would not be worth anything. Could you elaborate on this?

Well what I meant was that when I went to college (I was born in the 1950's, so I'm one of the 'baby-boomers') and graduated with a university degree, that was almost a guarantee of a good job. In fact we used to have businesses that would come to university and meet with the top graduates and hire them almost on the spot. One of the reasons was that there were so few, or relatively few people who had degrees or went to college or university. Consequently the currency value of a degree was very high. I'm not talking about the academic quality of the programmes or other reasons, there are lots of reasons to go to college, but in terms of the value of the degree for getting a job was very high at that time. It is not anything like as high now, in fact there's a growing problem in many countries of graduate unemployment. People who are leaving university and can't find work even though they have got degrees. I mean when I was a student that was a ridiculous idea that you wouldn't get a job with a degree. There is also an even bigger problem of graduate 'underemployment', that is to say that people who have got jobs that don't require the degrees that they have. They are doing work that is well below graduate level. They are in service industries, they work in offices doing clerical or administrative work, working in maybe hotels or restaurants, but doing something completely unrelated. So the currency value of a university degree has changed enormously over the past thirty to forty years and there are several reasons for it. One of them is that now so many people have got degrees and for the most part employers aren't impressed. On the one hand employers will look at someone with a degree and

they will say, “well that’s fine, you’ve got a degree, but what can you do and who are you?” So it is no longer taken as any kind of guarantee, and in some industries companies are not interested in degrees at all, in fact they prefer people to come straight into the workplace and get on and learn what they have to do there. The reason that so many people have got degrees now is that it is two fold; firstly there has been a huge growth in populations around the world, with the population of the Earth doubling between 1970 and the year 2000, so there are many more young people around, many of whom are facing historically high levels of unemployment; secondly there has been a big shift onto the so-called knowledge economy where the sort of work people do is using information systems, rather than physical labour or other sorts of expertise. So the whole relationship between higher education and the economy has changed, and between higher education and employment has changed.

That is what I meant. I don’t mean that this is true in all fields that degrees aren’t worth anything. Of course in some fields there are still a requirement but in general terms the value of a university degree has fallen. I remember when I was teaching in the UK at the University of Warwick, for an initial job at the university, not just lecturers, we would be looking at people with not just a first degree but even a second or a third degree. I remember being on the interview panel for one appointment and asked the chairman of the interview panel, “what are we looking for?” To which he replied, “we want someone with a good Phd! Well there was a time when a miniscule proportion of the population had Phd’s at all, and now we’re looking for good ones. So it’s what ‘xxx’ referred to as ‘academic inflation’ and it has huge implications for me in the way we think about higher education, for the various roots of higher education and for the need to see that education isn’t something that happens just once in your life but has to be continuous or opportunities have to be continuous throughout your life.

Here is a good opportunity to move onto our questions about life-long learning. What is your opinion on this and how is the balance now shifting in this direction?

The background to a lot of the work I do is based on three big themes. One of them is that we are living in unprecedented times. I know that we could say that all periods of human history have been unique and have presented their own challenges, but I believe that there are factors at work now which are really without precedent. One of these factors is the growth in populations, the world now has in it more people than at any point in human history, we are getting on for 7.5 billion people on the planet. We will reach something like 9-10 billion people by the end of the century, so that is an immense challenge because we don't know whether the earth can sustain this many people, the way we currently consume as we do. There was a very interesting programme on the BBC a couple of years ago called 'How Many People Can Live on Earth?' and it was presented by David Attenborough, and they looked at the available supplies of fresh drinking water, they looked at fuel and the way we produce and consume food, and the question was on these levels of current consumption, how many people can we handle? They came to the view that if everybody in the world consumed at the same level as the average person in India, the Earth could sustain a maximum population of about 15 billion people. So we are almost halfway to that. However, they said if that everybody consumed in the same way as the average person in North America, for which I think you can also read Northern Europe, the Earth could sustain a maximum population of 1.5 billion, and we are at 7.5 billion now. So if the whole world wanted to consume as we do and live as we do – and they do – then by the middle of the century we would need four more planets to make this work, which we don't have. So we are facing immense environmental challenges as a species.

The other big driver is the really extraordinary impact of digital culture and information systems on the way people live, think, work and relate to each other. This on the one hand presents us with all kind of opportunities and tools for innovation and collaboration, but on the other hand is also proving to be extremely disruptive to more traditionally established ways of connecting and of working. When you combine technological change with demographic shifts it is not at all unsustainable to say that we are facing challenges that we have never

ever faced before. Education is in the absolute vanguard of dealing with these challenges. There is a great quote from H.G. Wells, the science-fiction writer, who said that, “civilisation is a race between education and catastrophe.” I absolutely agree that this is the case. We have to think how we re-educate people and the values and principals that underpin education. That is the second big thing that we have to have a different approach to how we develop talent, creativity and education.

