Spring 3-23-2010

Estimating the Innovation Potential of ICT SMEs: Approaching Economic Development from a Different Perspective?

Syajarun Dadameah
University of Wolverhampton, smdadameah@gmail.com

Pat Costello
University of Wolverhampton, patcostello17@gmail.com

Follow this and additional works at: http://aisel.aisnet.org/ukais2010

Recommended Citation
http://aisel.aisnet.org/ukais2010/15

This material is brought to you by the UK Academy for Information Systems at AIS Electronic Library (AISeL). It has been accepted for inclusion in UK Academy for Information Systems Conference Proceedings 2010 by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.
Estimating the Innovation Potential of ICT SMEs: Approaching Economic Development from a Different Perspective?

Syajarun M. Dadameah  
Project Officer AWM ICT Cluster  
School of Computing and IT, University of Wolverhampton, MI Technology Building, Wulfruna Street, Wolverhampton. WV1 1EL.  
email: s.dadameah@wlv.ac.uk

Pat Costello  
Principal Lecturer and AWM ICT Cluster Innovation Manager.  
School of Computing and IT, University of Wolverhampton,  
email: p.costello@wlv.ac.uk

Abstract
The Innovation Potential Estimation Tool (IPET) has been developed to measure the capacity of companies to be innovative. The focus is how to estimate the potential of innovation in an industrial (sub)sector and thus the economic impact of funding initiatives. The objectives of this concept paper are to introduce IPET as a means of estimating innovation in a sector; to report on the outcome of a survey of 200 ICT SMEs in the West Midlands (WM) region of the UK and to evaluate the findings in terms of the potential to aid government in investment decisions. The IPET development project has been active for a few months and is already of interest to several government departments. More research is needed to fine tune the tool’s accuracy in its estimations. However, even at this stage, the potential and usefulness of the tool is apparent. It is specifically designed for public sector organisations to have access to a quick tool to help them estimate businesses in their respective areas. This tool will assist in identifying specific barriers to innovation, and produce key information for strategic planning and decision making.

Keywords:  
Innovation, Tool, Estimate, SME, Cluster, Economic development, Government Intervention, ICT

1. Introduction
Companies are under increasing pressure to innovate as it is often seen as a way of achieving competitive advantage. There are a number of conditions that extol this pressure including globalization, developing technology, market demands and customer pressure. It seems that the calls from academics and practitioners grow exponentially (Damanpour and Schneider, 2006; Howell and Higgins, 1990). Research on innovation and metrics to measure the impact and development of innovation is also developing and helps with our knowledge in this regard. There has been a move towards understanding what policies and infrastructure may support innovation, and what organisational culture is required and what resources may be needed (Wang and Costello 2009). In the last twenty years innovation research has grown in both quality and quantity (Freel, 2005; North et. al, 2001). Nevertheless, there is still a
paucity of innovation research implemented in the SME arena (Hausman, 2005; Gudmundson et. al. 2003), in spite of the fact that SMEs are essential to economic growth in most economies. This paucity is amplified when examining the literature on measurement tools to measure innovation across large numbers of businesses and so assist governments with policy making and decisions regarding economic investment.

With this in mind Advantage West Midlands (AWM) ICT Cluster requested a method on how it could measure the innovation readiness/capabilities of ICT SMEs in the region. In January 2009, a project was initiated with the objective to create such a tool to measure the estimated innovation potential and capabilities of businesses. Its initial concept and framework were introduced in January and the initial pilot study of 31 businesses was conducted by the second week in February. Following the pilot study, the survey questionnaire went through some revisions and the tool was then used to survey 200 innovative SMEs. This main survey was completed by April 2009. This paper presents the findings from the 200-companies survey and discusses the implications for policy makers in using this tool. Subsequent research will be focused on refining the tool and providing the information to describe levels within the tool and the interventions needed to increase a company’s innovation potential.

