Planning: The Nexus between Proactiveness and Innovation

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ABSTRACT

A pilot study exploring relationships between proactiveness, planning and innovation in a sample of information and communication technology (ICT) firms finds that planning mediates the relationship between a proactive orientation and innovation. The results suggest that turning a pro-active orientation into marketable innovations in this dynamic industry may require more attention to sophisticated planning by ICT owner/managers. As such it is recommended that there is a need for the development of business planning frameworks that are willingly adopted by business principals and have as a primary goal the creation of innovations that are attractive to viable market segments. It is also proposed that contemporary planning frameworks are cumbersome and unable to cope with the dynamics of the ICT sector.

Keywords: Innovation, Small and Medium Sized Enterprises, Opportunity Identification, Entrepreneurship Practice

The existence of an information and communication technology (ICT) producing sector, particularly along with ICT-using sectors, has been shown to increase aggregate productivity in an economy (OECD 2002). Furthermore, ICT-based industrial clusters are proposed to increase innovation, which economists argue is a driver of economic growth. Hence, understanding innovation within the ICT-producing sector is important not just for the development of the sector itself but also for the development of other sectors and, ultimately, the economy. However, the vast majority of ICT firms are small and there is significant churn in the industry as individuals fail to secure a foothold in this fast moving and dynamic market. This is often due to their inability to gain traction, particularly if they are seeking to develop or market innovative products and services. There are many reasons for this, from lack of capital to a myopic, product oriented view of their products or services. However failure to plan arguably remains a significant reason for failure, subverting the best of intentions, enthusiasm and commitment.

LITERATURE REVIEW
Proactiveness has been highlighted as an important characteristic of entrepreneurship (Lumpkin & Dess 1996) and intrapreneurship (Antoncic & Hisrich 2001; Fitzsimmons, Douglas, Antoncic & Hisrich 2005). Proactiveness is also closely reflected in Miles and Snow’s (1978) prospector type: firms who seize opportunities and create change. As an individual orientation, a proactive personality is a personal disposition toward proactive behaviour (Crant 1996) and ‘identifies differences among people in the extent to which they take action to influence their environments’ (Bateman & Crant 1993: 103). Passiveness, rather than reactiveness, is the conceptual opposite of proactiveness (Bateman & Crant 1993; Lumpkin & Dess 1996).

The prototypic proactive personality...is one who is relatively unconstrained by situation forces, and who effects environmental change. Other people, who would not be so classified, are relatively passive – they react to, adapt to, and are shaped by their environments. Proactive people scan for opportunities, show initiative, take action, and persevere until they reach closure by bringing about change. They are pathfinders...who change their organization’s mission or find and solve problems. They take it upon themselves to have an impact on the world around them. People who are not proactive exhibit the opposite patterns – they fail to identify, let alone seize, opportunities to change things. They show little initiative, and rely on others to be forces of change. They passively adapt to, and even endure, their circumstances (Bateman & Crant 1993: 103).

At an individual level, proactiveness has been linked to innovation (Seibert, Kraimer & Crant 2001). However, Bateman and Crant (1993) also argue that proactiveness occurs at the level of groups and organisations based on individual behaviour, citing Miles and Snow’s (1978) prospectors. A link between proactiveness and innovation in small businesses also has some support in the literature. First, Becherer and Maurer (1999) found evidence of a positive link between proactiveness and entrepreneurial posture. Second, Kickul and Gundry (2002) found that small business owners with more proactive personalities engaged more in innovation processes. This association was mediated by
a prospector strategy, indicating that small business owners who have a proactive disposition tend to employ a prospector-like strategy that results in the introduction of innovation processes.

Preference for innovation is considered an important entrepreneurial characteristic (Carland, Carland & Aby 1989) and a salient dimension of an entrepreneurial orientation (Lumpkin & Dess 1996). On the basis that ‘planning is a creative and innovative act’, Carland et al. (1989: 26) argued that the incidence of planning would be higher in small businesses where the owner has a preference for innovation. Their sample of 360 small business owners showed that this was indeed the case. Formal planners (that is those with a written plan) had a higher preference for innovation than informal planners (those with an unwritten plan) and non-planners. Informal planners also had a higher preference for innovation than informal planners. Hence a positive association between planning formality was associated with a greater preference for innovation amongst small business owners. To the extent that a preference for innovation is likely to result in higher levels of actual innovation, the findings of Carland et al. (1989) suggest that planning and innovation are associated.