The third big theme is that we have to do things differently, we have to run our businesses differently, we have to run our schools differently, we have to run our institutions differently. So these are the themes, and life-long learning to me is kind of an axiomatic requirement, that human beings are natural and veracious learners and children have a huge appetite for learning and it only seems to dim when we put them in schools, when we try to educate them. This is partly to do with the fact that our education systems are based on a very old model. They are rooted in the 19th Century and the challenges we faced then, and they are not designed to deal with the challenges we face now. So we need to adopt a different approach to learning and we need to see it as a life-long journey and to see it as a kind of utility rather than some sort of initial inoculation.

Given what you’ve just said, would you like to see a culture develop where we thrive on the consumption of knowledge rather than things?

Well there is a lot of research out there now on, the catch-phrase is ‘positive psychology’, there is a lot of studies being done on happiness and well-being, and I find this really very interesting. For most of the last 150 years since psychology started to form itself and become a discipline, the emphasis has been on psychological disorders, on emotional illness and emotional disturbance particularly, which someone once referred to as the negative psychology of feeling. It is only latterly in psychology that people have started to think about the positive emotions of happiness and trust and compassion and joy and wellbeing. I’ve read a lot of research into parent levels of happiness around the world, and if you ask most people what they want for their kids, with

a sentence or two the word happiness will come up, “I don’t care what my kids do as long as they’re happy.” All the evidence points to the fact that people on the whole around the world are not terribly happy, that depression is an increasing blight on humanity. In America for example sales of anti-psychotic drugs are one of the largest categories of pharmaceutical products by numbers sold and by profits they generate. I was told that last year sales of anti-psychotic drugs which are used to treat things like depression, overtook sales for acid-reflux which is very interesting because in America we do acid-reflux rather well, we kind of invented acid-reflux. So depression is a mounting problem and the evidence is that there is no correlation between material wellbeing and material success and happiness and other sorts of wellbeing, in fact some of the richest countries are also some of the most miserable and the biggest consumers of anti-depressants. So before I agree and say it is all about consuming knowledge, I also think that self-knowledge is going to be very important in all of this. The evidence is that this rampant materialism that has been dominating western cultures in the past 150 years, and is now spreading into eastern cultures, is a false root for us, it is a false path. We are consuming the Earth’s resources and it is not delivering the promise of happiness and wellbeing that people are seeing in the advertisements, and there is a kind of ‘death-spin’ that we are falling into with all of this. I think the good news is that there is a growing recognition of the issues and not just in academia and positive psychology, but you see it, often maligned as the self-help movement, but there are a lot of people recognising that there are different qualities that we have to cultivate in our life. We have to think about the quality of life, we have to think about the quality of our relationships. That’s also why I think the current system of education has to change because it is driven by this mindless obsession with testing and standardisation which I think is a scourge on models of education around the world, and the opposite direction that we ought to be moving into. We need to cultivate a whole different set of capabilities than the ones we are currently engaged with.

In education and in the business world there is an obsession with measuring performance. We are addicted to knowing who is better than the next person.

How would you answer a manager or leader who asks, how can I measure creativity to reward the person who is performing better, or is measuring performance at complete odds with a creative culture?

No I don't think it is at odds particularly. It's like with most things though as the answer is determined by the sort of questions that you ask. As soon as you start talking about 'measurement' it pushes your mind in a particular direction. People start thinking about numbers and quantities, but we would never start to think about how can we measure the quality of Beethoven's 9th symphony, what is the metric for that. How would measure the value of the Beetles. There are metrics that you can use, and I'm not saying it is wrong to apply metrics, but if you have a creative culture in an organisation you will see its impact and you will find it in all the places that you would want to find it. If you were a company one of the things you'd expect would be to see an improvements in profits and services, you would expect to see greater levels of customer satisfaction, you would expect to and want to see improvements in productivity and in profitability. However, you have to root all of those things in the sort of company you want to be. In America now there is an interesting movement, for example, called conscious capitalism and one of the prime movers in that movement is a guy called John Mackey who founded whole foods. His argument, and I've hosted events for them and facilitated the inaugural meeting for them in Austin, Texas, is that you can make profits, of course – nobody is arguing that you shouldn't make profits – but that you should do that in a way that is socially engaged, that is consciously (?) responsible and that adds to the wellbeing and fulfilment of the people who work for you, and there a lot of companies around the world who are increasingly being drawn to that idea, that it is about the quality of life and the quality of your engagement with the world around you, as well as making profits. There was an interesting programme by, I think, the Canadian Broadcasting corporation, maybe 10 or 15 years ago, which was called 'The Corporation'. The premise of it is that the legal entity of a corporation is quite a new thing, it came about at the beginning of the 20th Century. As a legal entity of a corporation has the same status as a person, it is legally a person. So this programme asked the question, "If a corporation is a

