

# Craft Product Development to Overcome Business Challenges in Eastern Indonesia. Case Study in Kalimantan and Nusa Tenggara Timur Collaborating with PT. Karya Dua Anyam

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## ABSTRACT

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In the pursuit of Indonesia's "Indonesia 2045 Vision," this comprehensive research initiative aims to empower craft artisans and micro small and medium-sized enterprises (MSMEs) in Eastern Indonesia through design innovation. Despite the region's vast natural beauty and cultural heritage, its economic contribution remains underleveraged. This study not only examines the challenges and opportunities within the craft sector but also outlines a structured approach to enhance it through the integration of innovative design and product development strategies.

The research methodology employed includes a collaborative effort with PT. Karya Dua Anyam for in-depth field studies, market research, and product development processes to identify and address the gaps in artisan skills and market demands. The initiative focuses on empowering artisans through design development, employing both incremental and radical product development approaches based on artisans' readiness levels determined by a Product Development Readiness Index.

Despite previous efforts to enhance the craft sector, such studies have often overlooked the critical intersection of design innovation and market adaptability, failing to address the broader socio-economic challenges. This research fills this gap by proposing a holistic approach that not only focuses on product innovation but also considers market dynamics, artisan skill enhancement, and the integration of sustainable practices. By doing so, it lays the groundwork for future interdisciplinary research and policy analysis to further enrich the development of Eastern Indonesia's craft sector, aligning with the country's long-term vision.

This paper was presented at the 3rd Conference of Art, Craft, Culture and Design (ICON ARCADE 2023), highlighting its significance in the academic and professional community engaged in addressing the challenges and opportunities within the craft and design sectors.

Keywords: Craft Artisans; Design Innovation; Eastern Indonesia; Micro, Small, and Medium-sized Enterprises (MSMEs); Socio-economic Development

## ABSTRAK

Dalam mengejar "Visi Indonesia 2045," inisiatif penelitian komprehensif ini bertujuan untuk memberdayakan pengrajin dan usaha mikro, kecil, dan menengah (UMKM) di Indonesia Timur melalui inovasi desain. Meskipun wilayah tersebut memiliki keindahan alam yang luas dan warisan budaya, kontribusinya terhadap ekonomi masih kurang dimanfaatkan. Studi ini tidak hanya meneliti tantangan dan peluang dalam sektor kerajinan tetapi juga menguraikan pendekatan terstruktur untuk meningkatkannya melalui integrasi desain inovatif dan strategi pengembangan produk.

Metodologi penelitian yang digunakan termasuk upaya kolaboratif dengan PT. Karya Dua Anyam untuk studi lapangan mendalam, riset pasar, dan proses pengembangan produk untuk mengidentifikasi dan mengatasi kesenjangan dalam keterampilan pengrajin dan permintaan pasar. Inisiatif ini berfokus pada pemberdayaan pengrajin melalui pengembangan desain, menggunakan

pendekatan pengembangan produk inkremental dan radikal berdasarkan tingkat kesiapan pengrajin yang ditentukan oleh Indeks Kesiapan Pengembangan Produk.

Meskipun upaya sebelumnya telah dilakukan untuk meningkatkan sektor kerajinan, studi seperti itu sering mengabaikan persimpangan kritis antara inovasi desain dan adaptabilitas pasar, gagal untuk mengatasi tantangan sosial ekonomi yang lebih luas. Penelitian ini mengisi celah tersebut dengan mengusulkan pendekatan holistik yang tidak hanya berfokus pada inovasi produk tetapi juga mempertimbangkan dinamika pasar, peningkatan keterampilan pengrajin, dan integrasi praktik berkelanjutan. Dengan demikian, penelitian ini meletakkan dasar untuk penelitian interdisipliner masa depan dan analisis kebijakan untuk lebih memperkaya pengembangan sektor kerajinan Indonesia Timur, sejalan dengan visi jangka panjang negara.

Makalah ini dipresentasikan pada Konferensi ke-3 Seni, Kerajinan, Budaya, dan Desain (ICON ARCADE 2023), menyoroti signifikansinya dalam komunitas akademik dan profesional yang terlibat dalam mengatasi tantangan dan peluang dalam sektor kerajinan dan desain.