2. Regional Policy Development, Clusters and Innovation

Innovation theory demonstrates to us that policies enhancing the development of creative and innovative regions are difficult to realise (Lambooy, 2005). Schumpeter (1936, in Lambooy, 2002) tells us that innovation can be dynamic and discusses his concept of “creative destruction”, leading to a change in the economy, whereas, Lambooy (2005,) more recently extols the power of innovation to contribute to growth and conversely introduces the term “creative construction”. Castells and Himanen (2002), discuss the rise of Finland as a competitive state and the belief that this was as a direct result of government policy to stimulate “useful knowledge” and to support technological universities in the form of attention and funding. Knowledge and learning are often decisive factors for regions to achieve economic growth (Lambooy;2005).
In fact, across Europe (EU) there have been policies and strategies developed to drive innovation and enhance the knowledge economy. In an effort to strengthen the economic base many EU regions have attempted to foster innovation and knowledge. Lambooy (2005) praises the new form of institutional arrangement called “a public–private partnership”, or the “cooperative model”, instead of the earlier deterministic command model discussed by Castells & Himanen (2002). However, there does not appear to be any single remedy or model to approaching regional innovation policy. Top down models have largely been rejected and bottom up approaches building on existing strengths and knowledge may seem to hold some kind of key as building on just R&D capabilities can often give too narrow a focus (Boschma, 2004); however, much work remains to be done in this area.

Policy makers are adapters; they learn to adapt in the light of experience (Boschma, 2004) and it is often a ‘trial and error’ approach which may fail as well as succeed. Benchmarking studies can throw some light onto a situation and are frequently used to this end but it is difficult to learn from work outside your region and theory based on knowledge of the region may have significantly more impact.

Porter (1990) concluded that competition is dynamic and rests on innovation and the search for strategic differences. Location affects competitive advantage through its influence on productivity and productivity growth (Porter, 2000). Porter argued that clusters deliver innovation because:

- They allow rapid perception of new buyer needs.
- They concentrate knowledge and information.
- They allow the rapid assimilation of new technological possibilities.
- They provide richer insights into management practices.
- They facilitate on going relationships with other institutions including universities.
- The knowledge based economy is most useful when knowledge resources are localized.

One of the key elements of local innovation systems and place competitiveness is connectivity through transport, ICT and networks. These aspects are also associated with cluster dynamics, thus local systems of innovation can also have the effect of generating links to promote clustering (Simms in Asheim et. al. 2006).
In conclusion, the development of policies needs to be based on a multi-theoretical approach as innovation is a multi-faceted phenomenon and the actual realisation of it requires an open and flexible structure (Castells & Himanen, 2002; Lambooy, 2005).

2.1 Innovation in West Midlands ICT Cluster
The West Midlands as a whole suffers from low investment in research and development (R&D) (Costello et al., 2007). However, when compared to other regions, large firms in the West Midlands perform acceptably, even with a low R&D input., nevertheless, small firms’ performance is relatively poor (Love et al., 2006). Innovation and R&D are absolutely essential for an SME or an industry, to survive and maintain competitive advantage (Leitch, 2006; Wang and Costello, 2009).

In 2007 the ICT Cluster Directory Survey, which carries out an annual survey of ICT companies in the West Midlands uncovered that the region has over 3,000 firms in the ICT sector. Software companies are the largest activity sub-group, which accounts for about 42 percent of all cluster companies. The majority of ICT businesses in the region are fairly small with 74% having less than 10 employees and are not naturally focused on strategies, R&D or real innovation, which means they are fire-fighting rather than planning for tomorrow.
Conversely, the survey also indicated that the majority of firms commit to innovation, with 43 percent of companies directly involved in R&D. Indeed 65 percent of firms claim to have launched at least one new product/service within the 6 months prior to the 2007 survey. Although how many of these are actual new innovations as opposed to incremental or module based launches is unclear. The 2004 survey measured investment in innovation and Sharpe (2004) reported that at that time a third of ICT cluster companies invested at least 10 percent of their sales turnover in R&D. Software development companies were also recognised here as the most R&D oriented, with 39 percent investing over 20 percent of their turnover in innovation. However the 2007 survey revealed that 56% still had problems in managing the innovation process.

These statistics demonstrate that most of the regional ICT companies either take or intend to take actions in innovation. In fact, there has been some progress in this area, reflected by
improved business performance, optimised business processes, enhanced business efficiency, expedited technology updating, and increased employment requirement from the market. Yet, the 2007 survey also shows that small ICT firms in the West Midlands encounter barriers which may hinder their innovative venturing. These challenges include shortage of funds, lack of appropriate skills, incapability of capturing market needs and an inability to manage processes in innovation (Sharpe, 2004; Rowe.et.al 2007).

