

An Entrepreneurial Approach to Operational Excellence and Welfare for Indonesia's Fishermen

Gunardi Prakosa & Elliot Simangunsong

School of Business and Economic, Universitas Prasetya Mulya, Cilandak Campus,
Jl. R.A. Kartini, Cilandak Barat, Kec. Cilandak, Kota Jakarta Selatan, Jakarta 12430, Indonesia

ARTICLE INFO	ABSTRACT
<p>Keywords: Operational Excellence, Entrepreneurial Approaches, Fisheries, Fishermen's Welfare, Indonesia.</p> <p>Kata Kunci: <i>Keunggulan Operasional, Pendekatan Kewirausahaan, Perikanan, Kesejahteraan Nelayan, Indonesia.</i></p>	<p>This study investigates the relationship between operational excellence through entrepreneurial approaches and fishermen's welfare in East Java, Indonesia. Using quantitative analysis of data collected from 195 fishermen, the research examines how creativity, innovation, opportunity recognition, and risk-taking influence welfare outcomes. Multiple regression analysis revealed that operational excellence significantly predicts fishermen's welfare, with creativity, innovation, and risk-taking emerging as significant predictors. The findings demonstrate that fostering entrepreneurial traits among fishermen can lead to improved operational excellence and enhanced welfare outcomes. This study contributes to the literature by highlighting the importance of entrepreneurial approaches in traditional sectors and provides practical implications for policymakers and fishing industry stakeholders seeking to improve fishermen's socioeconomic conditions through operational excellence initiatives.</p>
<p>Corresponding author: Elliot Simangunsong elliot@pmb.ac.id</p>	<p>SARI PATI</p> <p><i>Studi ini menyelidiki hubungan antara keunggulan operasional melalui pendekatan kewirausahaan dan kesejahteraan nelayan di Jawa Timur, Indonesia. Dengan menggunakan analisis kuantitatif data yang dikumpulkan dari 195 nelayan, penelitian ini meneliti bagaimana kreativitas, inovasi, pengenalan peluang, dan pengambilan risiko mempengaruhi hasil kesejahteraan. Analisis regresi berganda mengungkapkan bahwa keunggulan operasional secara signifikan memprediksi kesejahteraan nelayan, dengan kreativitas, inovasi, dan pengambilan risiko muncul sebagai prediktor signifikan. Temuan menunjukkan bahwa menumbuhkan sifat kewirausahaan di kalangan nelayan dapat mengarah pada peningkatan keunggulan operasional dan peningkatan hasil kesejahteraan. Studi ini berkontribusi pada literatur dengan menyoroti pentingnya pendekatan kewirausahaan di sektor tradisional dan memberikan implikasi praktis bagi pembuat kebijakan dan pemangku kepentingan industri perikanan yang berupaya meningkatkan kondisi sosial ekonomi nelayan melalui inisiatif keunggulan operasional.</i></p>
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INTRODUCTION

With an abundance of potential of Indonesian marine fish resource, which amounts 12.01 ton per year and distributed over all Indonesia waters (Kementerian Kelautan dan Perikanan, 2022, 2023), therefore it is a good site for about 1,059,818 fishermen (Kementerian Kelautan dan Perikanan, 2023) living on about 12,510 coastal areas or fishing villages as of in 2022 (Badan Pusat Statistik, 2022). However, according to data from the Indonesian fishery sector, the poverty of them is still quite a lot, there are still 744,000 people who are poor (BPS-Statistics Indonesia, 2018).

Studies point to various views on the origin of fishermen's poverty, whether they are due to the natural factors and level of exploitation, or social and institutional instruments (Béné et al., 2016). Zulu et al. (Zulu et al., 2023) claim that the entrepreneurial approach carried out in several countries, among which South Africa, greatly lowers poverty. Based on these studies, it is reasonable to suggest that fishermen can enhance several aspects of their welfare, i.e., increased income, stability and opportunity, by developing and applying entrepreneurial skills to operational excellence. However, empirical research would be needed to validate the impacts and strength of relationships. One such instance is Indonesia, where there has been a continuous history of poverty among fishermen, making its implementation in the country challenging. Therefore, it is necessary to test whether operational excellence through entrepreneurial approach is possible to upgrade the welfare of fishermen.

