

Technopreneurial Attitude in the Zimbabwean Food-processing Sector

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ABSTRACT Technopreneurship can be seen as a system, policy, strategy, process or an individual or group attitude. Although it might be assumed that technopreneurial attitude leads to technopreneurial behaviour, this is not always the case. The paper is based on research conducted on technopreneurship as an attitude in the Zimbabwean food-processing sector. The objectives of the study were to determine the attitude of food processors towards technopreneurship, the feasibility of technopreneurship in light of the attitude and the relationship between professional specialisation and technopreneurial attitude, as well as professional specialisation and the feasibility of technopreneurship. The research adopted a survey approach to gather, analyse and interpret quantitative data. The results indicated that companies in the food-processing sector have a positive attitude towards technopreneurship and the feasibility of technopreneurship in the sector. However, it was concluded that the positive attitude does not automatically lead to technopreneurial behaviour because of intervening variable.

INTRODUCTION

In the 21st century, knowledge-based or knowledge-supported entrepreneurship is the fulcrum of economic growth and development (Carayannis et al. 2015). In real terms, knowledge-based entrepreneurship is the essence of technopreneurship. Technopreneurship concerns the merging of technological prowess and entrepreneurial skills and knowledge to direct resources towards high-yield areas to enhance value and create wealth (Petti 2012). Technopreneurship seems to have become an important focus area in entrepreneurship due to the fact that technology and innovation play an important role in the implementation of the entrepreneurial idea.

Technopreneurship can be given different names, such as technological entrepreneurship, technology entrepreneurship, technical entrepreneurship, engineering entrepreneurship and science entrepreneurship. Technopreneurship can be viewed from different perspectives. It can be seen as a system, policy, strategy, process or an individual or group attitude (Petti 2012). Kwa et al. (2014) asserted that the attitude of citizenry determines the value placed on the utilisation of acquired knowledge to create value and wealth for the people. Knowledge therefore is not use-

ful if it is not applied to improving living standards and making life more convenient for the people. This is the essence of technopreneurship as an attitude towards the contribution to economic development in developing nations such as Zimbabwe.

Zimbabwe is said to have a high literacy rate of ninety-eight percent (ZIMSTAT 2015), this implies that the people have a wealth of knowledge. However it seems the knowledge is not applied, given that approximately eighty percent of the products on the market – especially food – are imported from other countries (Chinamasa 2015). There has been massive deindustrialisation in Zimbabwe marked by company closures and underutilisation of capacity in the manufacturing industry. Capacity utilisation can be tracked from 2008 to 2015, as shown in Table 1.

The irony is that Zimbabwe, which used to be the bread basket of the Southern African Development Community (SADC) region, has considerable natural endowments that can be exploited but relying mainly on imports. This issue could be explained by looking at the technopreneurial attitude of industrialists in the Zimbabwean food-processing sector.

The objectives of the research reported on in this paper were to determine the attitude of food processors towards technopreneurship, the feasibility of technopreneurship in light of the

Table 1: Annual capacity utilisation of the manufacturing industry in Zimbabwe 2008–2015

<i>Year</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
<i>Capacity utilisation (%)</i>	10	32.2	43.7	57.2	44.2	39.6	36.3	34.3

attitude and the relationship between professional specialisation and technopreneurial attitude, as well as professional specialisation and the feasibility of technopreneurship.

Literature Review

Entrepreneurship

Carland et al. (2015) emphasised that as yet there is no agreed definition of entrepreneurship among researchers. Each definition varies depending on who the researcher is and what perspective is taken. However, in this paper, entrepreneurship is viewed from Morris et al.'s (2015) perspective of entrepreneurship as exploitation of business opportunities through a novel, new and innovative combination of resources so as to add value and create wealth at some considerable risk in an uncertain environment. The elements included in the definition are the major facets of entrepreneurship, namely exploitation of opportunities, innovation, new allocation of resources, risk bearing, creation of value and creation of wealth. It can be appreciated that entrepreneurship is mainly attitude-based; it is an attitude towards opportunities, innovation, risk bearing and so on. The elements are equally applicable to technopreneurship if the technological element is added. In fact, today one may not fully explain entrepreneurship without considering the technological element.