**Kata kunci:** *Pengrajin Kerajinan; Inovasi Desain; Indonesia Timur; Usaha Mikro, Kecil, dan Menengah (UMKM); Pengembangan Sosial Ekonomi*

## INTRODUCTION

In the year 2045, Indonesia envisions itself as a thriving and advanced nation poised to become the world's fourth-largest economic powerhouse, a status determined by purchasing power parity (PPP). This ambitious vision, set to reshape the nation's future, was unveiled by President Joko Widodo in 2019 under the title "Indonesia 2045 Vision." This visionary blueprint is built upon four core pillars:

1. Human Development and Mastery of Science and Technology
2. Sustainable Economic Development
3. Equitable Development
4. Strengthening National Resilience and Governance

To translate this visionary roadmap into reality, the Indonesian government took a significant step by deciding to relocate the nation's capital to the island of Kalimantan. This monumental decision was motivated by the goal of accelerating economic growth and fostering equitable development, especially in Eastern Indonesia. This geographical region has, to date, contributed a mere 15% to the national economy [1]. However, the path to enhancing this contribution is fraught with challenges, including inadequate supply chains and the imperative to bolster the capacity of the workforce [1].

Notably, when we delve into the Human Development Index (HDI) data from 2017, provided by the Central Statistics Agency (BPS), we find that only three provinces in Eastern Indonesia have achieved a commendable high HDI category: Bali, South Sulawesi, and North Sulawesi. Alarming statistics from the Directorate General of Population and Civil Registration of the Ministry of Home Affairs in 2021 further emphasize the uphill battle, revealing that a mere 5.95% of children in East Nusa Tenggara (NTT) have access to higher education.

Presidential Regulation No. 2 of 2015 on the National Medium-Term Development Plan (RPJMN) 2015-2019 provides the definition of the Eastern Indonesian Region, referred to as Kawasan Timur Indonesia (KTI) [1]. It encompasses all areas in Indonesia except the islands of Sumatra, Java, and Bali. Consequently, KTI comprises Kalimantan, Sulawesi, Maluku, Nusa Tenggara, and Papua. The most striking characteristic of this region is its geographical layout, where islands are interspersed by vast seas. While this landscape offers natural beauty, it also poses substantial challenges to infrastructure development due to logistical constraints.

Nevertheless, the task of uplifting the economy in Eastern Indonesia is not insurmountable. A pivotal strategy revolves around nurturing the growth of micro, small, and medium-sized enterprises (MSMEs) that harness the abundant natural resources found in the region. This entails the cultivation of industries related to virgin coconut oil, cocoa, coffee, and other agricultural products. Furthermore, craft-based MSMEs emerge as a promising avenue, primarily because the technological disparity with Western Indonesia is not insurmountable. This is especially true for crafts like weaving and textile production. Craft-based MSMEs hold the potential to create labor-intensive employment opportunities, particularly benefiting the middle-low-income population. However, several impediments must be addressed for the development of craft-based MSMEs in Eastern Indonesia. These include ensuring the availability of materials necessary for production and addressing the limited skill set stemming from the dearth of formal and non-formal education related to craft product development in the region. One notably scarce skill set is certified vocational skills, including design. According to data from Statistics Indonesia, there are only 2,830 Vocational High Schools / *Sekolah Menengah Kejuruan* (SMK) accounting for approximately 20.64% of the total SMKs in Indonesia. This inadequate number is insufficient to cater to the needs of Eastern Indonesia.

In practice, craft industries are facing stagnancy for making same products over the years which makes manufacturers reproduced craftsmen products easily by times [2] the unfamiliarity from craftsmen or craft producers to modern demand and their loyalty to traditional techniques tends to make them unable to adapt to the changes of commercial crafts from globalization [3]. Therefore, it becomes crucial to explore methods and systems that can assist artisans or craft-based MSMEs in Eastern Indonesia in adapting to the evolving landscape. A central element of this adaptation strategy revolves around nurturing creativity among artisans to render them adaptable to changing times.