Entrepreneurial typologies based on psychological assessment also throw light on planning and innovation. In an exploratory study of the Australian biotechnology industry using four-way psychological typology by Miner (2000), Yim and Weston (2007) conclude that a sequence of styles is needed for enterprise success. The ‘expert idea generator’ should dominate first. This type stresses innovation, is often involved with high-tech companies and builds ventures around new products. They drive start-ups. However, the ‘personal achiever’ is then needed. This type is motivated by achievement, desires feedback on achievement, wants to obtain information, learn, plan and set goals for future achievements. The combination of these types is likely to advance the business (Yim & Weston 2007), resulting in outcomes associated with the innovative idea through proactiveness and planning.
Here, however, we are concerned not with preference for innovation but with levels of innovation as a business output or, as Luke, Verreynne and Kearins (2007) might describe it, a benefit of entrepreneurship. The *Oslo Manual* (OECD & Eurostat 2005: 46) defines an innovation as ‘the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations’. We limit our discussion in this research to product and process innovations, as do the Australian Bureau of Statistics (2005: 46) in their definition of innovation: ‘The process of developing, introducing and implementing a new or significantly improved good or service or a new or significantly improved process’.

Figure 1 summarises the mediation model explored in this study. The association between proactiveness and innovation is expected to decrease as a result of the mediating effect of higher-level planning.

[Insert Figure 1 here]

**METHOD**

**Sample and Procedures**

The sample used to explore the associations of interest in this research was composed of owners and managers of ICT businesses from Gold Coast, Queensland. Data for the study comes from a broader pilot undertaken in collaboration with the Gold Coast City Council’s Economic Development Group. The population frame was an email list of Gold Coast ICT businesses maintained by the Council. These businesses were sent an introductory email, inviting them to participate in the study and providing an attached letter that outlined the research, provided contact and ethics approval details and included the link to the online survey. Two reminder emails were sent. Following this telephone follow-up was undertaken. In total, 55 firms responded, giving a response rate of approximately 25%.
A total of 29 businesses provided complete data for the analysis presented here. Given the small sample size, the results of this exploratory study should therefore be used with caution.

To examine the possibility of non-response bias the order of response was compared to the key study measures and firm age. No significant correlations were detected. If later respondents are assumed to be similar to non-respondents, this result suggests there is no non-response bias. However, once again it is stressed that the small sample size makes this finding very tentative.

Approximately 60% of the firms were under 10 years old. Software product development activities were the largest source of revenue for 30% of the firms, while the largest source of revenue for the remaining firms ranged from across areas such as telecommunications, multimedia, value added reselling, infrastructure and support and systems integration. Just over half of the firms had some export revenue, while just over 90% had fewer than 10 employees. Annual turnover was $1 million or less for 78% of the 27 businesses providing this data. Overall these demographics reflect the small firm nature of the industry in this region.

Measures

Proactiveness: Proactiveness was measured with Kickul and Gundry’s (2002) short version of Bateman and Crant’s (1993) instrument. Items are measured on a seven-point Likert scale anchored by 1 = strongly disagree and 7 = strongly agree. The short form consists of five of the original seventeen items in the scale and Kickul and Gundry (2002) found a very high correlation between the short form and original scales. The parsimony of the short form is beneficial given the need to keep surveys short to avoid non-response. In the present study, the items were given a firm orientation by changing personal pronouns from the singular to the plural. The five items were: (1) ‘We enjoy facing and overcoming obstacles to our ideas’; (2) ‘Nothing is more exciting that seeing our ideas turn into reality’; (3) ‘We excel at identifying opportunities’; (4) ‘We love to challenge the status quo’; and (5) ‘We can spot a good opportunity long before other can’. Following reliability analysis, the first two
items were dropped from the scale due to item-to-total correlations below 0.30. The remaining three items were averaged to form a scale which had a Cronbach alpha of 0.88.

Planning: Planning was measured using items drawn from Doty, Glick & Huber (1993) and Miles and Snow (1978). Respondents were asked to rate their business on the following items on a seven-point scale where 1 = not at all and 7 = to a great extent: (1) engage in long range planning (greater than 12 months); (2) use formal forecasting procedures; and (3) make detailed plans before taking action the three items were averaged to form a planning scale with a Cronbach alpha of 0.83.

Innovation: While there is no generally accepted measure of innovation (Hagedoorn & Cloodt 2003), Rogers (1998) classifies the measures into two main groups: output measures and input measures. The former include the number or proportion of new products/services/processes and the latter include the value of intangible assets and expenditure on research and development (R&D), acquisition of technology from others and marketing on new products. Rogers (1998) argues that intellectual property measures such as number of patents, trademarks and design applications fall into both groups. Output measures are more direct measures of innovation because inputs can be used more or less efficiently and R&D inputs in smaller firms are often underestimated due to their informal nature and small scale (Kleinknecht, Van Montfort & Brouwer 2002). Given that this research was interested predominately in small firms, output measures of innovation were considered more relevant. Patents were not considered appropriate to the industry and have the disadvantage of excluding non-patentable inventions and innovations (Kleinknecht et al. 2002).

