



Journal of Applied Sciences

ISSN 1812-5654

science
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Technology Implementation Barrier of Rural Malay Herbal Entrepreneurship in Malaysia

Kamal Chandra Paul, Azimi Hamzah, Bahaman Abu Samah, Ismi Arif Ismail and Jeffrey Lawrence D'Silva
Laboratory for Citizenship and Leadership, Institute for Social Science Studies,
Universiti Putra Malaysia (UPM), Malaysia

Abstract: Immense technology is used to enhance productivity and profit in herbal entrepreneurship. However, the implementation of technology is deemed to be lacking among Malay herbal entrepreneurs in Malaysia. Thus, the aim of this study was to identify factors that hinder rural Malay herbal entrepreneurs from using technology. A qualitative approach using case study in-depth interview was used to gather data from eight respondents who are actively involved in herbal entrepreneurship. The data revealed that most of the rural Malay herbal entrepreneurs are small in scale and they are lagging far behind in technology usage. Further analysis showed that technical specialist, capital and operational problems are barriers of technology usage among Malay herbal entrepreneurship. The study suggests that a combination of factors that include the role of government, family members, financial and human resources are pertinent in supporting extensive usage of technology among Malay herbal entrepreneurs.

Key words: Technology implementation, herbal industry, technology barrier, entrepreneurship, small medium enterprise

INTRODUCTION

In the current global world, rural entrepreneurship has been considered as an important area in a country's quality of life and economic growth (Van Praag and Versloot, 2007) and this include job creation and economic development (McMullen *et al.*, 2008; Audretsch, 2007; Shu, 2001). For this reason many countries in the world is using this as a model for their economy development and growth. Over the past couple of years, the development of entrepreneurship in Malaysia has significantly increased and may be attributed to the New Economic Policy (NEP) that was implemented since 1970. In addition, the Malaysian government has been fostering entrepreneurial activities in technology-based firms are implemented in order to increase more Malay entrepreneurs in industrial area. Moreover, due to technical knowledge and skills such as product development, research and development management and low technology (Ismail and Sulaiman, 2007; Ellitan, 2002) have been identified as major factors that impede the development of Malay technology entrepreneurs. In global competitive market, Malay herbal entrepreneurs fail to compete on price. In order to compete, technology implementation is undoubtedly one of the important elements to be considered. Despite the fact that technology implementation is closely related to gain productivity,

slash production errors and boost profit, yet not many rural Malay herbal entrepreneurs use technologies extensively (Baldwin and Lin, 2002; Sabourin and Beckstead, 1999). There are a lot of barriers and problems that hindered these rural Malay herbal entrepreneurs to implementing technology which is mostly perceived as too expensive and also lack of expertise. The study focuses on the obstacles faced by the rural Malay herbal entrepreneurs in implementing technology.

At present the global world are moving from synthetic allopathic drugs to herbal. Customer perception of herbal medicine is rapidly increasing every year in Malaysia and also indicating that the market value will be 3.4 times within five years (Aziz, 2003; Industry Canada, 2004; Murray, 2011). Previous studies showed that herbal medicine is in a very good demand but until today this sector is still under development stage (Industry Canada, 2004; Pharmabiz, 2004). On the other hand, Malaysia is highly dependent on its imports of different category of herbal products especially from USA, UK, Australia, China and India which brands are well accepted and perceived to be high quality. The herbal companies in Malaysia strictly adhere to the Good Manufacturing Practices (GMP) guidelines which set forth by National Pharmaceutical Control Bureau, Ministry of Health Malaysia and conform to standards of World Health Organization (WHO). For herbal entrepreneurs, GMP guidelines are very essential

for their entrepreneurship development. A plant layout must meet GMP requirements in order to avoid any products contamination. The manufacturing facility must be designed specifically to manufacture products from the receipts of raw materials to the final shipping of end products. For GMP certificates, all herbal manufacturers have to follow the terms and conditions which is provided by Ministry of Health.

Unfortunately, poor manufacturing process technology could limit the development of herbal entrepreneurship. The local herbal entrepreneurs usually are perceived as traditionally or manually processed. In order to break away from this perception, the herbal entrepreneurs need to be more proactive. They must find and utilize technology that can improve the quality product in order to penetrate locally and internationally. In order to achieve competitive and profitability, all herbal firms are prepared to accept the challenges in order to developing modern technology (Kennedy and Hyland, 2003), new technology-build, new production capabilities and competencies. This enables the firm to adapt quickly to changing opportunities (Krajewski and Ritzman, 1998; Umar *et al.*, 2010).