Technology

Wagner et al. (2015: 4) defined technology as “a set of tools designed to manipulate the natural world and to extend human intentions.” This definition, which makes sense as it captures the notion of solving day-to-day problems, may require further clarification of two terms: tools and human intentions. Tools may be in the form of hardware, software, equipment, procedures, laws, strategies and policies, among many others (Rebentisch and Ferretti 1995). It is clear, therefore, that technology covers a wide spectrum of applications in an effort to extend human intentions. Human intentions are basically

anchored in the fact that humans always endeavour to improve their livelihood (Singh and Shekhar 2015). Therefore, people have needs that are always there as long as there is life and human needs have to be satisfied in the best available way. Life has to be as convenient as possible – and technology makes this possible.

Innovation

Jonsson (2015) viewed innovation as the utilisation of new technology in an organisation. The utilisation of new technology has a bearing on new products, business and processes; hence it gives rise to different types of innovation, which include product, business, process and technological innovation. Therefore, one cannot speak of technology or entrepreneurship without reference to innovation. It also follows that innovation is an important aspect of technopreneurship (Pujanis et al. 2015).

Attitude

Winarno (2010) defined an attitude as a durable structure, consisting of views, beliefs and norms, which determine the selective behaviour of individuals towards some phenomenon. The definition seems to equate attitude to behaviour, as, according to Fayolle and Gailly (2015), attitude is one of the determinants of behaviour. Therefore, entrepreneurial attitude determines entrepreneurial behaviour (Fayolle and Gailly 2015). However, the important distinguishing element is the aspect of selective behaviour towards technopreneurship, which can be either positive or negative (Fazio et al. 2015).

Entrepreneurial Attitude

Entrepreneurial attitude is defined as a tendency to think (cognitive), feel (affective) and behave (conative) in order to find, create and implement new methods, technologies and products for improved efficiency, service and profits (Winarno 2010: 434). In terms of the definition of entrepreneurial attitude, cognition, affection and conation are all facets of behaviour and therefore determine how positively or negatively a person

is attracted to being an entrepreneur or entrepreneurial activities (Huang et al. 2015). The entrepreneurial attitude is perhaps also determined by the attributes of an entrepreneur, which according to Kwa et al. (2014: 60) include “initiative, innovativeness, creativity, inventiveness, originality”. Kwa et al. (2014: 60) pointed out that these attributes are “venturesome and bold”. Harsono (2013) believed that entrepreneurial attitudes can be taught. Therefore, in most cases, entrepreneurial attitudes or technopreneurial attitudes are discussed in relation to the intention of college or university students to become entrepreneurs when they graduate.

However, even though most cases reported in the literature explored the entrepreneurial attitude of students for training purposes, other researchers looked at the entrepreneurial attitudes of corporate employees. Winarno (2010) analysed the intrapreneurial attitude of employees in Indonesia and concluded that there was an association between employee intrapreneurial attitude and organisational culture, intrapreneurial attitude and leadership style, and intrapreneurial attitude and motivation for achievement.

Technopreneurship

Technopreneurship is mostly viewed as business venturing through the compounding of entrepreneurial skills and technological prowess (Dutse et al. 2013; Harlanu and Nugroho 2015; Pujanis et al. 2015). It applies to both nascent entrepreneurship and intrapreneurship (Corporate entrepreneurship). In this study it is being applied to corporate entrepreneurship. An organisation is expected to embrace technopreneurial knowledge and skills so as to keep itself competitive on the market.

METHODOLOGY

The study adopted a phenomenological philosophy and descriptive research design to gather and analyse quantitative data in the food-processing sector in Zimbabwe. Data collection or field work was carried out for a period of four months in mid-2015. The survey method was used to gather data from a purposive sample of 147 participants from 9 food-processing companies in Harare. A questionnaire was circulated among industrial food-processing companies to gather data with regard to the participants’ attitudes towards technopreneurship, feasibility of technopreneurship in the sector as well as the

relationship between the feasibility and the participants’ area of professional specialisation.

A sample of 9 out of 14 companies was found to be substantial and reliable enough and 147 out of a population of approximately 2,000 targeted population of engineers, managers, administrators, technicians and scientists were also regarded as a reliable sample. Using SPSS version 17, data were analysed using inferential statistics such as the Wilcoxon signed rank tests, Pearson correlation analysis and chi-square tests.

RESULTS AND DISCUSSION

The results and discussion are presented as per research objective.

Research Objective 1: The Attitude of Food Processors towards Technopreneurship

Three aspects were presented to the employees of food-processing companies on a Likert scale to rate food-processing technology, entrepreneurship orientation and technopreneurship. The results from the Wilcoxon signed ranks test analysis showed the following:

- ♦ Food-processing technology is significantly important to the companies ($Z [N = 9] = -2.666, p = 0.008$).
- ♦ Entrepreneurship orientation is significantly important to the companies ($Z [N = 9] = -2.666, p = 0.008$).
- ♦ Technopreneurship is significantly important to the companies ($Z [N = 9] = -2.670, p = 0.008$).