2.2 Measuring Innovation

Research shows that innovation is often determined by issues at individual, organisational and environmental levels respectively (Damanpour and Schneider, 2006; Thornhill, 2006). Gopalakrishnan and Damanpour (1994) found that most research surrounding innovation at the individual level is psychology related, at the organisational level the focus is management, and at the environmental level research extends into economics. This study assumes that the environment is relatively stable since it deals with one particular region and one particular industry sector; although factors relating to the environment do have an influence on innovation (see table 2, section 4). Although the measurement tool has the ability to extend to the external conditions also, they are not the focus of this paper. In fact the tool focuses predominately on the perception of the culture and management within the organisation. Thus drawing on both the individual and organisational level constructs referred to. Other works support this, including Martensen and Dahlgaard (1999) and Wang and Costello (2009) who claim that it is widely accepted that innovation is driven by the company culture and leadership competencies.

Much of the work in this area has concentrated primarily on measuring innovation from an individual organisations perspective in order that the business then have an understanding of their own innovation process, management and culture. The Fujitsu model and Index (BB Consulting 2007) was developed by assessing an organisation’s innovation performance across 20 key innovation attributes. They defined three key drivers of Innovation: Leadership Drivers, Process Drivers and Input Drivers. The Fujitsu model claimed to demonstrate that leadership explained 48% of the variances in innovation performance, whereas processes and input only explained 29% and 23% respectively. The Department for Business, Innovation and Skills (DBIS), in an effort to drive up innovation in the UK, developed their ‘30
questions for self assessment’ which helps companies benchmark their own innovation success. These type of models are designed primarily to allow an individual organisation to highlight where they may need to improve.

Industry giants often incorporate innovation as part of their culture good examples of this are Apple, Virgin, Toyota and GE. Others use innovation as part of their branding which can give them external leverage as Bang & Olufsen. There are also those who build it into their business strategy as Nintendo, Boeing, IBM, Proctor & Gamble and Intuit where the business environment they work in demands this type of change culture (Garret, 2007). For small companies this is more difficult when business strategy of often not formalised (Levy and Powell, 2005) and expensive branding activities are not possible.

Tidd et. al. (2005) reviewed many of the current models of the innovation process, and amalgamated much of the empirical research that contributed to them. Their central argument was that the there is a partial understanding of the innovation process which can result in a narrow focus on radical technological inputs, rather than a more informed debate that considers a much wider range of factors which influence innovation. Once more their discussion centred on the factors which help generate, manage and diffuse an individual innovation within a company. However, they at least recognise external market influences on this process.

3. Overview of the Innovation Potential Estimation Tool (IPET)

The Innovation Potential Estimation Tool (IPET) attempts to approach this issue from a different angle and examines how to it might be possible to increase the innovation potential of SMEs in a region by measuring a sample as a collective and presenting statistics on the innovation potential within a region or industry. In order to do this it was necessary to look across the industry at the current SMEs situation. IPET examines the characteristics those companies have and what intervention is necessary to change their characteristics to increase innovation potential. IPET is a tool designed to capture or identify "innovative companies",

1 http://www.dius.gov.uk/innovation/statistics_and_analysis/benchmarking/Self_Assessment
and of course a definition of an innovative company then becomes imperative in this. The definition chosen for this work is ‘an organisation that has its core business supporting processes managed effectively, and is now actively engaging in a structured and measured approach towards achieving strategic advantage through R&D and Innovation’ (Martensen and Dahlgaard 1999).

The companies’ innovation potential and capabilities are estimated through IPET’s questionnaire and mapped against a category table that describes characteristics at each band: organisational attributes, behaviour, productivity, employees, etc. and the possible barriers or interventions needed to move the business from one level to another. The intention of IPET is simple in both application and concept in order that it can be used as a tool by agencies and government departments in determining funding and intervention policy en masse. It is intended to estimate the innovation potential in a unique way as it can be utilised in a telephone survey with each survey lasting approximately 30 minutes. It is not, however, intended as a precise tool in defining individual company characteristics, but as an estimation primarily based on the Pareto 80/20 effect. This means that a public sector agency may quickly measure the potential of industry sectors and act appropriately to intervene. Although it may also serve as a rough tool for the individual company who may wish to examine where they are placed in relation to other companies in their sector and what other tools may be needed to look at their specific situation.

The development of the model and tool was supported by AWM ICT Cluster as it is seen as a means of measuring capability quickly across a range of companies, to place those companies on the pyramid model, to identify generic and specific characteristics at each level, to identify innovation barriers and enablers needed to support the companies, and thus be in a position to identify which companies were likely to aid economic growth with targeted key intervention opportunities.

