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Strategic foresight: Scenario planning for business development of the Indonesian Orchid Association (IOA), West Java, Indonesia

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Abstract

Agricultural businesses are often faced with uncertainty about the future, which can be both an opportunity and a threat to business development. This challenge is also faced by the Indonesian Orchid Association (IOA) West Java, Indonesia, which faces volatile, uncertain, complex, and ambiguous environmental conditions that are influenced by various factors such as political, economic, social, technological, legal, and environmental. This study aims to identify factors that influence business and formulate a business development strategy at the IOA West Java, based on strategic foresight. Data collection was carried out using interview techniques and a literature study. Respondents were selected using purposive sampling by considering their working experience and intervention in the development of the orchid business in West Java. It consists of eighteen business actors in IOA West Java, two employees of the Department of Food Crops and Horticulture West Java, and one researcher of the National Research and Innovation Agency. The results showed that the driving factors that most influence businesses are the role of IOA West Java and the application of tissue culture technology because it can support orchid production and increase competitiveness. Strategic foresight for the next 5 years is focused on increasing farmer competence, applying tissue culture technology, and building

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market certainty, for the next 10 years, it is focused on meeting domestic demand for orchids by at least 50%, and for the next 15 years, it is focused on business continuity and increasing competitiveness. In a wider context in Indonesia, as well as in other developing countries, strategic foresight can be applied to anticipate uncertainty and develop agricultural businesses gradually, both in terms of production, marketing, and the sustainability of the business and the commodities it cultivates.

Introduction

The orchid business in West Java, Indonesia, has great potential to be developed. This potential is shown by the high diversity of orchid species in West Java, which is a source of genetic material that can be utilized to develop a superior species (Boroduske *et al*., 2021). According to Comber (1990), there are 642 orchid species in West Java out of a total of 731 orchid species in Java. Not only is it rich in species diversity, but West Java also became the largest orchid production center in Indonesia in 2021, with total production reaching 4.84 million stalks (Statistics Indonesia, 2022). These potentials are also supported by consumer demand, which continues to increase along with developments in the tourism and property sectors, demands for environmental beauty, and increasing consumer income (Nurmaryam, 2011).

In running the orchid business, there is an organization that brings together business actors in West Java, namely the Indonesian Orchid Association (IOA). IOA West Java was officially established in January 2022, consisting of four IOA branches, namely Bandung City, Bandung Regency, West Bandung Regency, and Sumedang. Apart from bringing together orchid business actors, IOA West Java is also a forum for socializing with consumers and orchid enthusiasts, as well as a means to preserve Indonesian orchids. This is in accordance with the general objectives of the IOA, namely to advance the orchid business and increase public awareness of the preservation of Indonesian orchids.

The orchid business is inseparable from various problems. One of the problems faced is related to the threat of future uncertainty (Kononiuk *et al*., 2017). This uncertainty can come from various factors, including political, economic, social, technological, legal, and environmental factors (Rastogi, 2016). According to Sollosy (2013), future uncertainty can come from the availability of information and the actions of competitors who are always moving dynamically. Consequently, this uncertainty can be both an opportunity and a threat to business development because it can affect the

production time, production quantity (Hobday *et al*., 2016), stock inventory, production costs, and market performance (Singhry and Rahman, 2018). Therefore, knowledge and planning about the future are important so that business actors can adapt and deal with uncertain conditions (Rohrbeck and Shwarz, 2013; Rohrbeck *et al*., 2015). To solve this problem, this study aimed to identify factors that influence business and formulate a business development strategy at the IOA West Java, Indonesia, based on strategic foresight.

This study provides two significant contributions. First, this study provides information about the factors that influence the orchid business, especially at IOA West Java. Second, this study provides strategies that can be applied to facing the problems in the orchid business in West Java, both now and in the future. Thus, this study contributes to providing insight into the development of the orchid business in farmer organizations, especially in developing countries. In the next sections, the theoretical bases of strategic foresight and factors that influence business development will be explained more.