From the analysis, it is evident that the average scores for all three of the questions in this section are significantly different from a neutral score of 3. Looking at the mean values in Table 2, they are all > 3, which implies significant im-

Table 2: One sample test statistics for the importance of technopreneurship

	<i>N</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error mean</i>
<i>q1.1 Food-processing Technology</i>	147	4.56	.642	.053
<i>q1.2 Entrepreneurship Orientation</i>	141	3.94	1.061	.089
<i>q1.3 Technopreneurship</i>	141	4.07	1.005	.085

portance (as response scores > 3 represent Important and Very important).

The first result was that significant importance was indicated for technopreneurship and its facets, that is, food-processing technology, entrepreneurship orientation and technopreneurship. In other words, it could be said that technopreneurship is valued in the food-processing sector. In general, food processors attach great importance to technopreneurship. Technopreneurship was rated to play an important role in the food-processing sector. Although the role was not further defined, when something is valued it implies that its original purpose is what gives it value.

When a phenomenon is rated to be important by an individual or group, it follows that such an individual or group has a positive attitude towards the phenomenon. Acs et al. (2015) indicated that entrepreneurial nations are those in which people have a positive attitude towards entrepreneurship and prefer it as a way of life. Therefore, the positive attitude should be followed by the employees preferring entrepreneurship as an organisational culture, strategic option and policy guide in the organisation. This relates to the case of corporate entrepreneurship. In the case of nascent entrepreneurship, citizens see it as a way of life and prefer self-employment to being employed in any organisation. Corno et al. (2015) argued that the entrepreneurial attitude of citizens is pre-conditioned by the favourability of government policies and initiatives as well as institutional support and individual traits. According to Cacciotti and Hayton (2015), fear of failure determines the attitude towards entrepreneurship. Therefore, trust in the environment has a great impact on the attitude towards entrepreneurship. If there is no trust in government policies, there tends to be a negative attitude towards entrepreneurship, as there would be high perceived risk and fear of failure.

While there was a positive attitude towards technopreneurship, it seems the attitude is a function of several variables. Liñán et al. (2015) pointed to cultural values and personal values as players in the determination of attitude towards entrepreneurship. Dandago (2015) supported the view that entrepreneurial attitude is a function of different ethnic groups, religions, races and tribes, among other groupings; hence it varies from nation to nation.

Research Objective 2: The Feasibility of Technopreneurship in Light of Attitude

The objective of feasibility of technopreneurship essentially focused on how possible it may be to implement the concept of technopreneurship in the Zimbabwean food-processing sector, especially in light of technopreneurial attitude. Issues of feasibility included whether there was enough demand for local products, whether the companies have the capacity to satisfy the demand, whether they have sufficient food-processing technology, whether they are able to acquire new processing technology, whether they have enough entrepreneurial skills and lastly, whether they have the ability to compete with existing food products on the market. It was observed that all questions on the feasibility of technopreneurship in the food-processing sector had a mean score of > 3 , which implies a positive response to all the questions. Therefore, according to the participants it was feasible to apply technopreneurial concepts to the food-processing sector in Zimbabwe.

Demand for Locally Made Products

The results indicated that there was enough demand for processed food products in Zimbabwe. This is in contrast with the Confederation of Zimbabwe Industries (CZI) (2014), which indicated that there is a low domestic demand in the nation. It is possible that the difference was the result of the target sample, being the food-processing sector only. Nevertheless, because of Zimbabwean consumer ethnocentrism (Makanyeza 2015), one may ask why it can be said that there is low domestic demand. This matter could require a product-by-product analysis. The findings indicated that Zimbabwean consumers prefer locally manufactured food products to imports, as they trust local foodstuffs. However, Mlambo and Marufu (2015) concluded that it was difficult to establish consumer ethnocentrism in Zimbabwe given that at least seventy percent of the food products on the retail market are imports and therefore, consumers are left with no choice.

The belief that there is enough demand for locally produced food stuffs is understood here to contribute towards positive technopreneurial attitude. If food processors perceive that there is enough demand for their products, they would

have a positive attitude, which should persuade them to risk their resources towards production of the foodstuffs.

