

Multiple Criteria Stakeholder's Roles in Ensuring the Sustainability of *Gringsing* Weaving

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ABSTRACT

Bali is known to have the most types of *wastra* (traditional cloth) in Indonesia and is full of local wisdom values, one of which is *Gringsing* Weaving. This cloth is the only woven cloth in Indonesia that uses a double ikat weaving technique that takes a long time. The motifs and coloring are still traditional and use natural materials. *Gringsing* weaving has not only aesthetic value but also social and economic value. However, the departure of *gringsing* weaving is threatened due to the regeneration of craftsmen and competition with other relatively cheap fabric products. This research aims to analyze stakeholders' role in ensuring *Tenun Gringsing*'s wishes, including convergence and divergence between actors. This research uses prospective analysis with MACTOR as tool analysis, where the data collection process is carried out through FGD. The respondents in the FGD are craftsmen, local figures, and the government. The identification results show that three internal and six external stakeholders are related and have an interest. Meanwhile, the objectives in context include economic, environmental, social, and cultural aspects. The results of the MACTOR

analysis show that the most active actors in *Gringsing* Weaving tourism are traditional leaders. Tourists are stakeholders who have a value of disapproval of the goals of developing the human resources of craftsmen. Traditional leaders converge most with the Tenganan Village community and craftsmen related to *Gringsing* weaving. Traditional leaders have substantial differences with tourists. This further emphasizes the importance of the role of traditional leaders. This research contributes to the stakeholder scenario regarding the sustainability of *Gringsing* Weaving.

1. INTRODUCTION

Indonesia has a large diversity of cultural heritage, including traditional cloth with various symbolic meanings, based on the philosophy of its people, aesthetic quality and social function (Sunarya, 2012). So the Indonesian Government through the Ministry of Education and Culture in 2017 has designated 33 *wastra* (traditional cloth) from various regions in Indonesia as intangible cultural heritage (Tjahjadi et al., 2023). These include Endek Bali and *Gringsing* Tenganan. One of the local Indonesian fabrics is woven fabric. Woven fabric is fabric that is generally made from cotton fibers, wood, silk and other materials by combining the threads in a longitudinal and crossed position. Weaving is a bit on the free market, it is different from batik because the manufacturing process takes quite a long time because it is done without using a machine, namely by using ATBM (non-machine loom) and it is difficult to find some raw materials, this also causes the price of woven fabric is relatively more expensive than batik (Utomo & Yunita, 2022).

Bali is known to have the most types of *wastra* (traditional cloth) in Indonesia, and is full of local wisdom values. The fabric, which was a reflection of the life and culture of society at that time, had its own characteristics in each region, one of which was the *Gringsing* Weaving fabric. Weaving is a characteristic of Tenganan Village, Karangasem Regency, Bali Province. The word *gringsing* comes from "gring" (Javanese) which means "sick" and "sing" which means "neither sick nor healthy". The meaning contained in this word is repellent. *Gringsing* cloth has a sacred function, especially for the community that supports it, namely in Tenganan Pegringsingan Village (Ariani, 2019).

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This type of cloth is the only woven cloth in Indonesia that uses the *double ikat* weaving technique (Kartiwa, 2007) and takes approximately 2-5 years to process. The gringsing cloth motif only uses three colors called tridatu. The natural dyes used in making *gringsing* cloth motifs are white *kepondung* tree petals (*baccaurea racemosa*) mixed with noni root bark (*morinda citrifolia*) as a red color, old candlenut fruit oil (around 1 year) mixed with powdered water, wood ash for yellow and taum tree for black or blue (indigo). Several types of gringsing weaving include *lubeng* characterized by scorpions, *sanan empeg* characterized by three red and black checkered/*poleng* shapes, *cecempnan* characterized by cempaka flowers, *cemplong* characterized by large flowers between small flowers so that it looks like there is a void between the flowers that are *cemplong*, filled gringsing where all the motifs are filled or full (no empty parts), *wayang* which is the most difficult motif to work on and takes up to five years. The wayang motif only consists of two colors, namely black as the background and relatively smooth white lines to form the wayang figure (Azizah, 2016).