1. Background

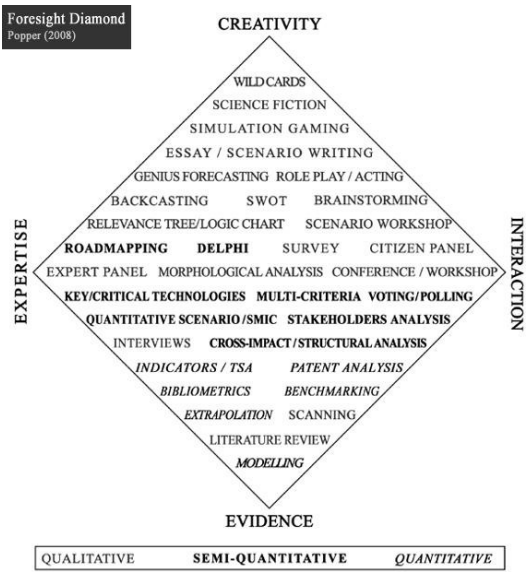
Strategic foresight

Strategic foresight is a method used to assist organizations in dealing with future uncertainties by exploring, interpreting, and responding to the factors that drive change, as well as creating the expected future of the organization (Said and Hellara, 2013; Rohrbeck and Schwarz, 2013; Iden *et al*., 2016; Yoon *et al*., 2018; Bootz, 2019). De Moor *et al*. (2014) and AGRIP (2018) further explain that strategic foresight can describe the future that might occur due to issues and policies currently developing. It makes organizations better prepared to face volatile, uncertain, complex, and ambiguous (VUCA) environmental conditions. Meanwhile, Kononiuk *et al*. (2017) explained that the strategic foresight can be used to strengthen market position, determine the direction of development and innovation, and identify potential threats and opportunities.

Previous studies show that the application of strategic foresight has been widely practiced in various sectors of global organizations. Several sectors that have implemented strategic foresight include technology-based companies (Sarpong and Maclean, 2014; Raford, 2014), government (Inayatullah, 2012), policing (Inayatullah, 2013), environment, agriculture (Inayatullah and Elouafi, 2014), education, and culture (Cook *et al*., 2014). Strategic foresight greatly assists the government and non- governmental organizations in making decisions to anticipate new challenges in the future, reduce risks, and develop the desired future (Cook *et al*., 2014).

Foresight analysis can be structured in several ways and combine a variety of methods. These methods are summarized by Popper (2008) in Foresight Diamond, which is a framework that categorizes various methods based on the type of knowledge source. These types of knowledge sources include creativity, expertise, interaction, and evidence (Figure 1). However, the fact is that no combination of methods is ideal. But the combination of these methods can provide comprehensive insights into various problems.

Figure 1 - Foresight diamond



Source: Popper (2008).

PESTLE analysis

PESTLE analysis is a strategic management tool for identifying and evaluating factors affecting business. It consists of political, economic, social, technological, legal, and environmental factors (Rastogi, 2016). Political factors related to government policies and state intervention that affect the organization environment. Economic factors related to economic conditions such as interest rates, inflation, and economic growth (Rastogi, 2016). Social factors related to the characteristics of a population, such as demography and culture (Hasanov and Mikayilov, 2017; Rastogi, 2016). Technological factors related to the process revolution and the application of technology to increase

competitiveness (Rastogi, 2016; Agyekum, 2020). Legal factors related to laws that regulate various aspects such as employment, export-import, etc. Environmental factors explain environmental conditions, for example, climate change, geographical conditions, and pollution (Rastogi, 2016).

In this study, IOA West Java also faced volatile, uncertain, complex, and ambiguous environmental conditions that were influenced by political, economic, social, technological, legal, and environmental factors. Volatile conditions, for example, occur in changing trends in ornamental plants and also in competitors who are always innovating. Uncertain environmental conditions occur in uncertain demand and production costs. Then, complex has meaning influenced by various factors, for example, world political conditions, changes in policy, and other factors that cannot be controlled. Last, ambiguous conditions can occur due to minimal information that can provide subjective views, for example, whether the application of technology can be carried out.