person, what sort of person is it?" So they looked at the activities of a dozen or so international corporations, looked at the way they operate and the attitudes that came through their activities and subjected them to a standard personality test to see what sort of person they were. If you can find the programme it is very interesting, but they concluded on the basis of their behaviour that personality status of the average corporation is a psychopath, because of their irresponsibility to the environment, because of their lack of care for the effects of their actions on other peoples lives, their lack of empathy, their single-minded pursuit of single objectives, their lack of regard for other living creatures, and so on and so forth. There is plenty of evidence of that if you look at the way industries behave over a number of years, but that is not necessarily a part of profit making as their a many companies nowadays that recognise there is are different ways of doing business. So part of what I'm saying is that there is a big message here for companies. For a long time our thinking (which is why I mentioned about the sort of questions you ask) has been dominated by the metaphors of industrialism, and this shows up in words like measurements and metrics and performance and standardisation and compliance and things of those sort. It all suggests that companies and organisations are like machines and mechanisms, but they are rarely not, they are much more like organisms. Human organisations are made up of people and the way they think and feel and the values that they have has a massive effect on the success of the organisation, on how adaptable it is. So if you think of an example that is much on my mind right now – that of Kodak – Kodak pretty much invented home photography and for most of the 20th Century were synonymous with home photography. Then, just recently, they went out of business pretty much when they went into receivership and now have a small fragment of there original business working. They went out of business and with it a lot of the city of Rochester in New York [state], not because people have stopped taking photographs, but because Kodak didn't keep up with the culture, they didn't adapt and change with the way photography was adapting and changing. You can think of it as being a victim of climate change, they died because they didn't adapt. Organisations are like that. The history of corporate life, I mean you look

Nokia and all the other great companies, companies spring into being because they see an opportunity and they only survive if they keep adapting to culture, and if they don't then they will eventually fade off and die. Corporate life is littered with the corpses of companies that nobody ever thought they would fade away but they did. So my argument is, that in these new circumstances, it is vital that these companies don't just occasionally have good ideas and don't just occasionally have a creative break-through but companies have to have a sustained, systematic culture of innovation. They have to be able to have ideas to order, they have to be able to keep adapting, to keep changing and to do that you need a certain type of culture. If you want just to be efficient, if you want to just keep churning things out, then maybe you don't the people in the organisation to think too much. If you really do want the organisation to adapt and change and innovate, you need to cultivate the powers, the competencies and the attitudes on which innovation depends – you have to do it deliberately. Therefore it is not about measuring creativity as a thing like you would measure the temperature of the water, it is about seeing creativity as a function of the whole organisation and if it is working well then you will see it effecting every part of the organisation.

Being creative means doing things differently, but like children many of us yearn for the security of routine. Isn't the first step for leader of business or educational institution to help those who follow become more comfortable with risk and change? So it is about looking at the individuals and their insecurities and helping them manage and deal with those issues.

I define creativity as the process of having original ideas, that have value, and part of being creative in any field is being willing to make mistakes, to cross things out, to scrunch up the paper, throw it away and start again. To prototype things, try them out to see if they work or see if they don't, adjust things come back and take a different direction, if you like, repurpose things. A lot of it is trial and error, sometimes you get it right the first time, but more often than not you don't. So yes it is certainly true that in creating things you want room for dead ends or for cul-de-sacs. A friend of mine who I spoke with quite a bit who one