In Bali, various ceremonies, such as tooth cutting ceremonies, weddings and other religious ceremonies, are carried out relying on the strength of the gringsing cloth. Gringsing Weaving apart from having aesthetic value (beauty) also has economic value. The economic value of the Gringsing weaving craft typical of Tenganan can be seen from the efforts to develop a work ethic, which is related to how the Gringsing weaving craft creates enthusiasm for weaving craftsmen as well as job opportunities for social actors (Purnamawati, 2016). Despite the cultural, economic and social values contained in Balinese literature, especially Gringsing Weaving, there are concerns about its sustainability. One of the reasons is the difficulty of regenerating craftsmen/weavers. Where the younger generation is interested in pursuing this field (Martini et al., 2021). Apart from that, the market (buyers) is considered not to be developing, especially as traditional fabric products are mushrooming at low prices. So, it is important to analyze stakeholders in the sustainability of Gringsing Weaving. The main aim of this research is to analyze the role of stakeholders in ensuring the sustainability of Gringsing Weaving. This role is reviewed based on the objectives of each stakeholder in the sustainability of Gringsing Weaving which may be different or even conflict. Next is to analyze the convergence and divergence between stakeholders. This research contributes to the stakeholder's scenario in the sustainability of Gringsing Weaving.

2. METHOD

The type of research used is mixed method with an exploratory approach. This approach is a combination of qualitative and quantitative techniques. Where the first phase is qualitative which produces conceptual themes, and continues in the second phase with quantitative techniques, such as in analysis (Creswell & Clark, 2018). Qualitative phase conducted with identification the actor and objectives related with the sustainability of Gringsing Weaving. Then, the data analyzed with quantitative technique. As general, the analysis of this research used prospective analysis, because this analysis is able to present scenarios for future sustainability (Ibrahim et al., 2013). Specifically, the analysis technique used in this research is the MACTOR analysis technique (Matrix of Alliances, Conflicts, Tactics, Objectives, and Recommendations). To carry out sustainability analysis with MACTOR, several stages of analysis are required (Figure 1). Where in the initial stage this was carried out through FGD with stakeholders related to the sustainability of Gringsing Weaving. The FGD aims to identify the actors involved and the goals to be achieved. The second stage is done by filling in the Matrix of Direct Influence (MDI) which describes the influence between actors on other actors. Next is filling in the 2MAO Matrix (Actor-Objective Matrix) which shows the relationship between actors and objectives. After filling in the MDI and 2MAO completely, MACTOR software is used to carry out further analysis.

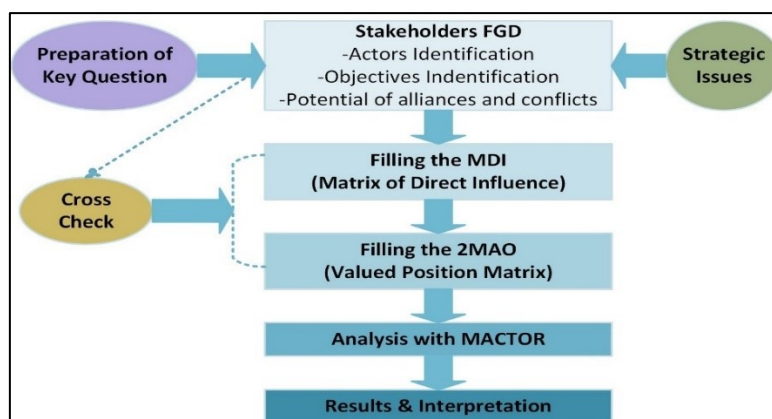


Figure 1. Steps of MACTOR Analysis (Source: Fauzi, 2019)

3. RESULT AND DISCUSSION

Identifying Actors and Objectives in the Sustainability of Gringsing Weaving

As previously explained, in the initial stage of sustainability analysis with MACTOR it is necessary to determine stakeholders and objectives as the basis for input and analysis. Actors and objectives in Table 1 identified from literature review and FGD with stakeholders.