Each of these factors can drive or inhibit the development of a business. A good understanding of the factors that affect the business environment can reduce risks that may occur in the future through adaptation to various changes and capturing existing opportunities as a strategy to develop a business (Inayatullah, 2013; Rastogi and Trivedi, 2016; Shtal *et al*., 2018).

2. Materials and methods

Data Collection

This research was conducted in West Java, Indonesia, consisting of two cities, namely Bandung and Cimahi City, and six regencies, namely Bandung Regency, West Bandung Regency, Sumedang Regency, Subang Regency, Pangandaran Regency, and Bogor Regency. A qualitative descriptive approach is used to understand a phenomenon (Gehman *et al*., 2017), in this case regarding the factors that influence the development of the orchid business in IOA West Java. Identification includes driving and inhibiting factors using PESTLE analysis, consisting of political, economic, social, technological, legal, and environmental factors.

Data collection was carried out using a literature study and interview method with eighteen business actors in IOA West Java, two employees of the Department of Food Crops and Horticulture, West Java, and one researcher of the National Research and Innovation Agency. In detail, business actors in IOA West Java consist of six breeders, six farmers (two seedling farmers and four juvenile-adult farmers), and six traders.

Interviews with business actors include the characteristics of respondents and business activities ranging from the procurement of raw materials, production, distribution, marketing, and business constraints. Meanwhile, questions posed to stakeholders such as the chairman and board of the IOA, the Department of Food Crops and Horticulture, and researchers from the National Research and Innovation Agency included the characteristics of the respondents and the conditions of the orchid business in West Java, such as programs and policies regarding business development and preservation of orchids, business constraints, and plans or evaluations for further improvements. Interviews generally lasted one to two hours for each respondent. In detail, the characteristics of each respondent are presented in Tables 1 and 2.

The selection of the respondents was carried out using purposive sampling, namely the method of determining the sample subjectively by researchers based on certain considerations (Sharma, 2017). The criteria for business actors included members of IOA West Java and having at least one year's business experience. Business experience of at least one year is considered so that the activities, costs, and cooperative relationships have been clear. Meanwhile, the criteria for stakeholders are an expert and have an intervention in the development of the orchid business in West Java.

Table 1 - Characteristics of business actors in IOA West Java

Characteristics	Breeder	Farmer	Trader
Age (years)			
≤30	4	3	
31-40	2	1	2
41-50		1	2
>50		1	2
Last education			
Bachelor / Master / Doctor	6	6	6
Business experience (years)			
1-5	3	5	4
5-10	2	1	1
>10	1		1
Nature of business			
Primary	4	3	3
Side job	2	3	3

Table 2 - Characteristics of stakeholder respondents

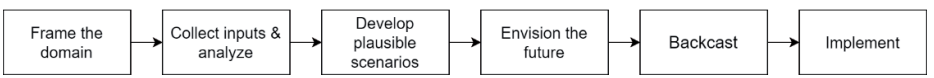
Position	**Working experience (years)**
Quality Supervisor of Agricultural Products, Department of Food Crops and Horticulture, West Java	8
Agricultural and Agribusiness Improvement Analyst, Department of Food Crops and Horticulture, West Java	3
Researchers of National Research and Innovation Agency (former researcher at Ornamental Crops Research Institute)	18

Data Analysis

Data analysis used strategic foresight, which consists of six steps as shown in Figure 2. The approach used to build scenarios is positive disruption, namely factors that have a positive impact on the organization (AGRIP, 2018). The assessment of positive factors, in this case, the business driving factors, using the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) methods. The weight value describes the level of importance of a factor with a value between 0.0 (not important) to 1.0 (very important), and the total weight is worth 1. Meanwhile, the rating describes the level of probability of a factor occurring in the future with a value between 1 (very low) to 4 (very high). Multiplication between weight and rating produces a score (Alamanda *et al*., 2019).

The assessment of weight and rating is subjective, so there is a potential for bias in obtaining results for further analysis. The potential for bias can produce irrelevant results for the orchid business development strategy. To reduce this bias, the researcher confirmed with the stakeholders because they have a big role in the development of the orchid business and are experts in their field.

Figure 2 - Six steps of foresight



Source: AGRIP (2018) - modification.