The methods mainly focused on production method and design method, which both of them focusing to compromise and bridging the gap between traditional and modern situations. Such as Hybrid method for bamboo craft production which combining traditional production with advanced manufacturing [4] Another example in design approach are ATUMICS methods with the main focus on preserving traditional identity into modern design [5]. Those method often involves the strategic deployment of designers from Western and Central Indonesia to Eastern Indonesia. This approach gains traction owing to the abundant pool of design talent available in those regions. These designers can play a pivotal role in propelling Eastern Indonesia's development through design-centric initiatives. The importance of design lies in its capacity to offer alternative solutions to various challenges encountered in the field. For instance, design can bridge the gap in skill sets among artisans who rely on traditional craft techniques, complementing their expertise with production management skills conducive to mass production. There are also lingering issues related to the availability of supporting materials that can hamper the exploration of new creative horizons for craft products in Eastern Indonesia. Furthermore, distribution remains a significant challenge due to limited transportation infrastructure in the region. Therefore, careful consideration is required to facilitate the seamless delivery of crafted products to consumers [7] and ensure the availability of essential materials for product development at the production sites.

To facilitate the effective integration of designers into the Eastern Indonesian context, a method that combines efficiency and effectiveness is indispensable. Such a method should encompass creative decision-making processes and the identification of alternative solutions that can be tailored to the unique needs of artisans in Eastern Indonesia. By doing so, the designer deployment program such as Designers Dispatch Service from Ministry of Trade of Indonesia [8]. in Eastern Indonesia can aspire to achieve a substantial impact in alignment with the overarching goal of increasing Indonesia's economic contribution.

## METHODOLOGY

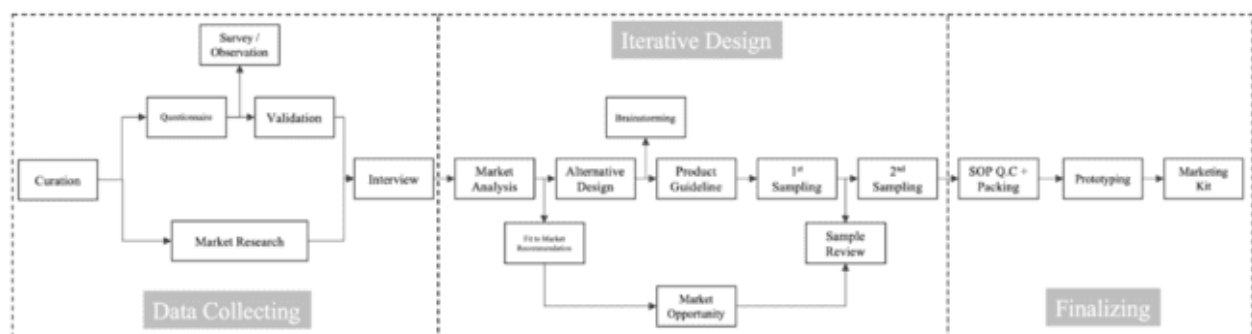
Craft Industry initially driven by handmade production especially for the traditional products, but since industrial era, manufacturers took over production for some craft products [2] Many experts agree that derived regular products with craft products are the aesthetical value that determined by the needs of craftsmanship [2] Therefore an integration between craftsmanship with design management is urgently needed [3]. To achieve that needs for the development of craft products in Eastern Indonesia, researchers have embarked on a collaborative effort with Krealogi by PT Karya Dua Anyam, an enabler dedicated to supporting craft-based micro, small, and medium-sized enterprises (MSMEs) in Indonesia and plays an active role in fostering the growth of MSMEs and craftsmen, particularly in the region of *Nusa Tenggara Timur* (East Southeast Nusa) or also known as NTT.

The primary focus of this comprehensive initiative lies in two fundamental areas: the development of effective marketing strategies and the cultivation of innovative product lines. These two interrelated domains take center stage due to the multifaceted challenges inherent to Eastern Indonesia's socio-economic landscape.