Capacity to Satisfy Demand

It was found that the companies have the capacity to satisfy the demand. Capacity in this case relates to production capacity as well as the competency to meet the local demand for locally produced food products. The issue of capacity was discussed under global factors, as the researcher looked at the capacity of the companies to compete with neighbouring countries such as South Africa and Zambia, who are the leading suppliers of food products to Zimbabwe.

CZI (2014) indicated that manufacturing companies in Zimbabwe were operating far below capacity at an average of 36.3 percent capacity utilisation. ZIMSTAT (2015) reported that most companies in the manufacturing sector operated well below capacity at approximately thirty-six percent; this included the food-processing sector. Furthermore, Chinamasa (2015) acknowledged that there is still under-utilisation of capacity. It can therefore be inferred that capacity exists, but it is not being utilised because of different Zimbabwean economic challenges such as infrastructural problems (power and water shortages) and policy inconsistencies, as presented by CZI (2014). If capacity exists but is not fully utilised, it amounts to a lack of capacity, as the companies are incapacitated by the prevailing economic and political challenges.

If the food processors acknowledge that they have the capacity to satisfy the local demand for foodstuffs, this is a positive attitude. However, if the food processors seem to be operating below capacity, this could point to another issue, namely that positive attitudes may not necessarily lead to the intended behaviour. This is consistent with the attitude-behaviour gap theory (Shaw et al. 2015). Therefore the relationship between attitudes and behaviour has intervening variables such as the environment in which an individual or group is operating. The Zimbabwean food processors could have a positive attitude towards their business, but may not be able to produce because they are frustrated by the environment in which they are operating.

Food-processing Technology

There was a positive response to the question on whether the companies have enough

technology for food processing, although perhaps the meaning attached to food-processing technology may not have been wide enough for the participants. According to Poti et al. (2015), food processing can be seen as all activities that transform all natural or agricultural food produce from the natural state. Wagner et al. (2015) defined technology as a set of tools used to exploit the natural state to enhance human life. The term 'set of tools' can be misunderstood and narrows the scope of technology. Rebentisch and Ferretti (1995) had a wider view of technology that encompasses not only a set of tools but also aspects such as procedures, laws and strategies, designed to solve day-to-day human problems. According to the participants, the companies have everything that is necessary in terms of machinery, innovation skills and knowledge for the production and distribution of food products. This may be correct, but it is not in agreement with the result that companies experience difficulties in replacing existing equipment.

Food-processing technology does not only cover production equipment, but also relates to production procedures and formulae. Rodriguez-Gonzalez et al. (2015) acknowledged that the food industry is continuously developing solutions to enhance food manufacturing, improve efficiency in energy use, satisfy consumer demands for shelf life, improve natural taste and composition, and preserve healthy micronutrients. Therefore, the latest food technologies endeavour to meet current engineering, scientific and entrepreneurial requirements.

To this end, it may be observed that food processors have a positive attitude towards the technology which they possess. However, the question arises: How could they have faith in technology that does not meet the production capacity? This may point to the food processors' innovativeness or lack thereof. Therefore, the food processor may cling to old technology and may be reluctant to adopt new and better technologies that meet modern production requirements. It is also a matter of attitude, which can be concluded after further discussion in the next point regarding the acquisition of new food-processing technology.

Acquisition of New Food-processing Technology

The participants indicated that the companies have the capacity to acquire new food-pro-

cessing technology. The result is also not consistent with results of internal processes relating to the question whether the companies have problems in terms of changing to new processing technology. Haq and Boddu (2015) were of the opinion that global competition compels organisations to be more responsive and efficient. Latest technologies have proved to enhance quality and efficiency. Hu (2015) asserted that success stories of Japan, Taiwan and Korea are based on the graduation from imitation to innovation. Innovation pertains to technological innovation, which again pertains to the development and utilisation of the latest technology.

The current trend in technological development is towards nanotechnology, also in the food industry (Amenta et al. 2015; Keshwani et al. 2015; Kuan et al. 2012; Momin and Joshi 2015; Neves et al. 2015; Var and SagLam 2015). One may ask why the Zimbabwean food processors still have old and outdated processing equipment. Perhaps again, capacity in this case was affected by issues such as finance and human capital. Dosi et al. (2015) concluded that technological variables such as patents and investments pose the highest costs to organisations compared to other organisational cost drivers, such as labour costs. Therefore food-processing organisations' capacity to acquire new technology is subject to qualification. Clearly, technological innovation does matter for manufacturing competitiveness, as pointed out by Motohashi (2015); hence, a food-processing company that does not value technological innovation may not withstand competition in the global village.