3.1 The Innovation Potential Pyramid Model

The IPET model is a conceptual pyramid with the three middle tiers highlighted as the group of companies that this research is primarily focussed upon the distribution is a logical assumption based upon research survey responses and other sources of information. The
model shows the logical breakdown and distribution of all types of companies in the innovation ladder. Arguably this logic can be applied generically to other places as well, not just the West Midlands. The pyramid model conceptually illustrates the quantity/volume of companies where those at the top with world-class facilities and capabilities are rare, and the ones without are common, and therefore larger in quantity.

![Diagram showing grouping of companies based on their R&D and Innovation capabilities.](image)

Figure 1: Grouping of companies based on their R&D and Innovation capabilities.

Many small companies exist in a state of resource poverty and it is widely believed that most companies either do not have, or have minimal R&D and Innovation capabilities, in any industry, not just ICT (Storey, 1994; Van Akkaren and Cavaye, 1999a; Levy and Powell, 2005). One of the reasons for this is usually because the management and most of the company’s resources are dedicated towards core business processes such as operations, sales & marketing, production, etc. Only when the business can afford it and/or it faces stiff competition, does the need to strategise and plan for competitive advantage arise (Levy and Powell 2005), and this is when R&D and innovation takes centre stage.
3.2 The CSC Scoring method

There are tools that measure the attributes of an organisation’s capabilities & readiness (Fujitsu Index, Boston Consulting Group, Siemens, etc), and there are also tools that measure and help construct depth of strategy and conditions surrounding and influencing the organisation (Balanced Score Card, 5-Forces, etc). Building on the research and work involved in these trusted and rigorous examples, it was deemed appropriate to map the innovation potential of businesses in the region, with reasoning that three key factors taken from these previous models would need to be addressed. These are: **Conditions, Strategies & Collaborations (CSC)**.
The CSC scoring method consists of a set of questions that determine external and internal factors and perspectives that influence the business for each of the CSC categories (Conditions, Strategies & Collaborations).

Figure 4 highlights the scoring concept mapped to the IPET model, a fully shaded box depicts high scores and partially shaded box represents low scores. This then determines the IPET score rating of ‘HIGH’, ‘MEDIUM’, ‘LOW’ or ‘TOO LOW’, which place the businesses accordingly on the IPET Innovation Potential Pyramid.
3.3 Research Methodology

IS research advocates the use of multiple methods resulting in ‘convergent methodology’ or ‘triangulation’. When a multi-faceted approach is taken it increases the validity of the results through a process of cross-validation. This can give an explanation of differences as well as similarities (Gable, 1994; Remenyi and Williams, 1996). This research has been carried out by a process of triangulation: Method triangulation as data was collected via survey and case studies and strategy triangulation through exploratory research and survey. Exploratory research is often conducted when the problem area has not been defined and little work has been done in the field. It can often help determine the best research design, data collection method and selection of subjects. The main aim in this situation is to find out what is happening regarding particular social phenomena (Schutt, 2006).

Surveys are intended to obtain the same kind of data from large groups in a systematic and standardised way (Avison, 1993; Burns, 2000). This research has been conducted via a questionnaire as this provided the ability to gather the information in the quantities required in order to see trends and discover patterns that may be embedded within the information. Data preparation involved the initial process of compiling a clean and valid database of 200 companies, from various sources. For this initial exploratory work the list of companies was derived from pre-filtered databases of relatively innovative companies, sourced from AWM’s existing databases and the Gibson Index\(^2\). It was acknowledged that this would skew the results but the intention of the survey was to rapidly test the method in order to refine it for use by AWM ICT Cluster. In fact this did impact on the findings and the predominance of MEDIUM-scoring companies in this initial study are probably present due to the fact that the 200 companies came from this pool of data sources pre-filtered or ear-marked to be relatively innovative companies. Future work will need to contain a random sample of companies.

Data was gathered via telephone interviews which were carried out on 200 businesses across the West Midlands. The survey questionnaire was completed by directors and senior

\(^2\) The Gibson Index is a compiled database of UK’s small to medium technology companies. [http://gibsonindex.if5.com/]
executives of the companies contacted. Participation was voluntary and all 200 companies participated. Finally, the responses were compiled and the data analysed.