### Market Research and Product Development Process

To initiate the research process in each region, a foundational study is conducted by Krealogi with deploying field facilitators who serve as the eyes and ears on the ground. These facilitators are tasked with the critical mission of identifying potential participants who exhibit the promise and potential for expanding their businesses. This initial mapping serves as the first step in gaining a profound understanding of the primary challenges confronting each region. Moreover, this mapping process facilitates comparative assessments with neighboring areas within the broader context of Eastern Indonesia.

The duties of the Krealogi field facilitators extend to encompass a multifaceted approach, including observations, in-depth interviews, comprehensive surveys, and structured questionnaires administered to the local craftsmen within each region. This data collection process typically spans a duration of approximately 1-2 weeks. Subsequently, the wealth of data amassed by the facilitators is consolidated into comprehensive reports, which are then subjected to rigorous analysis by marketing and product consultants.



**Figure 1: The Craft Product Development Process**

The subsequent stages of the research process in Figure 1 for craft product development involve a well-structured methodology. The collection of data by field facilitators operates in parallel with market research conducted by specialized marketing consultants. This market research entails a rigorous evaluation of off-taker networks within the region and an exploration of the broader market share potential that can drive increased sales.

From the detailed analysis of market dynamics, a set of product recommendations that are inherently aligned with market demand and customer preferences are formulated. These recommendations serve as the cornerstone upon which the subsequent phases of product development are built.

At this juncture, the role of product consultants or designers takes center stage. These designers employ an iterative design approach, which includes Conceptualization, Prototyping, Production Management, Quality Control and Packaging. During these stages, Krealogi taking part as a supervisor to make sure the creative and prototyping process are still fit to market in terms of production costs and market demand. While the craftsmen focusing on learning new shapes, new techniques, and quality control.

### **Empowering Artisans Through Design Development**

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The overarching objective of this research initiative is to empower local craft artisans through the systematic development of their design capabilities. It is envisaged that by fostering a culture of design innovation, artisans can become more attuned to the latent potentials within their immediate surroundings. This newfound awareness enables them to proactively seek innovative solutions to the myriad challenges they may encounter in their craft endeavours.

The research endeavor, which commenced in 2018, has covered several diverse regions in Eastern Indonesia, including

1. Sintang Regency – West Kalimantan,
2. Kupang - NTT,
3. Manggarai Barat Regency – NTT,
4. Flores Timur Regency – NTT, and
5. Timor Tengah Utara Regency – NTT.

The primary parameters considered for selecting these locations include:

1. **Production Capacity:** This parameter assesses the production capability of artisans and encompasses aspects such as human resources, machinery, monthly productivity, and production timelines for specific products.
2. **Business Experience:** The years of operation, market networks, and annual or monthly sales volumes serve as critical indicators of the artisans' business experience.
3. **Material Access:** A profound understanding of material sources, their availability, and pricing within the local region, along with the ability to procure materials online when local sources are inadequate, are crucial elements.
4. **Production Network:** This parameter evaluates the artisans' experience in collaborating with vendors, their knowledge of local production facilities, and their involvement in artisan groups within their respective regions.
5. **Existing Products:** An assessment of the types of products previously crafted, product variations, and knowledge of competitor products provides insights into the artisans' current product landscape.
6. **Mastery of Production Techniques:** Proficiency in various craft production techniques is gauged to understand the artisans' skill set.

The selection of research locations is governed by employing a binary index approach. Binary index approach focusing on find a middle point of each indexing steps which make the process more efficient and faster to adapt with the dynamic needs of business demand. Tools that being used for the binary approach are using a lists of multiple choice questionnaire distributed by field facilitators to the selected craftsmens who participate in this research.

Sampling are gathered from at least 2 participants from each locations who is curated by Krealogi with the recommendations from local communities and government in that area, except for Sintang which due to technical issues only have 1 participant who join the research.