It can be observed that attitude may not lead to the expected resultant behaviour. That is, although the food processors may have a positive attitude towards the acquisition of new food-processing technology, this may not automatically result in their acquiring the new technology.

Research Objective 3: The Relationship between Professional Specialisation and Technopreneurial Attitude

The researcher also used SPSS Wilcoxon signed rank correlation analysis to test the relationship between professional specialisation and technopreneurial attitude. The results indicated that there was a significant negative correlation between the importance of entrepreneur-

ial orientation and the plant engineers having full knowledge of the food-processing machinery. Therefore, plant engineers' full knowledge of the food-processing machinery is associated with the importance of entrepreneurial orientation. This is consistent with propositions by Carayannis et al. (2015), who argued that knowledge-based and knowledge-supported entrepreneurship is an important driver of innovation at local and global levels to enhance organisational competitiveness and economic development. Therefore, it would be unfortunate if plant engineers have a negative attitude towards entrepreneurial orientation, as it would amount to the engineers having a negative attitude towards technopreneurship, which would be counterproductive.

The results also showed that there was a significant negative correlation between the importance of food-processing technology and the companies' ability to withstand competition from neighbouring countries. Such results showed that the companies' ability to stand up against competition from neighbouring countries was associated with the importance of food-processing technology. In Iran, Nejad and Zarei (2015) also found a direct relationship between innovation strategy and the competitiveness of business. The food-processing technology in the Zimbabwean industry determines the competitiveness of the industry against neighbouring countries. In particular, technological innovation and business innovation are also seen as part of the key success factors, as they play a pivotal role in determining the competitiveness of Zimbabwean industries. Because the Zimbabwean food-processing companies have a positive attitude towards food-processing technology, it should follow that they should be able to compete with neighbouring countries, assuming that they apply technological innovation in the industry.

Given the positive attitude towards technopreneurship, it follows that technopreneurship is taken to be a strategic and policy guide for modern food processors (Reza and Mona 2014). Therefore, in this case it can be noted that the role of technopreneurship is at both macro and micro level. At the macro level, it is viewed as guidance to policy makers as they draw up economic policies in progressive communities. It can be adopted as an economic development policy through guiding the industrialisation process of an economy (Ajagbe et al. 2015). At the

micro level it assists managers in making decisions so as to survive in the highly competitive global village, to meet quantity and quality product demands and to capitalise on prevalent new business opportunities.

Kwa et al. (2014) stressed that underdeveloped and developing nations should realise the urgent need to recognise technopreneurship as a lifestyle among its citizens and to take it as a fulcrum of economic development through the interplay of science, technology and entrepreneurship in order to make technological innovations valuable in the context. Therefore, the results of the current study also confirm the technopreneurial orientation as a modern and important concept for organisational performance. A positive attitude towards technopreneurship should result in the adoption of technopreneurship as an organisation's strategic and policy guide.

Research Objective 4: The Relationship between Professional Specialisation and Feasibility of Technopreneurship

The relationship of professional specialisation and feasibility of technopreneurship is important in determining the differences in technopreneurial attitude among employees with different educational backgrounds.

Professional Specialisation and Ability to Satisfy Demand

From the correlation analysis, it was seen that there was a significant relationship between specialisation and the companies' capacity to satisfy demand for processed food products in Zimbabwe. More than expected, to 'Engineering only' the participants responded 'Not at all', to 'Business only' they responded 'Neutral', to 'Engineering and business' they responded 'No, not really' and to 'Other' they responded 'Yes, to some extent'. As such, there were different responses from different areas of specialisation, signifying different attitudes towards the feasibility of technopreneurship in the organisations.

García-Barriocanal et al. (2012) indicated that organisational competences could be modelled by concrete human capacities under certain work conditions. Chong (2013) discussed the importance of managerial competences as equally essential for all organisations. Therefore, the responses could be based on the participants'

assessment of managerial competence of the organisations. On the other hand, the responses could have been based on the entrepreneurial attitude orientation of the participants. Abdul-Mohsin et al. (2015) regarded entrepreneurial attitude orientation as an evaluation of the chances of success or failure of an entrepreneurial activity. It seems that people from different departments have different assessments or attitudes towards their organisational activities. From the previous discussion, capacity to satisfy demand could be interpreted from the perspective of technological capacity, financial capacity or other competences that enable the companies to meet demand.