the Noble Prize for Chemistry and I asked him how many of his experiments failed, and he said he should think about 90% of them. But really failure is not quite the right word here. What you are finding out is what doesn't work, and by discovering what doesn't work you hope eventually to find out what does work. Famously, if you look at the work by Thomas Edison and others, they went through thousands of attempts before they got around to developing anything like the incandescent light bulb, they had thousands of those that didn't work before they got to the one that did. Its true in all fields of innovation, sometimes it is a lucky break but more often than not there is a lot of trial and error involved in it. That doesn't mean though that you have to constantly live in an organisation that is itself shrouded in uncertainty. I know people who are highly innovative that have worked to very specific routines, I've talked to writers and they follow the same routine every day, there are certain things that they have to do so that the bit that they are trying to be creative in can happen. They don't keep driving a different route to work every day, they might do but they don't necessarily, they might sharpen pencils in the same way or they work on the same computer all the time, people have all kinds of rhythms and routines that free that bit of the mind that they need to come up with fresh thinking in the field. It is a complicated process and that's why I think it needs a different style of leadership. It is important to understand how creative work, in any field, actually operates and the conditions that make it possible. Understanding those conditions is what a 21st Century leader has to focus on. Its important for you to remember that you can be creative with anything. Some companies are very good at creating new products, whilst some have become hugely successful and haven't come up with any products at all. A company like Wall Mart is a contemporary case, it is a huge organisation (with all sorts of controversies surrounding it I know) but they haven't developed products. The sort of things that they have innovated in are things like supply chain management, pricing and systems. Some companies have innovated hugely in services rather than products, as we conventionally understand them. There may be innovations in the way the company operates. I know for example that a company called Zappos which is in Vegas now, its run by an amazing guy called Tony Hsieh,

and they are constantly innovating in how they organise the company internally, and they have actually just got rid of all named posts of responsibility in the company, I think they call it a 'holacracy'. So innovation is possible in anything that uses human intelligence and activity, and understanding the conditions needed for the particular sorts of creative processes, that is the real challenge now for leadership in 21st Century innovation.

It is interesting to hear you switch from creativity to the word innovation when you were talking about companies like Wall Mart for instance, and their innovations in logistics. I do see there being a difference between the truly creative mind and that of the innovative mind, because the innovative is maybe just changing something a small amount to improve efficiency or to improve performance. Sorry to use such industrial terminology again…

…no, no, I think you are right to use those terms. I'll come back to that, but when we talk about measurement its not inappropriate at all, its about what can be measured. It is one of the reason I rail against standardisation in schools, not because I don't think there should be any standard testing, but because standardised testing has become the dominant culture rather than a helpful instrument. I remember I said recently in a TED talk that if I go to the doctor I want some standardised tests, I really want someone to tell me what my cholesterol level is compared to everybody else's. I want heartbeat measured in a way that is recognised on a standard scale, I don't some rough approximation on some figurative scale that my doctor made up in the car – I want to know. It is about what you do with the information and how you interpret it, and the use you then make of the interpretation. So yes there are all sorts of areas in which you can apply measurements, the problem is when it starts to dominate. This problem I am talking about was referred to as MacNamara's Fallacy, after Robert MacNamara the US Secretary of Defense, he was a great metrics guy and MacNamara's Fallacy is the tendency to make the measureable important rather than the important measurable.

Going back to the innovation issue, I always think of three different terms here when we talk about these issues, the first is imagination, the second is creativity

and the third is innovation. Imagination to me is where all this comes from, it is the ability to bring into mind things that aren't present. It is the driving force of human achievement. It is the ability we all have that we take for granted to step outside the present, to look back to look forward, to bring to mind things that have happened to us, to recall them in memory or to bring into mind things that have never happened to us but to think hypothetically about things that might or could. There's a difference between 'imaginary' experiences and 'imaginative' experiences. Creativity is a step on from that, its putting your imagination to work, it's a practical process in which we apply our imagination into conceiving of practical alternatives, of looking for new ways to solve existing problems or to come up with entirely new problems which we haven't thought of in the first place. It is the application of imagination in a very practical way. You can think of it as like the executive branch of imagination. Innovation, to me, is putting good ideas into practice, it is honing and refining them and applying them in a very practical way. You are right that sometimes innovations might be minor tweaks on existing ideas. Sometimes they may be really quite dramatic changes, but there's a continuity and you can't get to innovation, which is what companies want, if you don't understand that it grows from imagination and there are skills in creative thinking and practice that underpin it. So if companies want a culture of innovation my argument is that we have to help people to develop those competencies, those aptitudes and those practical skills to make that happen, you can't just wish it into being. There are some fantastic companies that do this all the time. There is one in San Francisco (actually they offices all around the world) called *Ideo*, and *Ideo* work with companies all around the place helping them develop ideas for new products or services, and the software I worked with was for education systems. They always work with multidisciplinary teams and they have a very interesting process of prototyping, where they've really drilled down into how creativity and innovation work in practice and they bring that set of skills to almost any proposition. That is my argument here that if companies are really interested in creativity and innovation then they really need to understand what is involved more to demystify it not as just something that happens in cold lofts to artists but as

something that happens to all of us if we recognise that it is based on skills we all have but that we need to apply and practice in different ways.

There is obviously a wide readership for this magazine and many of them will be smaller SME's as opposed to large companies. You have said that leadership is essential to creativity because creative culture is about permission and where you set the boundaries. Many leaders will feel that these boundaries are there so that they feel they are in control. What advice would you give to leaders to help them relinquish this control? How would go about explaining the importance for doing so?