Table 1. Identification of Stakeholders (Actors) and Objectives

Stakeholders/Actors				
Theme	No	Actors	Label	Definition
Internal Stakeholders	1	Villagers	Villagers	Indigenous people who live in Tenganan Village
	2	Craftsmen	Craftsmen	Gringsing Weaving Craftsmen in Tenganan Village
	3	Traditional Leaders	TradLead	Tenganan Village Traditional Figures/Leaders
External Stakeholders	4	Village Government	VillGov	Tenganan Village Government (official village)
	5	District Government	DisGov	Manggis District Government (Tenganan Village location)
	6	City Government	CitGov	Karangasem Regency Government (location of Tenganan Village)
	7	Provincial Government	ProvGov	Bali Provincial Government (Tenganan Village location)
	8	Tourist	Tourist	Tourists who travel to Tenganan Village
	9	User	User	Consumers/buyers of Gringsing Weaving products
Objectives				
Theme	No	Objectives	Label	Definition
Economics	1	Increased Revenue	IncRev	Increasing the income of the people of Tenganan Village from Gringsing Weaving products
	2	Employment	Employment	Availability of job opportunities due to the sustainability of the Gringsing Weaving industry
	3	Improvement of Human Skills	IHS	Increasing skills related to the Gringsing Weaving industry
	4	Human Development	HumDev	Human resource development for Gringsing Weaving craftsmen
Environment	5	Environmental Sustainability	EnvSus	Environmental sustainability of Tenganan Village
Social & Culture	6	Cultural Sustainability	CulSus	Preservation of cultural values contained in Gringsing Weaving
	7	Increased Insight	IHI	Increasing the insight of the Tenganan Village community regarding the sustainability of Gringsing Weaving
	8	Development of Human Creativity	DHC	Developing creativity in the Tenganan Village community
	9	Human Development	HMD	Developing the mindset of the Tenganan Village community regarding the sustainability of Gringsing Weaving

Table 1 shows that there are 9 (nine) actors/stakeholders identified as related to the sustainability issue of Gringsing Weaving in Tenganan Village. Meanwhile, the objectives formulated from the FGD are related to the sustainability context, which consists of economic, environmental, social and cultural dimensions.

The Role of Stakeholders in Ensuring the Sustainability of Gringsing Weaving

In achieving sustainability goals, it is not uncommon for there to be intersections or differences in the interests of stakeholders. Including in ensuring the sustainability of Gringsing Weaving, the relationship between each actor/stakeholder and the objectives is also analyzed. The analysis results in Table 2 present a matrix (3MAO) which describes the actors for each goal (Wardono et al., 2019).

Table 2. Weighted Valued Position Matrix (3MAO) of Gringsing Weaving Sustainability

3MAO	Objectives										
	Actors	Increased Revenue	Employment	Environmental Sustainability	Cultural Sustainability	Increased Human Insight	Development of Human Creativity	Improvement of Human Skills	Human Mindset Development	Human Development	Mobilisation
Villagers		3.8	2.8	3.8	3.8	1.9	2.8	1.9	1.9	2.8	25.6
Craftsmen		3.5	3.5	2.6	3.5	1.8	1.8	1.8	2.6	3.5	24.6
Traditional Leaders		2.7	2.7	4.0	5.4	2.7	2.7	2.7	2.7	4.0	29.5
Village Government		3.2	1.1	3.2	2.1	2.1	1.1	2.1	1.1	3.2	19.3
District Government		1.2	1.2	1.2	2.5	2.5	1.2	2.5	1.2	1.2	14.9
City Government		1.3	1.3	0.0	2.5	2.5	1.3	2.5	1.3	1.3	13.8
Provincial Government		0.9	0.9	0.0	1.8	1.8	0.9	0.9	0.9	0.9	8.9
Tourist		0.0	0.0	2.0	2.0	1.3	0.0	1.3	1.3	-0.7	8.5
User		0.0	0.0	0.7	0.7	1.4	0.0	0.0	0.0	0.7	3.6
Number of agreements		16.6	13.5	17.6	24.3	18.0	11.8	15.7	13.0	17.7	
Number of disagreements		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.7	
Degree of mobilisation		16.6	13.5	17.6	24.3	18.0	11.8	15.7	13.0	18.4	