Fishing associations or cooperatives are part of the entrepreneurship culture among Indonesian fishermen. Unfortunately, these efforts rarely prove to deliver the intended level of effectiveness in terms of generating sustainable benefits (Radhi, 2023). Related to ecological and environmental factors, this affects cultural factors, resulting in a large dependence on human resources. Therefore, the role of operational excellence is important (Sony,

2019). Previous studies have shown operational excellence's applicability in different industries to enhance competitiveness and productivity as well as leading consistent and reliable operations (Sreedharan V. et al., 2018). This is critical in the entrepreneurial ecosystem to facilitate supply chain operations in the best possible way. Operational excellence-based entrepreneurship could be a potential solution to improve fishermen's welfare and poverty.

The need to discover new solutions for the poverty of fishermen is considered as the driving force for this research, with the assumption that operational excellence can be achieved by the use of entrepreneurial strategies or mindsets. Previous research (Ahmed et al., 2021; Béné et al., 2016) suggests that the use of operational excellence research to alleviate fishermen's poverty still requires improvement. Poverty has not been studied as a standalone concept, instead it has been predominately studied alongside other concepts aimed at understanding poverty's causes, meanings, and consequences (Jentoft et al., 2018). Previous studies have suggested the dimensions of entrepreneurial approach, like Creativity (Kuratko et al., 2021; Kyurova, 2020; Stammerjohan et al., 2019), Opportunity Recognition (Filser et al., 2023; Kuratko et al., 2021; Sutanto et al., 2021), Innovation (Farinha et al., 2018; Sutanto et al., 2021), and Risk-Taking (Kuratko et al., 2021; Sutanto et al., 2021). These variables describe the operations-based approach to entrepreneurship. Hence, the main objective of this study is to test the hypothesis that these entrepreneurial approaches, particularly one related to the area of operational excellence, can constitute a novel solution towards alleviating fishermen's poverty and enhancing their welfare.

LITERATURE REVIEW

Fishermen are key to national food security (FAO, 2021). For that reason, gaining insight into fishermen's thoughts and living is a key component to understanding what motivates and how fishermen respond to opportunities. Implementation

of entrepreneurial skills that focus on operational excellence can increase fishermen's productivity and welfare (Dixon et al., 2021; Neill et al., 2017). It is a holistic approach that integrates operations management ways and optimizes individuals, assets and processes within an enterprise (Manchidi, 2023), which can lead to operational excellence (Caton, 2019) study finds that every human action has an entrepreneurial element, and starting a business is full of challenges such as bureaucratic complexity, absence of managerial skills, and limited access to resources and money. Government support is also a major problem that poses serious challenges to the development of fishermen as entrepreneurs (Zulu et al., 2023).

Fishermen with economic awareness on the sea are different from those who see the sea just as a source of daily needs. The entrepreneurship theory by Covin and Slevin (Covin & Slevin, 1991) suggests that the measurement of entrepreneurial effectiveness is related to the company's performance in terms of risk-taking, innovation and opportunity recognition. Further research includes cognitive processes, individual inspiration, decision making, and adaptation to business climate changes as the fourth dimension of entrepreneurship (Farinha et al., 2018; Filser et al., 2023; Kuratko et al., 2021; Kyurova, 2020; Stammerjohan et al., 2019; Sutanto et al., 2021). For example, fishermen can leverage social media for marketing; utilize the social media as a new stepping stone for entrepreneurship when facing business climate changes (Cantino et al., 2017; Simangunsong & Handoko, 2020). Basics such as creativity and innovation are necessary to generate new ways of developing new strategies and operations by becoming more effective and efficient (Josh, 2024). Entrepreneurs who are good at innovating both in terms of their offerings and operations ends up doing well — they are more efficient, save costs, and maintain high standards of quality.

The entrepreneurs who risk-taking and opportunity recognition perform better as compared to those

who perform at a lower level (Ratanavanich & Charoensukmongkol, 2023). The basic rule was raising operational excellence by identifying opportunities and taking calculated risks. These capabilities allow organizations to respond to the changing environment, and take advantage of opportunities in new markets (Sunder M & Linderman, 2024). Most of the fishermen do not adapt to the global changes and, thus, cannot make an improvement in operational performance, at least, despite the study carried out in Ambon, Maluku (Gainau et al., 2023). They lack innovation, promotion, which prevent their competitiveness and welfare.