The implementation of new technology brings lot of benefits for the herbal firm-reduce cycle time, market share growth, create long run profit, product improve, costs reduces, improve product quality, reduced labor and process flexibility (Swamidass and Kotha, 1998; Rouse, 2000; Globadian *et al.*, 2000; Zhao and Co, 1997; Sabourin and Beckstead, 1999).

According to Kennedy and Hyland (2003), the small firms will continue to struggle to compete with big firms. They are unable to invest in improvement program and activities because of lack of financial resources, business experience and knowledge, human resources. Moreover, these types of small firms feel forced to apply these technologies due to pressure from government, Government Link Company (GLC) and customers. Rouse (2000), Walker *et al.* (2003) and Sabourin and Beckstead (1999) data showed, most of the entrepreneurs are avoiding the government guidelines because of equipment cost, lack of finance and limited professional skills. As far as Malaysian herbal firms are concerned, there are limited researchers have been done in the technology implementation area. Most of the studies have been done in other firms such as automobiles, textiles, furniture and electronics. Generally, the manufacturing technology in local herbal firms is perceived as traditional and low technology. In 1998, it is reported that Malaysian herbal small firm's production system is at low level compared to other types of small firms. And until today

only few researchers have investigated what are really barriers faced by the rural Malay herbal small firms in implementing technology. Thus, this study is designed to identify the key success factors and the barriers in managing technology implementation among rural Malay herbal entrepreneurs.

Methodology: This study is an exploratory that used qualitative case study multiple approaches, in-depth interview, because the issues on technology implementation in rural Malay herbal small firms are hardly done by researchers.

Sample selection: The primary goal of this study was to identify the level of technology utilization in rural Malay herbal firms and also the obstacles faced by the firm in implementing the technologies. For this study, the researcher had selected eight rural Malay herbal entrepreneurs from different states of Malaysia namely Selangor, Kedah, Pahang, Penang, Johor, Negri Sembilan and Kelantan. These herbal entrepreneurs are living in rural areas and doing traditional herbal business from generation to generation.

Data collection: Data were collected from semi-structured interviews and observation. For semi-structured interviews, an interview protocol was used. The interview protocol was on the firms' use of technology and obstacles faced by these Malay herbal entrepreneurs. The average interview time in each participant was an hour to one an half hour. As was recommended by Yin (1994), the open-ended interviews were used to expand the depth of data gathering and to increase the number of source of information. The need for triangulation arises from the ethical need to confirm the validity of the process. The interview subjects are questioned with regard to their actual experiences. And for consistency in the data and its interpretation, the interview data was provided. The observation was made on what type of technology been used in the firm and obstacles faced by firm in implementing the technology that was currently used and also in the near future. The information gathered was written down in a log book with the summary from the interviews. The purpose of these observations was primarily to verify the information collected from interviews.

Interview protocol: An essential process in qualitative research is recording data. An interview protocol is a form designed by the researcher that contains instructions for the process of the interview, the questions to be asked and space to take note on responses from the interviewee

(Creswell, 2002). Yin (1994) asserted that the development of rules and procedures contained in the protocol enhance the reliability of the case study research. Recommended by Yin (1994), interview protocol should include the following sections: (a) An overview of the case study project-include project objectives, case study issues and presentations about the topic under study, (b) Field procedures-reminders about procedures, credentials for access of data sources, location of those source, (c) Case study questions-the questions to be asked and (d) A guide for the case study report-the outline and format for the report.

As for the interview protocol, the sections which are relevant to the scope of the study were chosen. The items include in the protocol were firm background; technologies used (current and plan to use within a year); development and implementation of technologies; results of technology implementation and obstacles of implementation.

Data analysis: According to Yin (1994), data analysis consists of examining, categorizing and tabulating in order to address initial proposition of a study. First, the primary researcher transcribed the field notes, and then edited and checked by second researcher as soon as possible after collect the data. In a case study research, reliability deals with the ability of a different researcher to research the same conclusion if they did the same case study. To help ensure the reliability, it is suggested that the research follows an established protocol and the data was categorized and tabulated for formal case study database. The primary reason to ensure the analysis relied on all the relevant evidence, it address the most significant aspects of the case study and ease of understanding for further analysis (Yin, 1994).

RESULTS AND DISCUSSION

Profile of rural malay herbal firms: Table 1 shows the background of the eight rural Malay herbal entrepreneurs. As depicted in Table 1 all the selected eight rural herbal firms are locally owned. Waimii Health, NapiMaju, TropicaBio-herb industries are known as the oldest medium size herbal firms in Malaysia, others five firms are almost the same age.