**Table 1: Index of Product Development Readiness Using Binary Method**

Participants	Production Technique Mastery		Existing Products		Material Access		Production Capacity		Production Network		Business Experience		Index Product Development Readiness
	Percentage: 30%		Percentage: 10%		Percentage: 20%		Percentage: 15%		Percentage: 20%		Percentage: 5%		
	Less than 2 technique	2 or more technique	Less than 2 article	2 or more article	Easy to Access	Hard to Access	Less than 100 pcs/month	100 pcs or more per month	Own Machines / Vendor tools	Less Than 3 years	3 years or more		
Flotim A Onya	0	1	0	1	1	0	0	1	1	0	0	1	0,45
Flotim B Elis	0,3	1	0,1	1	1	0,2	0,15	1	1	0	0	0,95	
TTU A Felis	0	0	0	1	0,2	0	0	0	0	0	0	0,2	
TTU B Maria	0	0	0	1	0,2	0	0	0	0	0	0	0,2	
TTU C Ermalinda	0,3	1	0	0	0	0	0	1	0,2	0	0	0,5	
Sintang	0,3	1	0,1	1	1	0,2	0,15	1	0	0	1	0,8	
Manggarai Barat A	0,3	1	0,1	1	1	0,2	0,15	1	1	0	0	0,95	
Manggarai Barat B	0,3	1	0,1	1	1	0,2	0	1	0,2	0,05	1	0,85	
Kupang	0	0	0	1	0,2	0,15	0	1	1	0	0	0,55	

The meticulous gathering of data based on these parameters in Table 1 is entrusted to the field facilitators, who then relay their findings to marketing and product consultants for further analysis and evaluation. To ensure the efficiency of data collection, survey questions have been streamlined to focus on the most critical sub-questions within each parameter.

**Design Approaches for Artisan Empowerment**

As mentioned before, one of the main problems in KTI are HDI, so a suitable method must rely on these issue. Holahan [6] emphasize on how core competencies determined the level of development that can be achieved responding to the innovativeness of the projects. Therefore to evaluate the accuracy of Table 1, researchers have explored and compared two distinct methodologies:

- a. Incremental Product Development [6]: This approach revolves around leveraging existing materials and the artisans' current skill set. It emphasizes minor changes and enhancements to products without significant deviations from established practices.
- b. Radical Product Development [6]: In contrast, this approach entails exploring the full potential of the materials and techniques at the disposal of artisans. It encourages innovative and unconventional applications of these resources, pushing the boundaries of traditional craft.



To allocate artisans to their respective approaches, a threshold was established based on the indexing results from Table 1. Artisans scoring below 0.4 were directed towards method (a), while those scoring 0.4 or higher were encouraged to pursue method (b). This threshold was determined with reference to the ideal proportion of vocational learning systems, with 40% theory and 60% practice. Given the relatively low Human Development Index (HDI) in KTI, artisans scoring below 0.4 are encouraged to bolster their foundational knowledge before embarking on further skill development.

Based on the indexing results, method (a) was implemented in Flores Timur (*Flotim*) and Timor Tengah Utara (TTU), where artisans are guided toward incremental product development. In contrast, method (b) found its application in Sintang and Manggarai Barat, where artisans are encouraged to embrace radical and innovative product development strategies.

This comprehensive research initiative represents a holistic and meticulously structured approach to empowering craft artisans in Eastern Indonesia. By fostering design innovation, refining product development strategies, and strategically allocating resources based on parameters, this endeavor aims to elevate the craft industry in the region, ultimately enhancing the livelihoods of artisans and contributing to the socio-economic development of Eastern Indonesia.

## RESULTS & DISCUSSION

In each of the research locations, a consistent theme emerged – the enduring presence of traditional crafts, particularly weaving and handwoven fabric. These age-old crafts have stood the test of time and continue to be passed down through generations. What makes them particularly fascinating is their relatively stable demand in the market, allowing many artisans to maintain their livelihoods through these crafts. However, a careful balance between production efforts and economic returns is essential. This balance presents a significant challenge, especially considering that traditional weaving, on average, yields relatively modest selling prices, with earnings rarely surpassing 10,000 Indonesian Rupiah (IDR). Conversely, handwoven fabric, especially in Eastern Indonesia, commands significantly higher prices, ranging from 1 to 5 million IDR. Nonetheless, artisans often find themselves limited to producing just one piece of fabric per month, rendering their efforts economically unviable due to the substantial labour involved. When comparing weaving and handwoven fabric (Table 2), it becomes evident that handweaving demonstrates a higher adaptability to market demand. This adaptability can be attributed to several factors, including the availability of machinery suitable for micro, small, and medium-sized enterprises (MSMEs), readily accessible alternative raw materials, the ease with which techniques can be passed down, and the consistent quality of the products.