Operational excellence is an important element that influences entrepreneurial ventures' economic growth, capability, and competitive advantage they may achieve. Research indicates that operational excellence is a vital piece of competitive success, but the use of it in entrepreneurial ventures, such as lean operations, remains few and rare (Sanasi et al., 2019; Waleed A. M, Al-Garadi & Satyaprem Ghumre, 2023). The ambidextrous organizations and entrepreneurial ventures (Gaiardelli & Songini, 2021) areas of flexibility and innovation could be further improved by using an entrepreneurial approach that includes merging operational excellence.

The application of operational excellence to fishermen through entrepreneurship is still lacking in research. It is also necessary to further investigate how fishermen become poor. Poverty is an economic failure and an important factor in whether the welfare of the population is better (Badan Pusat Statistik, 2022). Welfare according to (Risse, 2015) is not limited to material, but also to social and environmental aspects. This study use the Indonesian Central Bureau of Statistics standard for eight areas of welfare which cover many aspects of life (Badan Pusat Statistik, 2022).

Despite efforts to decrease poverty through empowerment (Courtney et al., 2017; Mirza,

2022), and economic diversification, improving welfare for fishermen has not lessened. Often, a determining factor for operational excellence through entrepreneurial approach, means exploring creativity, innovation, opportunity recognition and risk-taking. Previous studies have reported a positive relationship between the entrepreneurial approach and entrepreneurial motivation as well to improve company performance. High entrepreneurial and innovative people with good entrepreneurial ideas can be developed to be entrepreneurial leaders and become successful companies (Rodríguez-Aceves et al., 2019; Siraj et al., 2018; Sutanto et al., 2021; Tih et al., 2019). Similarly, entrepreneurs who recognise opportunity are more likely to set up higher performing companies (Rodríguez-Aceves et al., 2019). The influence of operational excellence on fishermen welfare depends entirely on the degree, to which fishermen consider entrepreneurship as essential. Therefore, this study formulates the hypothesis:

H1: An operational excellence through entrepreneurial approach can positively help improve the welfare of fishermen.

The hypotheses assume that at least to some extent, improving operational excellence of fishermen through an entrepreneurial approach would positively affect the welfare of the fishermen.

METHODS

This research is an empirical study which uses a quantitative approach. The main research instrument is a structured questionnaire designed to obtain data from the research variables, namely: operational excellence through the entrepreneurial approach and fishermen's welfare. Operational excellence is measured based on four dimensions. These are Creativity, Innovation, Opportunity Recognition and Risk-taking.

Meanwhile, eight indicators from the Indonesian Central Bureau of Statistics—Population, Health and Nutrition, Education, Employment, Consumption

Level and Pattern, Housing and Environment, Poverty, and Other Social Aspects—measure fishermen's welfare. These were assessed with a seven-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree). Fishermen's Welfare was represented by a composite score, calculated as the average of the eight indicator scores, and used as the dependent variable in regression analysis. The questionnaire included 17 items measured on a seven-point scale and demographic questions. It was distributed to all fishermen in East Java. Purposive sampling targeted active fishermen willing to participate.

Supplementary data from secondary sources are also collected to identify, investigate, and describe the correlations between the variables set forth in this study. Memos, press releases, media articles are some of these secondary data sources. Simultaneous data collection methods (triangulation) are used to increase the validity of the research. The complete research stages consist of:

1. Literature review: literature on operational excellence, the entrepreneurial approach and fishermen's welfare.
2. Instrument preparation: structured questionnaire development.
3. Instrument testing: validity and reliability of questionnaire are pilot tested on small sample.
4. Data collection: questionnaire distributed to fishermen in East Java.
5. Data analysis: testing of the research hypothesis with analytical data.
6. Report preparation: compiling the research report containing the research results and conclusions.

The primary technique of data analysis in the study is multiple regression analysis with SPSS. This method was used to explore further the specific components of operational excellence that improve fishermen's welfare. This regression analysis gives rise to the simultaneous study of the effect of multiple independent variables on dependent

variables and finds comprehensive knowledge of the relationship between variables.