4. Findings and analysis

The project to develop the tool commenced in January 2009 and during March 2009 200 IT companies were surveyed using the IPET model and CSC scoring method. The survey was answered by the owner-manager of the small company and the replies were therefore based on their perception of the situation both internal and external to the company. The questions were deliberately thought-provoking and allowed the owner-manager to say either a ‘yes’, ‘no’ or ‘maybe’ as a reply which gave a score of 1, 0 or 0.5 respectively. This scoring method will be further refined to a Likert scale as a future development, based on the results obtained in this survey. However, the initial results have provoked some discussion on IPETs future use.

In Figure 5 it can be seen that almost 10% of companies surveyed have scored HIGH on innovation potential, almost 60% scored MEDIUM and just over 30% scored LOW. This was anticipated as the source data had been obtained from a database of ‘self-proclaimed’ innovative companies.

<table>
<thead>
<tr>
<th>Innovation Potential</th>
<th>Total Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>19</td>
</tr>
<tr>
<td>Medium</td>
<td>117</td>
</tr>
<tr>
<td>Low</td>
<td>63</td>
</tr>
<tr>
<td>Too Low (less than 12)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total 200

Figure 5: Number of companies at each tier
Figure 6: Visual representation of company scoring by sub-sector

Figure 6 show the distribution of companies based on technology sectors and specialisations. This revealed that there may potentially be a higher yield of highly innovative companies in the region, operating in the following fields:

- Mobile Telecoms
- Telecoms
- Security Technologies
- e-Health
- Software
- Radio Technologies
- Instrumentation
- Robotics & Automation
- Advanced Computing
- Photonics & Optical Sciences

This gave rise to the supposition that the tool would be more accurate if aimed at sub-sectors, as their may be different support needs in each and therefore different intervention strategies.
Table 1 presents an analysis based upon the number of employees which may indicate common attributes of highly innovative companies. From this it can be seen that larger companies are not necessarily the most innovative, with a peak around 6-10 employees which is often the stage at which companies begin their growth potential (Storey 1994).

<table>
<thead>
<tr>
<th>STAFF NUMBERS</th>
<th>HIGH (%)</th>
<th>MEDIUM (%)</th>
<th>LOW (%)</th>
<th>TOO LOW (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5 Employees</td>
<td>8</td>
<td>58</td>
<td>35</td>
<td>0</td>
</tr>
<tr>
<td>6-10 Employees</td>
<td>14</td>
<td>60</td>
<td>26</td>
<td>0</td>
</tr>
<tr>
<td>11-20 Employees</td>
<td>7</td>
<td>56</td>
<td>36</td>
<td>2</td>
</tr>
<tr>
<td>21-50 Employees</td>
<td>8</td>
<td>58</td>
<td>34</td>
<td>0</td>
</tr>
<tr>
<td>51-100 Employees</td>
<td>0</td>
<td>70</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>100+ Employees</td>
<td>29</td>
<td>57</td>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1: Scoring of companies by size (percentages)

It is recommended that further surveys or studies be done to fine tune this tool and its mechanisms. Specifically for the above analysis, one would suggest doing a survey on equal numbers of companies from each employee band represented in Table 1. This would then provide a better accuracy of percentage distributions.

Further analysis was conducted to study the influence and impact of locations. In order to do this the data was first analysed with the external factors included and then these were extracted and only the internal factors were used. The data gathered can be seen in Figures 7 and 8.

![Figure 7: Results of scoring using both internal and external conditions](image1)

![Figure 8: Results with external conditions removed](image2)
The majority of companies were originally located in the medium band when external factors contributed to the analysis. However, this then slipped to many more low scores. Therefore, it can be assumed that location plays an important role, influencing a business’s performance, particularly in terms of infrastructure, facilities and accessibility. Further analysis regarding the importance of location revealed that the majority of companies (about 69%) scored 3.5 and above for location factors in the West Midlands region (maximum score achievable is 5). Not surprisingly, those within or near city centre areas scored higher than businesses based in more remote areas.

Figure 9 shows a snapshot of external conditions average scoring, across the 200 companies surveyed and clearly demonstrates the effect of the external factors.