MACTOR through the 3MAO matrix is special, among other things, because it presents a mobilization coefficient that shows the different actors involved in a situation (Cadith et al., 2019). Table 2 shows that the most active actors in the sustainability of Gringsing Weaving are traditional leaders with a mobilization score of 29.5. Apart from that, villagers and craftsmen are also active actors with mobilization scores of 25.6 and 24.6 respectively. If reviewed based on their classification, the three actors with high mobilization scores are internal stakeholders in Tenganan Village who are directly related to the sustainability of Gringsing Weaving. Meanwhile, the external stakeholder with a high mobilization score is village government with a score of 19.3, followed by district and city government with scores of 14.9 and 13.8 respectively.

When viewed based on objectives, the objective with the highest mobilization capacity is cultural sustainability with a score of 24.3. This shows that the cultural values contained in Gringsing Weaving play a major role in mobilizing stakeholders. Other objectives that also have a role in mobilizing stakeholders are human development and increased human insight with scores of 18.4 and 18.0 respectively. Although on objectives related to human development there is disagreement with a relatively small score (0.7) as in Figure 2.

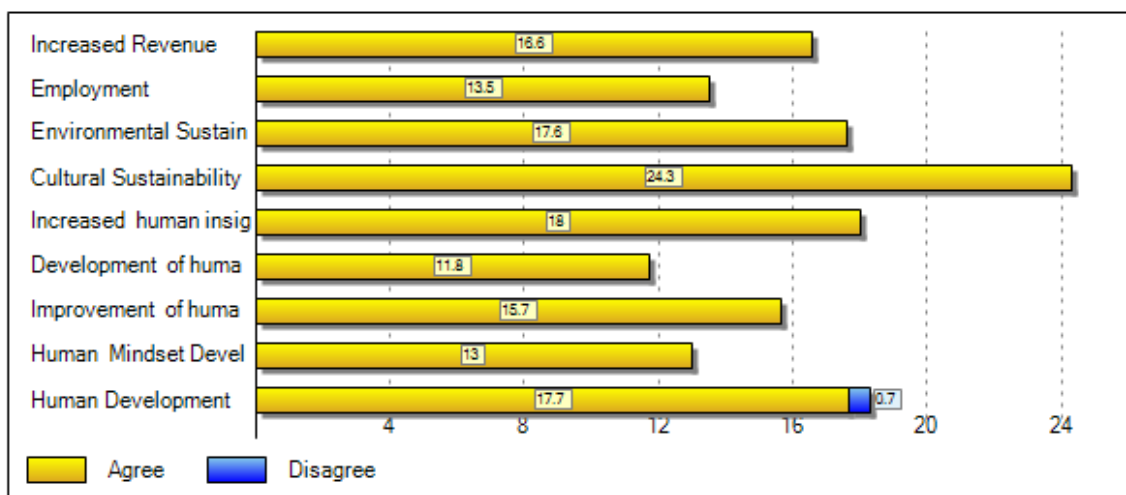


Figure 2. Histogram of actor's mobilisation towards its objectives (3MAO)

More specifically, it is necessary to review stakeholders who disagree with human development objectives as shown in Figure 2. Below is presented the competitiveness of stakeholders in human development objectives (Figure 3).