RESULTS AND DISCUSSION

Result

The respondent profile as shown in Table 1 shows a fishing community consisting mostly of middle-aged, experienced fishermen, with basic education, varying levels of monthly expenditure, and high levels of home ownership.

Respondents' experience as fishermen varies significantly. The most common category is more than 24 years of experience, representing 31.8% of the sample and only 1.5% of respondents have 0-2 years of experience, indicating that the respondents of this study are generally experienced fishermen. By analyzing the data of these respondents' experience in fishing work, we can conclude a trend that the fishing industry is mainly supported by older and more experienced fishermen.

It is possible that young fishermen tend to move to other jobs. This may be due to welfare issues as fishermen that encourage these young fishermen to look for better jobs in other fields. This is reinforced by the educational background of the respondents where most of the experienced fishermen only have basic education. More than 60% of respondents only completed elementary school or lower. Only

12.8% have completed high school and none of the respondents have continued their education to higher education (University).

This data can explain why fishermen maintain their work profession because they do not have the opportunity to get better jobs due to their low educational background. On the other hand, this explains why only a small proportion of respondents are young fishermen because it is possible that young fishermen who have better education have a higher chance of moving to work in other sectors that provide better welfare. Education seems to have a relationship with fishermen's welfare. For example, there are no fishermen who graduated from high school whose monthly expenditure is less than IDR 1,250,000, while 9% of fishermen with elementary education (SD) have monthly expenditures of less than IDR 1,250,000 (an indicator of poor families). The majority of respondents own their homes. 79.7% have privately owned houses. 16.5% live in houses inherited from parents. Very few rent or have other living arrangements.

This study investigated the relationship between operational excellence through an entrepreneurial approach and the welfare of fishermen in East Java, Indonesia. Accordingly, we hypothesized that improving fishermen's welfare by an entrepreneurial operations excellence approach based on creativity,

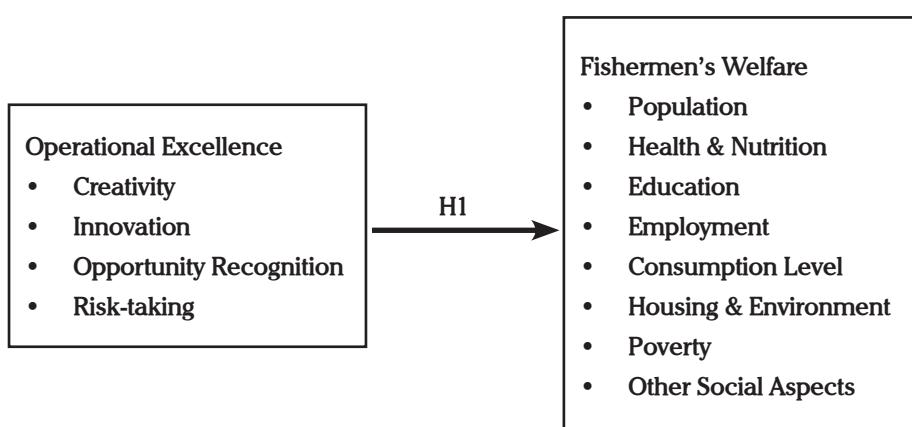


Figure 1. Research Framework

innovation, opportunity recognition and taking risk would be positively related. To test this hypothesis, we conducted a quantitative quantitative study where the structured questionnaire was given to fishermen in East Java. Having cleaned the data we had 195 valid cases and they had a Cronbach's Alpha of 0.850 for variables.