It's a normal thing for leaders to want to be in control, I think the question for leaders is to ask 'what should they be controlling and why?' For example, in a lot of situations, you see it a lot in companies; leaders think that being in control means taking command, it is command and control. I will decide what needs to be done and I will tell you how to do it. In some situations this might be fine. There are some situations where you do want somebody to grab the reins and say stop arguing, here is what's happening – follow me, we're going to do it. In the ordinary situation of companies where you are trying to grow a company, you are trying to grow ideas, I always want to encourage leaders to recognise that it is not their job and there is no pressure on them to have all the ideas, to be the person that comes up with the idea first or feels that they have to have the best idea. The job of a leader in a company that wants to develop a culture of innovation is to create conditions where everybody has ideas, where you really tap in to the depths of talent that is hidden in most organisations amongst all the people who work in it. It is not about command and control it is about climate control; what the leader has to do is control the climate in which people operate. To create conditions in which people will feel they are able to come up with new ideas, they won't be penalised for it, they will be rewarded for it, even if the ideas turn out not to be successful.

One of the core tenets that you talk about is the need for diversity when improving education and creativity in general, but it is human nature to gravitate toward like-minded individuals (companies may have a recruitment policy that is

flawed for instance). Do you have any practical tips for recognising this behaviour in oneself and re-educating ourselves or the company to think differently?

Firstly I don't associate creativity with people who have the wildest hairstyles or the most unusual dress sense. I meet brilliantly creative people who you would walk by in the street [and not notice them]. It depends what they are creative at. The question is not how creative you are, but how are you creative? What astonishes me to find is the talents that people have been hiding from other people or from themselves even and they are quite and unique and distinctive. What I've written about a lot is to say that ideas come from people (clearly) so one of the areas that leaders need to focus on is identifying and cultivating the talent of individuals. They may be quite surprising and different from what you come to normally associate with that person and job description, they may have all kinds of interesting ideas and talents that you are just simply not aware of. So part of it is that, it is talent development. The second big area is knowing how to convene great groups, because a lot of innovation, it doesn't only come from, but it often comes from creative teams. Creative teams work best when they mirror the features of the human mind, that is to say they are diverse, that is to say we think in all sorts of ways, then its bringing together people with different perspectives and talents. Secondly, that they are dynamic, in other words they have a process where these differences are a strength and not an obstacle, and the third feature is that they are distinct – you bring a creative team together to do a particular job, and you orchestrate the team with that job in mind. There is a difference between a creative team and a committee. Committees are people who are sitting there ex-officio because they happened to have a particular job and they have to be in the committee and most committees are a death sentence from that position. Where as creative teams because they have a particular job to do and the expertise around the table are all relevant to the job. Knowing how to convene those teams is very important, and the third big tip to the organisation that either promotes or inhibits creativity. So yes, diversity is a very big part of it and I've done jobs and sessions with companies around the world on diversity strategies. I remember doing one with

one of the big Swiss banks, and it always interests me because I was speaking to a member of the board who had commissioned me to do this diversity workshop with his senior staff, and he said diversity is very important in this company. I asked him how he thought the strategy was coming along at the moment, and I said this to him, a man who was one of the 12 members of the all male, middle aged, white board, to which he replied, “pretty well actually. I’m interviewing a ‘diverse’ candidate tomorrow.” I said, “a ‘diverse’ candidate, go on, who is that?” He said, “oh you know – a woman!” Well I came home and I told my wife that she was diverse – she had no idea. So you are right, what people tend to do, and there is a lot of evidence for it, that people tend to appoint and hire people who are like them, people who you recognise culturally or ethnically. Sometimes it is subliminal and sometimes it happens consciously, but if you start to create a homogeneous culture it inhibits the possibility of thinking that will surprise you. It is not always true, I am a big fan of the Beetles and these were four guys from Liverpool, about the same age from the same city and they changed the planet. What was interesting is if you looked closely at them it was not how alike they were, but it became clear when they broke up that what drove them was just how different they were. Their different sensibilities, different outlooks and different talents created a dynamic process that made it all work for them. So diversity doesn’t mean ethnic or gender diverse or other dimensions, all these things can be relevant. However, you’re looking for different levels of expertise and different experiences and different takes on things, and in some of those respects those other dimensions of diversity may not be relevant, and they blind you to differences or similarities that you’re really looking for. There are other compelling reasons for making sure that you have an ethnically and sexually diverse workforce, but diversity when it comes to innovation are important for those specific reasons, I think.