Two driving factors that have the highest score are combined into a plausible scenario diagram, and strategies are formulated to deal with each of the conditions encountered (Nugroho, 2016). After the plausible scenarios

have been formed, an organizational vision is determined that describes the desired future. Then, the organization carries out backcasting, which is the process of determining achievement targets and the steps needed to achieve these targets backward. Finally, the organization implements the strategies so that the desired business future can be realized (AGRIP, 2018).

3. Results and discussion

3.1. *Business inhibiting factors*

Inhibiting factors are factors that become a challenge for organization to be able to survive or develop in certain situations. Several factors inhibiting business at IOA West Java are:

1. Political: lack of diplomacy of the Indonesian government with the trading partner countries. This is indicated by regulations that require orchids from Indonesia that are exported to USA to be free from planting media, while orchids from Taiwan can enter USA along with the pots and planting media. In fact, orchids originating from Indonesia already have good quality standards (Directorate General of Horticulture, Indonesian Ministry of Agriculture, 2020).
2. Economic: limited capital of business actors in IOA West Java to develop their businesses. The findings of this study are in accordance with the results of Nugroho's research (2016), which found that financial factors inhibit the development of Micro, Small, and Medium Enterprises (MSMEs). In IOA West Java, it makes the business actors difficult to increase their production capacity and quality due to limited area and technology.

   From a global perspective, the war between Russia and Ukraine caused economic instability and inflation (Lim *et al*., 2022). Conflicts that occur can also cause the rupiah exchange rate to weaken and encourage investors to move their assets to safer investments (Iqbal *et al*., 2020). Indirectly, people are becoming more selective and prioritizing primary and secondary needs compared to tertiary needs such as buying ornamental plants.
3. Social: lack of knowledge and skills of IOA business actors in applying certain technologies, for example, tissue culture technology. This is due to limited capital, which makes it difficult for businesses to access technology and participate in training programs.
4. Technological: the application of tissue culture technology cannot be applied by business actors in IOA West Java. This is in accordance with Wisdya (2009), which states that tissue culture technology using meristem

parts, known as mericlone can only be applied in large industries such as Wilis Agro Lestari and Ekakarya Graha Flora Company. Meanwhile, breeders in IOA West Java generally still use in vitro culture using seeds from crossbreeding. The use of crossbreeding techniques causes a low level of plant uniformity, so that it does not meet industrial or export quality standards. As a result, most industries in Indonesia still buy seeds from imports, especially from Taiwan and Thailand. This is in accordance with data from the Center for Agricultural Data and Information Systems, Ministry of Agriculture Indonesia (2020), that the volume of orchid imports in Indonesia in 2015-2019 tends to increase at an average rate of 138.71% per year, or an average import volume of 102.84 thousand kg.

5. Legal: some business actors in IOA West Java do not have business legality yet. This is in accordance with Anggraeni's research (2021), which states that still many MSMEs that do not have business legality due to limited funds, difficulty in correspondence, and a lack of knowledge.
   Another legal inhibiting factor is the difficulty in obtaining export permits, especially from the Department of Natural Resources Conservation, because orchids are a protected commodity in Indonesia. Orchid protection is necessary because various rare orchid varieties are often unsustainably harvested, thus threatening the sustainability of the orchids (Hinsley, 2018). Orchids are also a horticultural commodity that is often smuggled or traded illegally in various countries (Hinsley *et al*., 2017).
6. Environmental: unpredictable weather will affect the time of cultivation. It has an impact on additional operational costs. Weather conditions also affect the increased risk of pests and diseases, so the quality of orchids decreases. This is in accordance with Kirillova and Kirillov's research (2020), which shows that weather conditions affect plant growth and development, such as plant size, flowering, seed production, and the number of young plants. Meanwhile, De and Medhi (2014) and Harvey *et al*. (2018) explain that weather conditions have an impact on increasing pests and diseases and the income earned by farmers. In addition, climate change can also accelerate plant extinctions in Indonesia. This problem is exacerbated by habitat destruction and illegal hunting, where currently, around 437 plant species in Indonesia are categorized as endangered (Restanto et al., 2016; Widiatmoko, 2017). The risk of extinction of orchids tends to be greater because they depend on other organisms such as mycorrhizal fungi, pollinators, and host trees, which are also influenced by habitat and climatic conditions (Fay, 2018). This is a big problem in the orchid business because it can reduce the diversity of orchid species, which are a source of germplasm to obtain superior species.