An exploratory factor analysis was conducted to understand the underlying relationships between operational excellence and fishermen's welfare in East Java. The analysis confirmed the suitability of the data. The Kaiser-Meyer-Olkin (KMO) value was 0.857, indicating high sampling adequacy, as it exceeds the 0.6 threshold. Bartlett's Test of

Table 1. General Profile of Respondents

Age	n	%	Duration of fishing work	n	%
<25 Years Old	18	9.3	0 - 2 Tahun	3	1.5
25-29 Years Old	14	7.3	3 - 5 Tahun	21	10.8
30-34 Years Old	33	17.1	6 - 8 Tahun	18	9.2
35-39 Years Old	24	12.4	9 - 11 Tahun	25	12.8
40-44 Years Old	27	14.0	12 - 14 Tahun	14	7.2
45-49 Years Old	24	12.4	15 - 17 Tahun	15	7.7
50-54 Years Old	22	11.4	18 - 20 Tahun	29	14.9
55-60 Years Old	16	8.3	21 - 23 Tahun	8	4.1
>60 Years Old	15	7.8	> 24 Tahun	62	31.8
Total	193	100.0	Total	195	100.0

Education	n	%	Monthly spending	n	%
Did not finish elementary school	17	8.7	< 750000	2	1.1
Finished elementary school	104	53.3	750.000 - 1.000.000	4	2.2
Didn't finish junior high school	8	4.1	1.000.001 - 1.250.000	8	4.4
Finished junior high school	41	21.0	1.250.001 - 1.500.000	12	6.6
Finished high school	25	12.8	1.500.001 - 1.750.000	23	12.7
Total	195	100.0	1.750.001 - 2.000.000	34	18.8
			2.000.001 - 2.250.000	12	6.6
			2.250.001 - 2.500.000	33	18.2
			> 2.500.000	53	29.3
HOUSE STATUS	n	%	Total	181	100.0
Privately Owned	145	79.7			
Parents' Inheritance	30	16.5			
Yearly Contract	2	1.1			
Daily/Monthly Rent	1	.5			
Free Rent Owned by Siblings	4	2.2			
Total	182	100.0			

measuring creativity, innovation, opportunity recognition and risk-taking. The values of this component, exceeding the standard scale of 0.7, shows that these four components are highly consistent internally and constitute a valid measure of operational excellence in the entrepreneurial context.

Sphericity was significant ($p < 0.001$), affirming the factorability of the correlation matrix. Three distinct factors were identified, with the components of operational excellence loading primarily onto two: creativity & innovation and opportunity & risk-taking. This suggests that operational excellence may be a multi-dimensional concept with varying influences on fishermen's welfare.

To further analyze the relationship between Operational Excellence (OE) and Fishermen's Welfare (FW), composite scores for each construct were created by averaging the individual variable scores. The mean scores were 5.8968 for OE and 5.7934 for FW, indicating relatively high levels of

both constructs among the surveyed fishermen. A Pearson correlation analysis revealed a strong positive relationship between OE and FW, with a coefficient of 0.644 (significant at $p < 0.01$). This suggests that as operational excellence increases, fishermen's welfare also tends to improve.

To delve deeper into the specific components of operational excellence that contribute to fishermen's welfare, a multiple regression analysis was conducted. The dependent variable was the composite score for fishermen's welfare, while the independent variables included creativity, innovation, risk-taking, and opportunity recognition.

The model demonstrated a good fit, explaining 42.3% of the variance in fishermen's welfare ($R^2 = 0.423$, $F = 34.128$, $p < 0.001$). This supports the hypothesis that higher levels of creativity, innovation, and risk-taking contribute positively to fishermen's welfare. Among the independent variables, creativity ($\beta = 0.287$, $p < 0.01$), innovation ($\beta = 0.191$, $p < 0.05$), and risk-taking ($\beta = 0.189$, $p < 0.05$) emerged as significant predictors of fishermen's welfare. Opportunity recognition, while positively influencing welfare, was not a statistically significant predictor ($\beta = 0.112$, $p = 0.150$).

Discussion

The results of this study highlight the importance of operational excellence through entrepreneurial integration to improve the welfare of fishermen. This is consistent with body of literature that has been a rich source of focus on these entrepreneurial traits as drivers of operational success across a wide range of sectors. For example, Langroodi (2021) mentions the importance of innovation and creativity to entrepreneurial success, as Schumpeter's theory of entrepreneurship suggests. As does Shane and Venkataraman (2000), opportunity recognition is also viewed as a key component of entrepreneurship. Recent studies by Kim et al. (2023) claim risk propensity is an important entrepreneur trait indicated by the high reliability of the risk-taking

measure. However, it is necessary to point out that some studies, such as Palich and Bagby (1995) argue that entrepreneurs do not necessarily need to have a high risk-taking propensity; rather, they just need to think positively about situations. It is important also to frame these results appropriately: as this study uses a cross-sectional design, the findings indicate a strong statistical association rather than a direct causal path.