**Table 2. Comparison of Weaving and Handweaving Techniques**

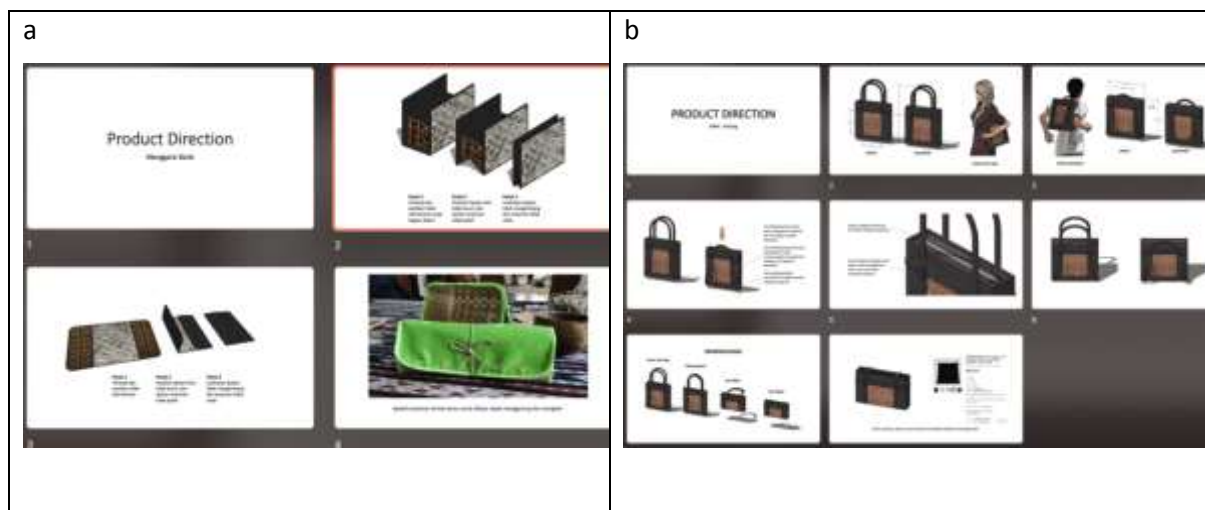
Parameter	Weaving	Handweaving
Production Time	v	
Suitable MSME-Scale Machinery		v
Production Consistency		v
Technology Transfer		v
Substitute Materials (if depleted)		v

The majority of handweaving artisans in Eastern Indonesia possess weaving skills but lack additional technical abilities, such as sewing. Consequently, for the validation of ongoing product development stages, handwoven products take precedence. This holds especially true for weavers who can only produce and sell fabric sheets. However, weaving remains a valuable complementary craft, useful either to meet fluctuating demand or to fulfil specific design requirements.

The iterative design and finalization stages, as depicted in Figure 1, encompass three critical components:

1. **Product Direction:** This phase involves the creation of comprehensive designs, including two-dimensional and three-dimensional renderings, technical drawings, references to similar products, and detailed material and color specifications.
2. **Sample Creation:** Samples can be generated either independently by artisans or with direct assistance from designers. In this research, both approaches were utilized to evaluate their respective effectiveness and efficiency.
3. **Standard Operating Procedure (SOP) for Quality Control (QC) and Packaging:** The development of SOPs for QC and packaging serves to guide MSMEs in post-assistance phases, ensuring that artisans become familiar with a workflow aligned with industry standards.

The level of detail incorporated into the product direction significantly influences artisans' and MSMEs' comprehension. Interestingly, conveying simpler yet more efficient instructions can sometimes be more effective for artisans. This phenomenon primarily arises from artisans' familiarity with interpreting technical drawings, which necessitates a blend of experience, observation, and imagination on their part. A comparison between two sets of technical drawings provided to artisans is illustrated in Figure 2.