3.2. *Business driving factors*

Driving factors are factors that support the company to change in a better direction. Some of the factors that drive business at IOA West Java are:

1. Political: the Indonesian Ministry of Agriculture encourage exports of agricultural products, increases added value, and increases competitiveness through the Threefold Export Movement in 2020-2024 (Directorate General of Horticulture, 2019 in the Center for Agricultural Data and Information Systems, Indonesian Ministry of Agriculture, 2020).
2. Economic: in 2022, economic growth in West Java reached 5.45%. This value is greater than the economic growth in Indonesia of 5.31%. West Java's economic growth in 2023 will be supported by increased domestic demand, high investment potential, and maintained industrial sector performance (Tribunnews Jabar, 2023). Good economic growth is an indicator of people's welfare in West Java, thus supporting the orchid business to continue to grow.

   In starting or developing a business, the government also offers People's Business Credit as a source of capital for business actors (Nurmaryam, 2011). This can be utilized by business actors in the IOA West Java to overcome capital limitations.

   From a global perspective, orchids are one of the best-selling horticultural crops in international trade. This is because orchids have many uses, such as ornamental plants, medicines, and rituals (Hinsley *et al.*, 2018). This makes the orchid a promising business because it has high economic value.
3. Social: increasing consumer demand due to the change in public perception. According to Nurmaryam (2011), an increase in consumer demand for ornamental plants is driven by an increase in average education and changes in lifestyle that are increasingly concerned about health, beauty, and environmental sustainability, as well as their increasingly diverse uses, for example, weddings, ceremonies, religious activities, and congratulations. Likewise, orchids are currently becoming increasingly popular, both as potted plants and as collections of rare plant varieties (Williams *et al*., 2018).

   In addition, the existence of IOA West Java also plays an important role in business actors developing their businesses. Business actors can socialize, learn, and expand marketing access. Thus, IOA have contributed to the progress of the orchid business in West Java.
4. Technological: the use of communication technologies such as WhatsApp, Facebook, and Instagram to support the promotion and marketing of orchids. In terms of production, the existence of in vitro culture technology in Indonesia greatly supports the process of propagating orchid plants while maintaining genetic variability (Utami and Hariyanto, 2019). In

addition, the Indonesian Ornamental Plants Research Institute has also developed bioreactor technology. According to one of the National Research and Innovation Agency researchers who previously researched at the Ornamental Plants Research Institute, the application of bioreactor technology can increase the production of *Dendrobium* sp. This is due to the better absorption of nutrients, oxygen availability, and cell division, so that a greater number of orchids can be obtained in a shorter time.

5. Legal: ease of business licensing with the One Stop Service, which simplifies business licensing procedures, waives of licensing fees for micro enterprises, and relieves licensing fees for small enterprises (Marlinah, 2020).
6. Environmental: environmental conditions in West Java are suitable for orchid cultivation. West Java has a tropical climate with an average temperature of 25-30^{o}C (Geografi.org, 2022). Areas with an average temperature that tends to be high, such as in Ciranjang, Cianjur Regency, are suitable for growing *Phalaenopsis* sp. Meanwhile, areas with relatively cool temperatures are suitable for the flowering of *Phalaenopsis* sp., for example, in Ciwidey and Lembang.
   West Java also has a high diversity of orchid species. According to Comber (1990), West Java has 642 species of orchids out of the 731 species of orchids in Java. High species diversity can be used as a source of germplasm to assemble superior varieties.

3.3. *Business driving factor evaluation*

Based on business driving factor analysis, the two driving factors with the highest scores are the role of IOA West Java and the application of tissue culture technology, with each score of 0.35 (Table 3). The higher score indicates that the factor is considered more important and the possibility of its occurrence in the future is stronger.