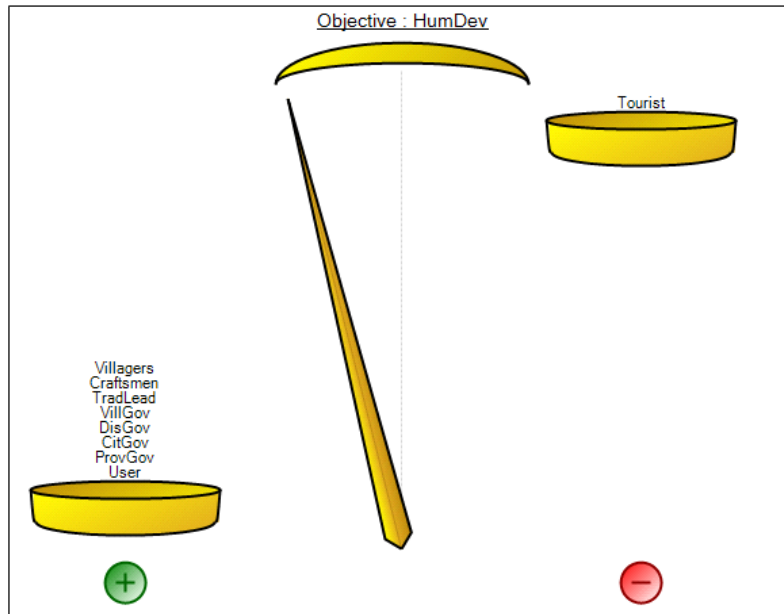


Figure 3. Position scale by valued objectives (human development) weight competitiveness

Figure 3 shows that tourists are stakeholders who disagree with the objectives of craftsmen's human resource development. This can be interpreted as meaning that tourists currently want tourism products (in this case Gringsing Weaving) at cheap prices, without paying attention to the process or raw materials so that they comply with the rules passed down from generation to generation in Tenganan Village.

Divergence Between Stakeholders in the Sustainability Phenomenon of Gringsing Weaving

Conflicts in sustainability goals can occur if there is convergence and divergence between related stakeholders. The 3CAA and 3DAA matrices are used to measure convergence and divergence between actors. Table 3 displays the results of the convergence analysis (3CAA) between actors (value convergence). The 3CAA Matrix identifies a number of similar positions that actors have regarding the goals and sustainability of Gringsing Weaving in Tenganan Village. The values in the matrix represent the degree of convergence between one actor and another actor, where the higher the value, the greater the similarity of interests held by the actor.

Table 3. Weighted valued convergence matri (3CAA) of Gringsing Weaving sustainability

3CAA	Actors								
Actors	Villagers	Craftsmen	Traditional Leaders	Village Government	District Government	City Government	Provincial Government	Tourist	User
Villagers	0.0	25.1	27.6	22.5	20.3	17.8	15.4	10.6	8.0
Craftsmen	25.1	0.0	27.1	22.0	19.7	17.9	15.5	10.1	7.5
Traditional Leaders	27.6	27.1	0.0	24.4	22.2	19.	17.2	12.6	9.8
Village Government	22.5	22.0	24.4	0.0	17.1	15.0	12.5	9.3	7.2
District Government	20.3	19.7	22.2	17.1	0.0	13.7	11.3	8.9	5.5
City Government	17.8	17.9	19.7	15.0	13.7	0.0	11.4	7.3	4.6
Provincial Government	15.4	15.5	17.2	12.5	11.3	11.4	0.00	5.6	3.7
Tourist	10.6	10.1	12.6	9.3	8.9	7.3	5.6	0.0	4.0
User	8.0	7.5	9.8	7.2	5.5	4.6	3.7	4.0	0.0
Number of divergences									
Degree of convergence (%)	0.0								

The results of the convergence analysis as shown in Table 3 show that the people of Tenganan Village and traditional leaders have the highest correlation of interests with a convergence coefficient of 27.6. This is in accordance with the phenomenon in Tenganan Village that cooperation between the community and traditional leaders in Tenganan Village is very close in the sustainability of Gringsing Weaving. Moreover, Gringsing Weaving was originally made for people to use at traditional events.