The strong internal consistency of these four factors (creativity, innovation, opportunity recognition and risk-taking) within the context of fisherman's operational excellence offers an alternative perspective on entrepreneurship in traditional sectors that may challenge or extend current entrepreneurship models mostly developed in more general business contexts. This study suggests that operational excellence is multi-dimensional and its impacts for fishermen's welfare are different. This multi-dimensional view of operational excellence corresponds to the earlier studies (Lumpkin & Dess, 1996; Surin et al., 2023; Vij & Bedi, 2012) on the entrepreneurial orientation and performance measurement study (Neely, 2005). This finding is also consistent with high Bartlett's Test of robust factor analysis and a high KMO value (Hair et al., 2019). Consistent with the work of Sen (1999) or Neumann (2021) on the multidimensional aspects of welfare development, distinct factors are identified that are emerging as being specific to operational excellence and welfare. Yet, the specific factor structure derived in this fishermen focused study might be different from the relationship previously documented in more common business contexts, and the need for sector specific entrepreneurship and welfare in this studies highlight this point.

The high positive relationship discovered between operational excellence and welfare is consistent with that of other studies on entrepreneurial practice and socio-economic outcomes. For instance, Neumann (2021) found that entrepreneurial activities can have a positive impact on economic growth, employment and social welfare. The

results also support the arguments of Porter and Kramer (2011) on the creation of shared value where improved operational practices produce both economic and social benefits. This pattern (of operational practices having a significant impact on worker's well-being) has been demonstrated in other sectors. For example, Epstein et al. (2022) show that fishery efficiency has economic benefits to fishermen. Yet, as revealed by Kall et al. (2022) there may also be external factors that may critically affect welfare, such as market conditions, implying that operational excellence is important, but not the only causal factor. It should be noted though that the correlation is a strong one but does not lead to causality. The link between the entrepreneurial activities and the economic outcomes may be complex and context dependent as warned by Davidsson (2015). Future research may be able to investigate causal mechanisms between operational excellence and fishermen's welfare in this particular context.

The predictive power of creativity, innovation, and the willingness to take risk underscore the importance of what specific entrepreneurial characteristics are most important to the general welfare of fishermen. These findings serve to support studies that identify the contribution of these traits to welfare outcomes from sector to sector. Langroodi (2021), for instance, establishes the impact of innovation on economic development and the link between creativity and business performance. The strong effect of creativity and innovation in our results requires programs and policies to foster creative problem-solving and innovative operational practices in fishing. This could be from enhancing fishing techniques to developing value-added fish products to looking for new ways to market products. Similarly, the positive relationship between risk-taking and welfare implies that promoting calculated risk-taking - for example, through changing fishing methods, exploring new fishing grounds or investing in better fishing equipment - will be positive. This needs to be balanced with appropriate risk management

strategies for sustainable improvement in welfare, which is in keeping with the research conducted by Begley and Boyd (1987) relating to moderate risk-taking and performance in small businesses.

Interestingly, opportunity recognition, even though showing a positive direction, was not in significant predicting fishermen's welfare ($\beta = 0.112, p = 0.150$). This finding differs from the mainstream entrepreneurship literature that often focuses on opportunity recognition as an essential entrepreneurial trait. In the case of the fishing communities of East Java, there are several reasons that could explain this anomaly. First, a lack of access to information in the markets and digital tools limits the capacity of fishermen to recognize and respond to new opportunities. Second, traditional practices and social norms in communities can discourage change from established patterns of activities even when new opportunities are identified. Third, the nature of the fishing industry (high risk) and the economic vulnerability may cause fishermen to avoid risky ventures with uncertain outcomes. These are contextual constraints, which imply that there is opportunity recognition but this is hampered by structural and cultural barriers to translate into welfare-enhancing actions.