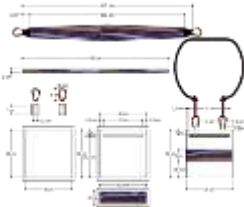





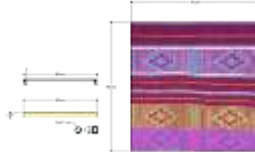

**Figure 2. (a) Product Direction for Timor Tengah Utara; (b) Product Direction for Sintang**

In Figure 2(a), the provided dimensions are relatively basic, aimed at evaluating artisans' ability to understand proportions based solely on size. Artisans are expected to develop a keen eye for interpreting drawings and proportionally adjusting their products to align with the ordered or designed items. In contrast, Figure 2(b) offers more intricate measurements and explains specific stages. This additional detail allows designers to gauge artisans' comprehension and assess their consistency in applying the provided SOPs.

The iterative design phase highlights that finding the most suitable direction for artisans cannot be accomplished in just one or two attempts. Multiple adjustments may be necessary, particularly during the product sampling phase. Designers must be prepared to revisit the design process when production challenges arise or when adjustments are required due to material characteristics or techniques that cannot achieve the desired design. During this phase, it is crucial to consider the local language or terminology that artisans are most familiar with. Differences in production-related terminology or instructional language can lead to misunderstandings or limited comprehension among artisans. As a result, regular discussions or consistent communication with artisans, facilitated by field facilitators, become indispensable (Table 3).



**Table 3. Comparison of Previous Products, Revision Intensity, and Products After Design**

Initial Product	Product Direction	Sample Iteration	Production Mentoring	Prototype	
		3 times	Intensive by Online		
<p>Flores Timur (Onya)</p>			2 times	Intensive by Online	
<p>Flores Timur (Elis)</p>			2 times	Intensive on Field	
<p>Timor Tengah Utara (Felis &amp; Maria)</p>					



Timor Tengah  
Utara (Ermalinda)



2 times

Intensive  
on Field



Sintang



2 times

Intensive  
by Online



Manggarai Barat A



2 times

Intensive  
by Online



Manggarai Barat B



2 times

Intensive  
by Online



Kupang

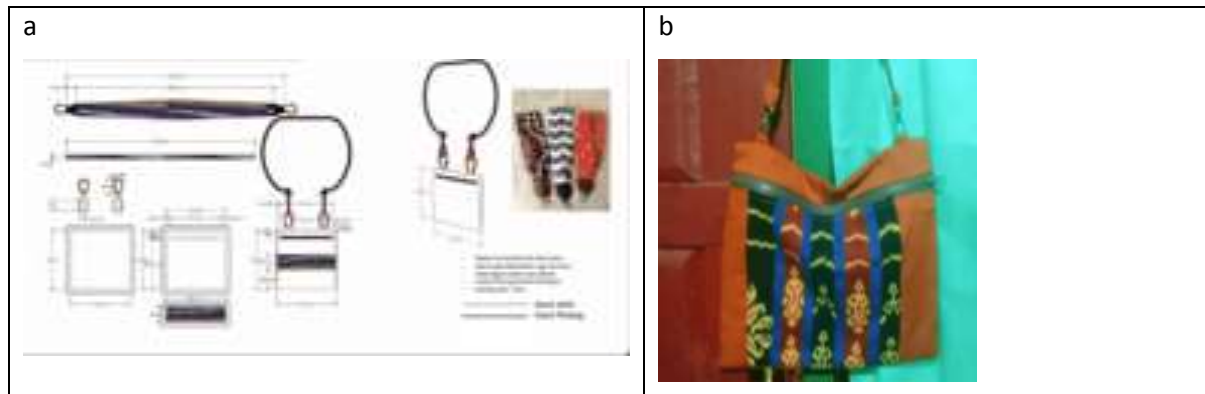


3 times

Intensive  
on Field



Table 3 reveals that craftsmen with low index scores (TTU Felis & Maria and Kupang) require intensive on-site support to expedite their understanding of new product development with simple designs. This stands in contrast to Flores Timur Onya, which also has a low index but faced challenges due to receiving only online assistance. Discrepancies between the design in Figure 3(a) and the sample in Figure 3(b) became evident. On the other hand, artisans with high index scores can be supported online and can adapt to more complex designs than their existing products.