The existence of IOA West Java is considered important because IOA has become a means for business actors and orchid enthusiast to connect with each other. The relationships that are formed are not only a means for socializing but also create the flow of information, products, and finances through transaction processes, training, and other activities. This provides benefits for both parties. Businesses can sell their products directly to consumers, while consumers can easily obtain products and information about orchids. On the other hand, programs held by IOA, such as exhibitions, are an opportunity for business actors to expand their marketing networks and increase their business existence. This is in accordance with Ansharullah's research (2021), which explained that IOA has an important

Table 3 - Business driving factor evaluation of IOA West Java

No	Driving factor	Weight	Rating	Score
1	Threefold Export Movement	0.10	2	0.20
2	Economic growth in West Java	0.10	3	0.29
3	People's Business Credit	0.08	3	0.24
4	Public perception	0.10	3	0.29
5	Role of IOA West Java	0.12	3	0.35
6	Communication technologies	0.10	3	0.29
7	Tissue culture technology	0.12	3	0.35
8	One stop service	0.10	3	0.29
9	Suitable climate	0.10	3	0.29
10	High diversity of orchid species	0.10	3	0.29
	Total	**1.00**		**2.90**

role for orchid business actors, starting from procuring production materials such as seeds, fertilizers, pesticides, and planting media, increasing production and competitiveness through training programs, and improving marketing performance through information on prices, markets, and holding exhibitions.

The technology driving factor, namely the application of tissue culture, is also considered important because it is able to support the production of orchids in large quantities, in a shorter time, and with a high level of uniformity. This is in accordance with the research of Khatun *et al*. (2020), who found that the application of tissue culture is able to produce plants with a high level of uniformity with a maximum variation of 10%. Through the application of this technology, it is hoped that orchid business actors at IOA West Java will be able to produce a certain number of orchids continuously with quality that meets industry and export standards.

These two factors have a mutually supportive relationship. The existence of IOA West Java can act as a facilitator for connecting with certain parties in order to access tissue culture technology. Meanwhile, tissue culture technology is a way to increase orchid production, both in quantity and quality. This provides an opportunity for business actors in IOA to become competitive producers.

Although these two factors are considered very important and most likely to occur, to achieve them, there are several challenges that must be faced. In maximizing the function of IOA, the challenges faced are

how the organization can manage its resources as well as possible and how its members participate. Meanwhile, to be able to apply tissue culture technology, sufficient capital is required and collaboration with related parties for the procurement of tools and materials as well as attending training. This is a challenge for IOA West Java, considering that limited capital is one of the inhibiting factors, and optimizing the organization is also important because this organization is relatively new and still developing.

3.4. *Plausible scenarios*

The two business driving factors with the highest scores are combined into a plausible scenario diagram as presented in Table 4.

Table 4 - Plausible Scenarios of IOA West Java Business Development

	Application of tissue culture	**Tissue culture has not been applied**
Big role of IOA West Java	Scenario I Application of tissue culture and big role of IOA West Java	Scenario II Tissue culture has not been applied and big role of IOA West Java
Low role of IOA West Java	Scenario IV Application of tissue culture and low role of IOA West Java	Scenario III Tissue culture has not been applied and low role of IOA West Java

Scenario I describe a future with a positive business climate with the support of IOA West Java and the application of tissue culture technology. In this scenario, IOA has a role as a forum for socializing and advancing the orchid business through various programs such as training, exhibitions, partner expansion, etc. Meanwhile, the application of tissue culture has a positive influence on orchid production. Gradually, it is hoped that local orchid production can replace imported supplies and increase exports to various countries. Directions for scenario I are focused on cooperation and collaboration with various parties, such as research institutions, academics, the government, and industry, to support innovation and expand marketing networks. In addition, IOA must be able to manage its funds and human resources as well as possible so that it can reduce the risk of loss, especially at the beginning of the application of tissue culture technology, which may still encounter various obstacles with a high failure rate. Last, IOA can

segment the business according to the potential of each region so it can run effectively.