![External Conditions average scores across 200 companies surveyed](image)

Using the information provided by the tool, we can identify areas in the West Midlands region where the owner-manager perceives that their location affects the innovation process in their business, and may require improvements. It should be noted that this is the owner-manager *perception* of their location rather than what is actually available.
<table>
<thead>
<tr>
<th>Average scores range</th>
<th>Locations</th>
<th>number of Companies</th>
<th>Number of locations</th>
<th>Total number of Companies</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.50 - 2.99</td>
<td>Halesowen</td>
<td>2</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Ludlow</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ross-on-Wye</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coleshill</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Harewood End</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leominster</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rugeley</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sandy's Road</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smethwick</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wooton Waven</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.00 - 2.49</td>
<td>Burton-on-Trent</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Bidford on Avon</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kenilworth</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lighthorne</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.50 - 1.99</td>
<td>N / A</td>
<td>N / A</td>
<td>N / A</td>
<td>N / A</td>
</tr>
<tr>
<td>1.00 - 1.49</td>
<td>Craven Arms</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Evesham</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Myddle</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Results by sub-region of companies with low averages.

Table 2 shows locations in the West Midlands region, with low average scores, this is an invaluable tool to local government and agencies who can easily see what the perception of a locale is by the businesses located within it. If there is an infrastructure problem this can be addressed but if it is simply perception then awareness raising of external features should suffice. Of course there is also a possibility that entrepreneurs are less likely to be found in these areas or perhaps not attracted to the locality to establish a business there.

Following are some key observations which were also made during the analysis. The first of these are some high scoring areas which demonstrate where the businesses believe they are excelling in terms of the innovation process:

High Scoring Areas:

- 83% of companies responded that it is viable to invest in innovation & R&D in the current market conditions, demonstrating that the current economic climate does not concern them
- 92% of companies are satisfied with their physical-location as far as innovation support is concerned.
• 96% of companies reported that their management team are directly involved in R&D and innovation activities
• 91% of companies claimed that they believe that their IT infrastructure is appropriate for their business needs,
• 94% of companies responded that they feel they are agile in adapting to changes in market conditions
• 91% of companies communicate their vision and strategic plans to all their staff but mainly verbally.
• 92% of companies responded that their marketing and development staff collaborate during the early stages of product development.
• 97% of companies believed that their respective organisation's culture encourages innovation.

The following were areas of low scores which should be of concern to AWM ICT Cluster who are looking to support innovative companies and thus support economic development:

Low Scoring Areas:
• Only 39% of companies are aware of any R&D/funding schemes
• Only 29% of companies have conducted formal market research in the last twelve months
• Only 12% of companies are involved in pan-European collaborative project(s) funded through the EU.

Other concerns / information to note:
• 51% of companies have dedicated resources to manage R&D and innovation
• 72% of companies have formal up-to-date market Sales and Marketing strategies
• 71% of companies responded that their achievement is measured and reviewed regularly
• 74% of companies participate in business networking activities
5. Conclusions and Future Development

The IPET development project has only been active for a short time and is a long-term development; clearly it is still a work-in-progress. This project requires more research to be done and this includes doing multiple small and controlled surveys, to fine tune the tool’s accuracy in its estimations. However, even at this stage, the potential and usefulness of the tool is apparent. It is specifically designed for RDAs and other government bodies to have access to a quick tool to help them estimate businesses in their respective areas. It is hoped that the tool will assist in identifying specific barriers to innovation, and produce key information for strategic planning and decision making.

From the 200-survey and initial case study findings, it became clear that it was necessary to split the single rating of MEDIUM into two ratings of MEDIUM-HIGH & MEDIUM-LOW. This is because the 200-survey showed high numbers in the MEDIUM potential band; and this was consistent even the initial pilot study survey of 31 companies. This will allow the CSC scoring method to more easily convert to a Likert scale that will allow further statistical analysis. Further work will also include the development of characteristic statements at each level, thus allowing a clear description of what makes a company remain at a particular level.

Further to this work, initial findings from case studies carried out to validate the findings from the 200 company survey have supported this, where it was found that some companies possess or exhibit exemplary attributes towards cultivating and managing innovation, that a rating of MEDIUM-HIGH is duly earned.

Subsequent research will be focused on refining the tool and providing the information to describe each band and the type of interventions needed to move a business from one category to another. i.e. common attributes within a band. Therefore other work planned includes further case studies to verify attributes & behaviours, and site visits to allow more detailed analysis and information gathering. This will then permit descriptions and classification within the model which will identify attributes & behaviours within each band. Thus, allowing agencies to identify where funding would best be utilised to support companies to progress up a band on the model. For example should funding be used to support 200 companies in a lower band, or 20 companies in a higher band and which of these
policies would give the highest return on investment for a government intervention strategy? These are important considerations which are frequently debated without supporting evidence which this tool could provide.

References