**Figure 3. (a) Product Direction for Flores Timur Onya; (b) Initial Sample for Flores Timur Onya**

The Product Development Readiness Index streamlines the process for designers in determining which designs to develop for each craftsmen. It also simplifies the facilitator's task of identifying artisans who can work independently and those who require intensive support. Larasati [4] emphasize that Hybrid Method will work as long as the designers have a better understanding about the competence of the craftsmen, this findings with the index can help fasten the understanding process. In respond to dynamic business demand, the index helps in term time efficiency by selecting the right product development method as can be seen in Table 3.

## CONCLUSION

The research are focusing on product development for crafts in Eastern Indonesia to overcome business challenges emphasizing on skill/competencies gap and time efficiency. Therefore a method to have a better understanding about craftsmen readiness to develop their products are needed for time efficiency to meet the dynamic business demand.

Combination of field facilitation and online leverage can help the process more efficient, the difference of knowledge and experience will be reduced when both parties know where their position and choose the right tools or methods to connect. This Product Development Readiness is a starting kit for designers or businesses to decide better strategy or approach based on their resource and ability.

Nevertheless, market and business situations are constantly changing dynamically, therefore a combination of Product Development Readiness Level, ATUMICS Method, and Hybrid Method systematically could help a more structured and accurate product development in Eastern Indonesia due to its complex issues. And potentially used in other parts of Indonesia.

The simplicity approach of this research need to have a broader study with larger numbers of craftsmen and designers involved so the readiness level could be more accurate and effective to help craftsmen and designers connected in order to have an impactful product development.

## REFERENCES

- [1] M.Rasyidi et al., "Percepatan Pembangunan Infrastruktur PUPR di Kawasan Timur Indonesia," SINERGI, Buletin BPIW, vol.16, pp. 4-9, 2017.

- [2] E. Zulaikha and M. Brereton, "Innovation Strategies For Developing The Traditional Souvenir Craft Industry," in Proceedings of the First International Conference on Engineering, Designing and Developing the Built Environment for Sustainable Wellbeing, Queensland University of Technology, Australia, 2011, pp. 53-58.
- [3] D. Chudasri, S. Walker, and M. Evans, "An Overview of the Issues facing the Craft Industry and the Potential for Design, with a Case Study in Upper Northern Thailand," in P. Israsena, J. Tangsantikul, and D. Durling (eds), Research: Uncertainty Contradiction Value – DRS International Conference 2012, 1-4 July, Bangkok, Thailand, 2012. [Online]. Available: <https://dl.designresearchsociety.org/drs-conference-papers/drs2012/researchpapers/24>
- [4] D. Larasati, M. Ihsan, and H. Mawardi, "How Far Can You Go with Bamboo?," in IASDR 2013 – Consilience and Innovative Design, 2013, pp. 1648 – 1655.
- [5] Nugraha, "Transforming Tradition a Method for Maintaining Tradition in a Craft and Design Context," Aalto University Finlandia, Helsinki, 2012.
- [6] P. Holahan, Z. Sullivan, and S. Markham, "Product Development as Core Competence: How Formal Product Development Practices Differ for Radical, More Innovative, and Incremental Product Innovations," Journal of Product Innovation Management, vol. 31, no. 2, pp. 329-345, 2013.
- [7] F. Leksono, "Empathy Approach as Solution for Brand during Pandemic COVID-19", *JDI*, vol. 2, no. 2, p. 9, Oct. 2020.
- [8] F. Kamal and T. Granicia, "A Crafts-based Contemporary Tableware Design Derived from Artisanal Pottery Practice of Penujak Village, Lombok", *JDI*, vol. 5, no. 2, pp. 89-100, Sep. 2023.