For this research, an output measure of innovation was developed based on questions in the Australian Bureau of Statistics Innovation Survey (ABS 2005), the European Community Innovation Surveys (see, for example, Kleinknecht et al. 2002) and the Oslo Manual (OECD 1997; OECD & Eurostat 2005). Respondents were asked to provide the percentage of their business’s products and services over the past three years that (a) remained unchanged, (b) were improved or upgraded, (c) were new to
the business but not new to the market, and (d) were new to the business AND the market. Higher percentages of products and services new to the market indicate high levels of innovation because this means a heavy focus on creating new technologies and applications. Conversely, high percentages of products and services that are unchanged indicate business stagnation and the absence of innovation. Improved or upgraded products and services or the injection of products and services that are new to the business (but not the market) represent an intermediate level of innovation. However, it is noted that improvements and upgrades of products in the ICT industry are relatively common and so were not expected to signal much innovation for firms in this industry. Respondents were also asked to provide the percentage share of the past year’s sales represented by products and services in the four innovation levels (that is, (a) to (d) above).

Since the industry under consideration is likely to have a high level of innovation, category (d) (that is, new to the business AND the market) in the above measures was of most interest. Based on data in that category, we split the sample into two groups – innovators and non-innovators. If firms reported some percentage of products and services in category (d), they were classified as innovators and coded 1. If not, they were classified as non-innovators and coded 0.

RESULTS

The means, standard deviations, minimum values and maximum values for the study variables are shown in Table 1. These indicate a fairly high level of proactiveness across the sample and an average extent of planning. Seventeen of the firms in the sample (59%) were classified as innovators.

[Insert Table 1 here]

Zero-order and partial correlations were used to explore the mediation model, using one-tailed tests since only positive associations between variables were expected. Table 2 shows the zero order correlations between proactiveness, planning and innovation. All three variables are significantly
positively associated. This indicates that innovators are more proactive and undertake more planning. Furthermore, the more proactive firms undertake more planning.

[Insert Table 2 here]

With significant zero order correlations between each variable ascertained, the mediating effect of planning on the association between proactiveness and innovation was examined. A mediation effect is supported if the correlation between proactiveness and innovation falls when controlling for the effects of planning. This was found to be the case – the partial correlation for proactiveness and innovation while controlling for planning was both lower than the zero-order correlation reported in Table 2 and not significant at 0.233 ($p = 0.116$).

To check that our findings were similar across innovation measures, we ran the analysis again using innovation groups based on the percentage of sales of products and services new to the business and the market. If firms reported some percentage on this measure, they were classified as innovators and coded 1. If not, they were classified as non-innovators and coded 0. Two firms were classified as non-innovators in this case that were classified as innovators in the grouping examined earlier based on percentage of products and services. This could occur, for example, if new products and services were in the process of being developed or released to the market but had not yet generated sufficient sales to register as a whole percentage of total firm sales. Other than these two firms, all had matching classification on both variables. Given the similarities of classification on this alternative measure, similar results were anticipated.

As expected, the same pattern of zero-order correlations was confirmed using this alternative innovation measure. Proactiveness was positively associated with innovation based on sales ($r = 0.384$, $p = 0.02$), as was planning ($r = 0.586$, $p < 0.0005$). The partial correlation between
proactiveness and innovation after controlling for planning was 0.145 ($p = 231$), thus confirming the earlier analysis and the mediation effect of planning.

**DISCUSSION AND CONCLUSIONS**

Dynamic markets demand that firms face the paradox of functioning efficiently today while positioning for tomorrow (Paap & Katz 2004). From the perspective of planning, that means identifying current and future customer needs and positioning the firm accordingly. Unfortunately few firms appear to manage this dualism effectively, with large and small firms frequently getting locked into supplying a particular innovation or introducing spurious new innovations, irrespective of the nature of change in the competitive environment or client needs. The frequent result of this myopia is business failure or diminished competitiveness, a result often driven by failure to introduce innovative products and services that are supported by the market.

Of course for small ICT firms the difficulty in knowing what is coming next can be overwhelming given the pace of change in their market. In response, too many firms seek to keep up to date with multiple technologies and service diverse markets as a hedge against innovation that could threaten the existence of any one market or product line. However this approach is arguably the opposite of what they should do, as it diminishes their knowledge of selected target markets, arguably undermines business performance and makes effective innovation difficult.