Overall, it is found that encouraging fishermen to be more creative, innovative and risk prone can boost welfare and supports the notion that such entrepreneurial traits are necessary for success in the fishing industry. The results provide further support to the proposition that, by cultivating entrepreneurial characteristics, fishermen will enjoy a higher welfare outcome consistent with other literature where entrepreneurial ability is identified to play an important role in enhancing the well-being of individuals and communities.

MANAGERIAL IMPLICATIONS

Implications for the business management in fishing industry of Indonesia are important. Introducing an entrepreneurial practice for business management can keep productivity and competition sustainable

by prioritizing operational excellence. Creative and innovative organizations should be actively investing in the fostering of creative and innovative ideas, and in empowering people to take calculated risks. Business operations might be enhanced if training and development programs which cultivate these qualities are instituted.

Therefore, fishing associations and cooperatives should put greatest emphasis on developing programs that encourage operational excellence and entrepreneurial skills on its members. This includes training and support for fishermen to pursue new fishing techniques, technologies and product development opportunities, to equip fishermen with the knowledge and tools to appraise and reduce risks to their operations and encourage fishermen to adopt best practices in areas including resource management, cost control and quality assurance.

Given that most respondents have only elementary education, the training and development programmes should be designed in a way that is easily accessible and pragmatic. Active workshops, peer-to-peer mentoring and visual learning aids (e.g. videos, demonstrations) are more effective than text-centric modules. Partnering with local cooperatives and NGOs can help to ensure that community-based learning is carried out, so that entrepreneurial skills are taught in a culture-specific and easily digestible way.

These findings are particularly important for poverty alleviation in coastal regions by policymakers and NGOs. Programs that encourage entrepreneurial thinking among fishermen may include mentorship programs, innovation grants, or fishing industry specific business incubators. The positive impact of risk-taking on welfare outcomes should lead financial institutions and some government agencies to create specialized financial products or support systems that proactively support and help the fishermen take calculated risk such as low interest of the loan that applies to the upgrading and diversification.

CONCLUSION

This study concludes that operational excellence achieved through an entrepreneurial approach plays a key role in improving the welfare of fishermen in East Java, Indonesia. The fishing community here is predominantly made up of middle-aged, experienced fishermen with a middle education, varying monthly incomes, and high levels of home ownership. This implies that efforts are needed to nurture an entrepreneurial trend in the fishing community, not only to accept the traditional ways but, more importantly, to drive into the modernization process to adapt to changing circumstances and take advantage of new developments.

The arguments presented in this study provide valuable contributions to the present literature on entrepreneurship for welfare, especially within the realm of traditional sectors, such as fishing. Previous research mostly explores entrepreneurial principles in business settings, often overlooks managerial lessons learned in highly dependent sectors linked to natural resources and high unpredictability. This paper provides an example of the relevance and generalizability of entrepreneurial principles to managerial success in operational excellence and welfare in a sector that heavily relies on natural resources.

The findings imply that introducing an entrepreneurial standpoint in business management would allow for higher productivity and competitiveness. Fisheries associations and cooperatives should develop programs to promote new fishing strategies, technologies and risk management techniques. As a starting point to these changes, policymakers and NGOs should develop and implement initiatives whereby a more entrepreneurially minded mindset are promoted among the fishermen, for example through mentorship programs, innovation grants and financial products specifically designed to promote entrepreneurship. Industries like fishing, which still have the potential for sustainable improvements, can make these efforts a contribution to an alleviation of poverty in coastal regions.

In general, this study highlights the transformative role that an entrepreneurial approach can play in enhancing operational excellence as well as enhancing the welfare of fishermen. By promoting a creative, innovative, and calculated way of taking risks, stakeholders in all elements of the fishing industry can play an important role in the sustainable development and economic empowerment of fishing communities.

Limitations and Future Research Opportunities

Several limitations of this study are noted. Findings may be limited to fishermen in East Java, Indonesia

and thus may not generalize to other regions or fishing communities with different socio-economic or cultural contexts. Future studies could be expanded to add more locations in the geographic diversity to better understand the variability of fishermen's welfare across different environments. In addition, the cross sectional design of this study does not allow causal inferences from operational excellence to fishermen's welfare. More robust insights on how improvements in operational excellence over time generate impact on welfare outcomes could be provided by longitudinal studies. ■

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