The position of actors in relation to their convergence towards other actors based on the convergence matrix (Table 3) is further visualized in Figure 4. Where the greater the value in the 3CAA matrix, the thicker the connection lines on the map and this indicates a higher level of convergence (Nopriani et al., 2022).

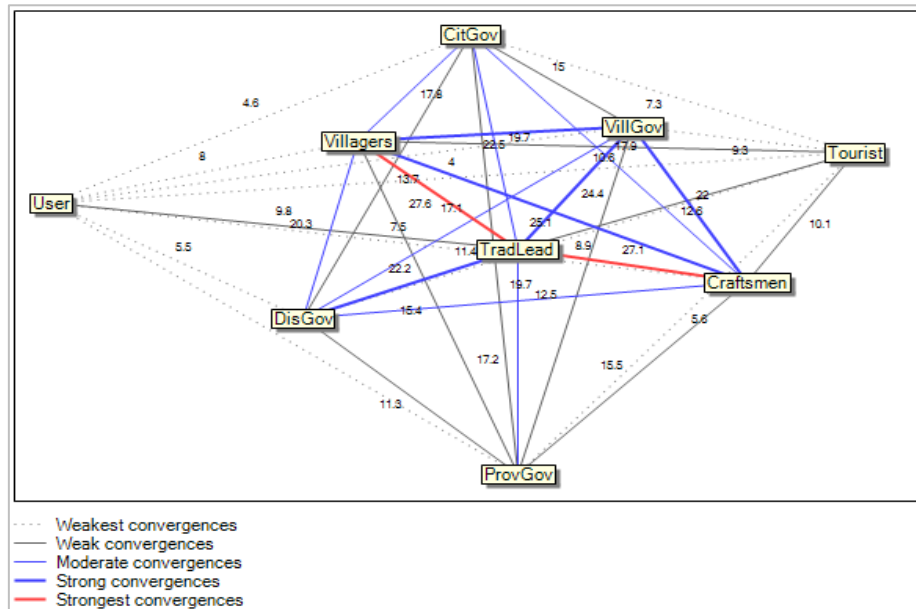


Figure 4. Graph of order 3 convergences between actors related to Gringsing Weaving sustainability

Figure 4 shows that the level of convergence between traditional leaders and the Tenganan Village community and traditional leaders and Gringsing Weaving craftsmen is the strongest. This means that if traditional leaders make an alliance (cooperation) with the Tenganan Village community and/or with craftsmen, there is a big possibility of achieving the goal of Gringsing Weaving sustainability.

Apart from convergence analysis, MACTOR also presents the results of divergence analysis which shows the potential for conflict between actors.

Table 4. Weighted valued divergence matrix (3DAA) of Gringsing Weaving sustainability

3DAA	Actors								
Actors	Villagers	Craftsmen	Traditional Leaders	Village Government	District Government	City Government	Provincial Government	Tourist	User
Villagers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0
Craftsmen	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0
Traditional Leaders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0
Village Government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0
District Government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
City Government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Provincial Government	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Tourist	1.8	2.1	2.3	1.9	0.9	1.0	0.8	0.0	0.7
User	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Number of divergences	1.8	2.1	2.3	1.9	0.9	1.0	0.8	11.5	0.7
Degree of divergence (%)	0.0								

The position of actors in relation to their divergence from other actors based on the divergence matrix (Table 4) is further visualized in Figure 5. Where the greater the value in the 3DAA matrix, the thicker the connection lines on the map and this indicates a higher level of divergence (Nopriani et al., 2022).