An alternative and more effective approach is to focus on customer needs and to treat innovation as a means rather than an end, an approach which may appear obvious but in practice is difficult. It requires the selection of target markets and the development of extensive networks which embody weak and strong ties that help small firms identify opportunities, secure resources and gain legitimacy (Elfring & Hulsink 2003; Kelly 2004). It also requires that firms develop a strategic framework that is focused on asking the right questions as a prelude to finding the right answers.
However, as has been demonstrated in this and other studies, too few firms plan at all, let alone effectively, with these results indicating that the development and introduction of innovative products and services decreases as a result of poor planning practices. Notably, this is regardless of the proactiveness of the firm’s principals, an outcome highlighting that energy and engagement are not in themselves sufficient. Rather, proactiveness coupled with a sophisticated planning process, that channels effort, resources and capabilities toward a recognised outcome, is a critical combination.

One implication suggested by this outcome that is not adequately addressed in the literature, is that firms evidently fail to plan, even when the benefits of doing so are almost universally recognised and form the basis of advice frequently given to small and medium enterprise principals. In part, it is argued that this is because of a mismatch between planning and performance. That is, many firms spend time building plans and setting objectives, only to see external factors undermine the efficacy of the plan leading to the perception that time spent on planning is wasted.

Further, while planning is seen to be synonymous with strategy, it is a proposition that is patently wrong in most cases. Rather, most plans present a series of tactical and operational actions that should not be confused with the process of strategising, a process defined by Boyd\(^1\) (cited in Hammond 2001: 161) as:

\[\text{...a mental tapestry of changing intentions for harmonising and focusing our efforts as a basis for realizing some aim or purpose in an unfolding and often unforeseen world of many bewildering events and many contending interests.}\]

In effect the arguments underpinning this approach suggest that managers must be inquisitive participants in the organisation who are focused on the unexpected responses of the organisation and its members to the environment, while communicating constantly with staff about the environment and its meaning. It also suggests that managers must move from the perspective that they must make a

\(^{1}\) John Boyd was a US air force Colonel who developed what has become known as a dynamic capabilities framework and OODA loops that have revolutionised military thinking and that of many business leaders.
choice, to one where they focus on the quality of participation, or empowerment, which will in turn lead to quality choices being made that drive the firms adaptiveness, agility and competitiveness, and by so doing increase the value and quality of innovations generated by the firm. By doing this it is more likely that a firm can create the different capabilities it needs as it passes through the founding, development and maturity stages of the capability life cycle (Helfat & Peteraf 2003), the capabilities to satisfy demand now and in the future (Adner 2002), and the more likely it is that it will have the ability to not just get better – but also to change (Denning 2005) and be an effective innovator.

Hence while the findings demonstrate at the most basic level that the relationship between proactiveness and innovation is mediated by planning, a finding demonstrating that activity without focus will not support the creation and introduction of innovative products, it is, as always, the why type questions that are more interesting and challenging. In this case that question is why proactive principals, who by definition are energetic, committed and engaged, do not take the necessary steps toward effective planning regardless of the advice received and evidence of its benefit.

In the opinion of the researchers the reasons are hard won experience resulting from the poor application of poor planning frameworks that drive this reluctance and behaviour (Kelly, Harrison & French, 2006; French, Kelly & Harrison 2004). Hence the primary recommendation stemming from this paper is that the development of planning frameworks that are valued by ICT firms is a priority if the benefits of a proactive orientation are to be derived and ICT firms are able to successfully innovate.
REFERENCES


Figure 1: The Relationship between Proactiveness, Planning and Innovation

![Diagram showing the relationship between Proactiveness, Planning, and Innovation]

Table 1: Descriptive Statistics for Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proactiveness</td>
<td>5.28</td>
<td>1.38</td>
<td>2.00</td>
<td>7.00</td>
</tr>
<tr>
<td>2. Planning</td>
<td>4.46</td>
<td>1.65</td>
<td>1.67</td>
<td>7.00</td>
</tr>
<tr>
<td>3. Innovation</td>
<td>0.59</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2: Zero-Order Correlations between Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Proactiveness</th>
<th>Planning</th>
<th>Innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Proactiveness</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Planning</td>
<td>0.480**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>3. Innovation</td>
<td>0.464**</td>
<td>0.641***</td>
<td>1.00</td>
</tr>
</tbody>
</table>

One-tailed significance levels:

*** $p<0.001$

** $p<0.01$