All these firms market their product locally and they are trying to go into Brunei, Philipines, and the Middle East market. Only Tropica Bio-herb is producing 20 products and the others seven are producing 3-7 products. Tropica Bio-herb monthly sales, RM 130 K, Busana, Trading Herbseri, Aniera, NapiMaju, Herba Pusaka RM 60-90 K, Natural Herb, Waimii

only RM 30-50 K. All firms are using semi-auto machine except two firms for their productions.

In relation of technology usage, Table 1 shows currently all eight herbal firms are using semi-auto technology for their production and planning for the next five years to update automatic technology if their firms run as their plan. None of the respondents has achieved Advanced Manufacturing Technology (AMT), due to lack of necessary infrastructure, skilled personnel and finance; although they are using semi-auto alike medium level technology.

But current government policy is “every herbal manufacturer abides by the rules and regulation of Drug Control Authority (DCA)”. According to Noori, 1997, the technology level in Malaysian manufacturing firms is in maturity stage. It is also applicable in Malaysian herbal manufacturing sector. The main reason of less sophisticated technology applied by herbal firms is low labor cost (Noori, 1997; Zhao and Co, 1997). Due to these low cost but high motivated workforce, often it makes the economic justification of automation in newly industrialized countries difficult. Finally, the investigation shows that medium firms in technology usage.

Technology barrier implementation: Despite the fact that the benefits of technology implementation are high, yet there may be significant enough for a firm to unable to invest in improvement programs and activities also new technology especially small medium enterprises (SMEs), (Kennedy and Hyland, 2003). As for eight herbal firms, even though these entrepreneurs are very ambitious in their future development plans and strategies, somehow they have to admit the barriers that wish to apply. The main obstacles explained by the respondents were financial constraints due to costly and expensive equipment and outside technical support and also insufficient skilled labor to improve the firm processes and systems.

Financial back up seems to be critical barriers in implementing new technology in these herbal firms. As all these firms are small medium enterprises (SME) category, financial is a main issue. As mentioned by Kennedy and Hyland (2003), smaller firms usually lack of financial and human resources which results in lower level of adoption of more costly technologies.

Cost technical support also hindered these firms in acquiring high and advanced technology. As these firms lack of employees experiences and necessary skills to implement some new technologies, technical support is more important. Anyhow, due to expensive consultation and maintenance service, these herbal firms postponed or stopped the ideas of new technology for the firm process

Table 1: Profile of rural Malay herbal firms

Name of the firm	Busana Al-WADIAH trading	Natural herbal industry and marketing	SYKT Perniagaan trading herbseri	Herba Pusaka Alam	Tropica Bio- herb Industry	Waimii health	Aniera enterprise	Napimaju Jaya enterprise
In existence (years)	10	7	6	20	14	16	7	15
Location	Selangor	Negeri sembilan	Kedah	Perak	Pinang	Kelantan	Johor baru	Pahang
Employees (people)	6	5	7	10	31	7	6	8
Markets	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia	Malaysia
Future Market	Middle East, brunei	-----	Brunei	-----	Philippines' south east asia	-----	-----	-----
Products (units)	5	3	5	7	20	3	7	3
Future Product (units)	3	2	1	1	5	1	2	-----
Monthly sales (Ringgit Malaysia)	70-90K	45-50K	65-90K	50-60K	130K	30-40K	60-70K	75-90K
Technology Used	Semi -auto	Semi-auto	Semi-auto	Auto	Auto	Semi -Auto	Semi Auto	Semi Auto

and systems. That's why these categories of rural herbal firms are fully dependent on the employee knowledge and experiences which will limit the technology implementation. As quoted by the five herbal firm owners.

Currently advice and ideas are taken from experienced old employees. Besides, the outside consultation service is very expensive and it is difficult to bear this service.

From the interviews, GMP guideline by the Ministry of Health is also another critical obstacle faced by the rural herbal firms. In order to follow the GMP guidelines, each production unit must have its own platform that is separated from each other to prevent any contamination. However, currently six herbal firms are producing their products manually.

CONCLUSION

Basically these eight herbal firms believed the positive impact of their business technologies especially in productivity and quality, and continue to improve the firm's processes and systems. However with all these constraints and obstacles in implementing a fully integrated advanced technology, the aim to achieve this technology level is still a long way to go. The main constraints are lack of financial and human resources.

Almost all these eight rural Malay herbal firms strongly agreed to the benefits in applying advanced technology. Before making any decision to invest for technology implementation, considered main constraints are: (a) Financial and human resources; (b) Internal family management problems because most of the Malay herbal firms are managed by family members; (c) Low wage rate that makes their recruit more workers than investing in high technology equipment and (d) GMP guidelines.

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