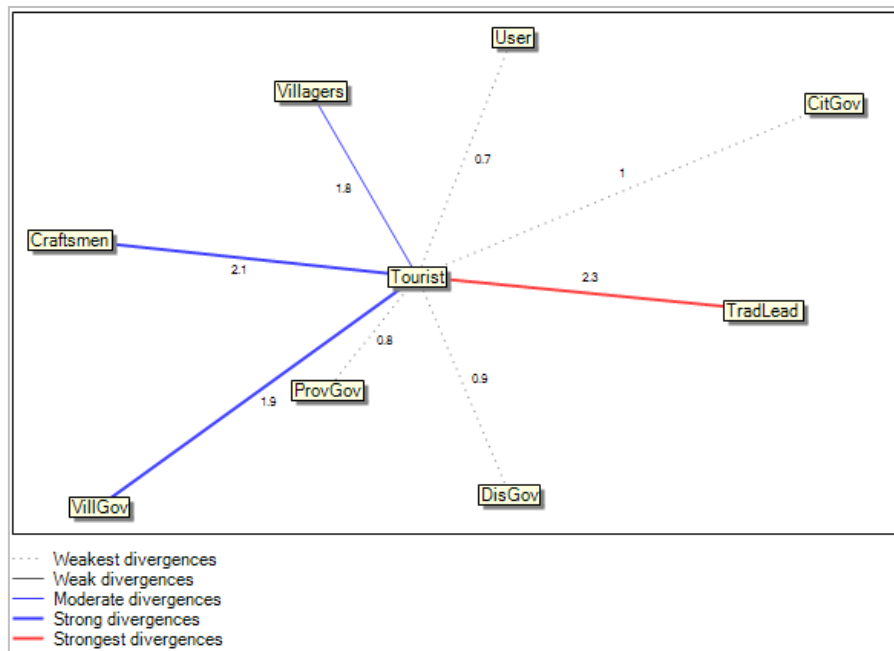


Figure 4. Graph of order 2 divergences between actors relate to the Gringsing Weaving sustainability

Figure 4 shows that the level of divergence between traditional leaders and tourists is the highest. This means that there are conflicting interests between the two actors, thus potentially giving rise to a conflict of interest. Tourists are oriented towards tourist attractions at all times, as well as Gringsing products at prices that tend to be cheap. Apart from that, of course not all tourists understand the meaning and use of Gringsing Weaving. Meanwhile, traditional leaders have an obligation to ensure that the values and traditions passed down from generation to generation regarding Gringsing Weaving are maintained.

The results of convergence (3CAA) and divergence (3DAA) analyzes will produce ambivalence between actors. Actors are called ambicalen if they can be in the same position both in convergence and divergence on different goals. If they want to work together (alliance), then these actors must work together on the same goal (convergence) and put aside goals that cause divergence (Fauzi, 2019).

4. CONCLUSION AND RECOMMENDATION

In ensuring the sustainability of Gringsing Weaving, there are six internal stakeholders (Tenganan Village community, Gringsing craftsmen, and traditional leaders) and three external stakeholders (government, tourists, and consumers/users) who are related and have an interest. Meanwhile, the objectives in the context of sustainability include economic, environmental, and social and cultural aspects. The results of the MACTOR analysis show that the actors most active in the sustainability of Gringsing Weaving are traditional leaders, followed by the Tenganan Village community and craftsmen. Meanwhile, from external elements, the most active actor is the Tenganan Village Government. Tourists are stakeholders who have a value of disapproval of the goals of developing craftsmen's human resources. This is because tourists tend to want cheap products, without understanding the value of the process, raw materials, including the use of Gringsing Weaving. Traditional leaders have the highest convergence with the Tenganan Village community and craftsmen regarding the sustainability of Gringsing Weaving. On the other hand, traditional leaders actually have a strong divergence from tourists. This further emphasizes the importance of the role of traditional leaders. However, tourists are ambivalent actors who can form alliances with other actors. It is recommended that tourists who travel to Tenganan Village be given an understanding of the history and values contained in Gringsing Weaving, so that tourists see Gringsing as a whole. Research related to the sustainability of Gringsing Weaving has great potential to continue to be developed, especially in relation to efforts to regenerate craftsmen, strengthen economic value, and policies related to the sustainability of Gringsing Weaving.

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