Engineers thought the organisation lacked capacity – perhaps not from the point of view that they themselves lacked technological skills, but from the perspective that the organisation lacked the required modern technology. Engineers had the most negative attitude towards the organisation's capacity. They were followed by those with both engineering and business skills, while those with only business skills were neutral. Different attitudes towards technopreneurship are therefore evident.

Professional Specialisation and Capacity to Acquire New Technology

There was a significant relationship between specialisation and the companies' ability to acquire processing technology. More than expected, engineers responded with 'Not at all' and business-focused participants responded with 'Yes, to some extent' or 'Neutral'. This again implies different attitudes towards the ability of the organisations to acquire new food-processing technology. Differences in attitude towards the ability of organisations lead to a lack of harmony in the decision-making team and different support from different groups. Acquisition of new technology is a function of several factors, such as the organisation's financial position and the company's innovative personality. Engineering staff seemed to be sceptical about their companies' ability to acquire new food-processing technology, while business staff were optimistic. This is a matter of technopreneurial attitude.

The focus consequently returns to innovativeness and absorptive capacity. Once more, engineers seemed to be pessimistic about their companies' capacity to acquire new food-pro-

cessing technology, while business people were to some extent optimistic. The issue of technopreneurial personality seemed to play a big role in this case. Ahmetoglu (2015) indicated the following nine major entrepreneurial personality traits: emotional intelligence, core self-evaluation, locus of control, primary and secondary psychopathy, Machiavellianism, vocational interests, general mental ability, divergent thinking and relevant demographic variables.

In addition, Espiritu-Olmos and Sastre-Castillo (2015) concluded that personality traits influence entrepreneurial intentions more than work values, and therefore technopreneurial drive is determined by personality traits.

CONCLUSION

The study intended to determine the attitude of food processors towards technopreneurship, the feasibility of technopreneurship in light of their attitude and the relationship between professional specialisation and technopreneurial attitude as well as professional specialisation and feasibility of technopreneurship. Based on the findings and discussions, various conclusions were made, as discussed below.

Food-processing companies showed a positive attitude towards technopreneurship. The positive attitude towards technopreneurship did not automatically lead to technopreneurial behaviour. There seemed to be other intervening variables that influence technopreneurial attitude and technopreneurial behaviour. The participants from the food-processing companies had mostly positive attitudes towards the feasibility of technopreneurship in the food-processing sector; however, the positive attitude did not automatically lead to ideal technopreneurial behaviour.

There were different attitudes towards technopreneurship among employees from different areas of professional specialisation. Attitudes towards technopreneurship depended on whether the employee was trained in either business only, engineering only, both engineering and business or even in the other specified areas, such as information technology or supply chain, in which employees thought they were neither of the above.

There were different attitudes towards the feasibility of technopreneurship depending on the area of professional specialisation of the

employees of the companies in the food-processing sector. Attitude towards the feasibility of technopreneurship depended on whether the employee was business-only trained, engineering-only trained or both.

RECOMMENDATIONS

Technopreneurial attitudes are formed through acquired information; however, positive attitudes may not result in natural behaviour because of intervening variables, which is consistent with the attitude-behaviour gap theory. It is therefore recommended that acquired scientific knowledge be backed by an enabling environment if it should result in contribution to organisational performance and economic development. Therefore, educational attainments and a high literacy rate do not automatically result in high industrial performance and economic development. Developing countries should work on creating an enabling environment and incubators, partnerships between universities and food-processing companies and government support can contribute towards development. It could be helpful if the leaders were the ones with the technopreneurial attitude, as this could naturally lead to technopreneurial policies, which would lead to technopreneurial behaviour and economic development.

There are some direct managerial implications emerging from this study. Management should be able to deal with the technopreneurial attitude-behaviour gap. Industrial food-processing technopreneurs can enter into partnerships with universities so as to engage food technopreneurship students during their early stages of training, which would assist in bridging the attitude-behaviour gap. It is suggested that universities develop technopreneurship curricula so as to have university-industry partnerships. Such partnerships would enable technology transfers to people with the right attitudes and motives. This also brings in another player, namely government. Government has a role of creating an atmosphere that would be conducive to the establishment of such relationships and even the development of a technopreneurial culture within the environment.

Management could also create partnerships with other industrial food processors in other nations with advanced technologies or even lower technologies. Such a move would enable tech-

nology sourcing if positive attitudes are maintained and directed towards actions.

LIMITATIONS

The research was done in an industrial environment characterised by company closures, retrenchment and downsizing. This affected the response rate. However, the researcher adopted research techniques that led to a valid and reliable sample under the circumstances.

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