Scenario II describes the future of the business with orchid production, which is not yet optimal because the application of tissue culture technology cannot be implemented. Until now, the production of orchids in IOA West Java generally still uses crossbreeding techniques and in vitro culture using seeds, which produce orchids with a low level of uniformity. The main factor that becomes an obstacle in the application of tissue culture technology is the limited funds for the procurement of technology and training. On the other hand, IOA has a positive influence on improving the quality of its members and expanding its marketing network. Directions for scenario II are focused on increasing collaboration with the government and other parties in obtaining capital assistance, facilities and infrastructure, and other facilities. Furthermore, IOA must be able to move independently by focusing on programs to obtain funds used to finance organization needs, one of them is to apply tissue culture technology.

Scenario III describes a difficult business future due to the low role of IOA West Java and the tissue culture technology has not been applied. Basically, the role of organization is very important, especially for small-scale business actors. Various problems such as lack of knowledge and skills, limited funds, low application of technology, and a lack of marketing networks make it more difficult for business actors to develop their businesses and can even cause business setbacks because they cannot compete with other business actors, especially imports. The directions for scenario III are focused on strengthening IOA by unifying the visions of orchid business actors in West Java. With the same vision, it is hoped that business actors can unite to advance the orchid business in West Java. In addition, the commitment and cohesiveness of members are also required, which can be realized by increasing member participation in various programs and in decision-making.

Scenario IV describes the future of business where the organization role of IOA West Java is low but tissue culture technology can already be applied. The vision to move forward and an attitude that is open to change, including responding to the existence of technology, are driving forces for business actors to increase knowledge and skills, one of which is through the application of tissue culture technology. However, the low role of IOA can cause various problems, for example, the application of tissue culture is not optimal because the quality of human resources is still low and the risk of production failure is high. In addition, the marketing reach is also limited, so the products produced are not optimally absorbed by the market. This situation can cause business setbacks and even business death due to slow capital turnover and large losses. The directions for scenario IV are focused on strengthening the role of IOA West Java so that they can

minimize the risk of loss and strengthen business positions through training programs, cooperation, and collaboration with other parties. On the other hand, the application of tissue culture technology that has been carried out should continue to be developed to obtain optimal results. Through the IOA, knowledge and skills in the application of tissue culture are distributed so that farmers can unite to produce orchids in order to meet market demand.

3.5. *Strategic foresight*

Based on the formulation of the scenarios that have been carried out, one scenario has been selected for the vision of the business at IOA West Java in the next 15 years, namely scenario I. In this scenario, the role of IOA West Java is very large to support the development of the orchid business, and tissue culture technology has been applied. Medium to long-term planning (5-15 years) was chosen because it can cover overall business opportunities and risks with relatively long use (Ruff, 2014). In order to achieve this vision, a backcasting process is carried out.

For the next 15 years, the goal to be achieved is business continuity and becoming a competitive business actor. To achieve this goal, the strategies undertaken include (1) encouraging new members to join and maintain cohesiveness, (2) network expansion, (3) research and innovation, and (4) maintaining product quality. For the next 10 years, the main goal to be achieved is to produce orchids to meet 50% of domestic demand. The strategies undertaken include (1) research and innovation, (2) maintaining product quality, and (3) optimizing human resources and technology applications. For the next 5 years, the goals to be achieved are implementing tissue culture technology, increasing the competence of business actors, building market certainty, meeting the needs of members, and preserving orchids. Some of the strategies undertaken are (1) collaboration with industry, research institutions, and other agencies to promote training and marketing, (2) training and applying peer-to-peer learning, (3) administering business legality, (4) establishing a cooperative unit, and (5) collaboration with the Department of Forestry to build an arboretum.

Based on the type, these strategies can be divided into two categories namely technical strategies and managerial strategies. Technical strategy relates to the company's main activities, such as production processes, product development, and the use of technology, while managerial strategy relates to functional matters such as human resource management and sales (Lech, 2014; Gomes *et al*., 2018).

Some of the technical strategies implemented to support orchid production include encouraging training programs, applying peer-to-peer learning,

developing research, and innovation. The concept of peer-to-peer learning was chosen because it can minimize costs and is effective in increasing and leveling out the competence of members. In this case, it is enough for the IOA to involve some of its members in training. Then members who have acquired the knowledge and skills can disseminate them to other members so that the use of costs and dissemination of information can run efficiently. This is in accordance with the research of Hilsdon (2014) and Nelwati *et al*. (2018), which found that the application of peer learning is able to advance members together through increased active participation and motivation.

Meanwhile, the managerial strategy for institutional strengthening and development is carried out by maintaining the cohesiveness of members, encouraging new members to join, establishing good relations with various parties, and forming a cooperative unit. Fischer and Qaim (2014) explained that several factors that affect membership interest and the intensity of member participation are institutional characteristics such as objectives, structure, and applicable rules; membership fees; benefits obtained by members; and individual characteristics such as social, economic, and attitude factors. In Ofuoku (2013), it is further explained regarding the individual characteristics that influence the interest of farmers to join as members of a farmer group, namely marital status, level of education, household size, farming scale, farming experience, extension contact, and relationships with other farmers. Based on this explanation, it is necessary to periodically evaluate and communicate effectively so that the IOA can continue to develop and properly accommodate the various needs of its members. This effectiveness can be reviewed based on the quality of information, amount of information, and member satisfaction (Gandasari *et al*., 2015). In addition, the formation of a cooperative unit is important to support the development of the organization and meet the needs of its members. This is in accordance with the research of Arifandy *et al*. (2020), which shows that cooperative units have an important role as providers of capital in the form of savings and loan activities, providers of facilities, facilitators in establishing relationships and collaboration with external parties, and assist in increasing the income of their members.

To protect the diversity of orchid species, a managerial strategy is applied, namely to conserve and protect ecosystems and use them in a sustainable manner (Safe'i *et al*., 2021). One of the strategies undertaken by IOA West Java is to create an arboretum in collaboration with the Department of Forestry. According to Harum and Moestrup (2014), an arboretum is an area that is overgrown with plants for the purpose of preservation, education, research, or recreation. In the future, the arboretum will not only be a means of preserving orchids in Indonesia but also a source of germplasm for the development of the orchid industry in Indonesia, especially in West Java.

Orchid preservation can run more optimally with the participation of the government to minimize activities related to habitat destruction as well as illegal harvesting and trading. To address this issue, Hinsley *et al*. (2018) summarizes several things that need to be done, namely regulating and documenting the harvest and trade of orchids, supporting the legal trade, preventing illegal trade, and elevating the significance of the orchid trade among policy makers, conservationists, and the public.

Conclusions

Based on the research findings, it can be concluded that the driving factor that is considered the most important and likely to occur, as well as the vision for the next 15 years, is the big role of IOA West Java and the application of tissue culture technology. Strategic foresight for the next 5 years is focused on increasing farmer competence, applying tissue culture technology, and building market certainty, for the next 10 years, it is focused on meeting domestic demand for orchids by at least 50%, and for the next 15 years, it is focused on business continuity and increasing competitiveness.

Research on strategic foresight is still very limited, so it needs to be further developed by combining various methods in order to provide a more valid and relevant strategy to be applied in the future. Various information in this research also need to be deepened to provide more comprehensive information. Suggestions for further research should be able to study the application of tissue culture technology in more detail, starting from costs, input requirements, processes, parties providing training programs, etc. Other issues, such as consumer preferences and the difficulty of obtaining export permits, can also be further investigated, thus opening up opportunities for orchid business actors in Indonesia to increase and expand their marketing network to export.

A practical recommendation for orchid business actors and IOA West Java is to collaborate with research institutions in developing an effective production technology, for example, by comparing tissue culture technology with bioreactors that have been developed by the Ornamental Plant Research Institute. This can be an alternative solution to increasing the quantity and quality of orchid as well as reducing production costs.

For the government, the recommendations given are to monitor and document the production and trade of orchids, as well as facilitate export permits to support legal trade and suppress illegal trade. The government should also establish good diplomatic relations with trading partner countries and assist in expanding marketing networks. If possible, the government can create a training program and help procure facilities and infrastructure for the development of the orchid business.

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