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Social Life-Cycle Assessment of a Piece of Jewellery. Emphasis on the Local Community

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Abstract: An increasing global focus on sustainability has affected the jewellery industry by raising questions about its environmental and social impacts and ethics due to the negative impacts of gold mining. It is essential to consider the social aspects of mining activities on the socio-economic environment and the affected individuals in order to understand the sustainability of the jewellery industry in a better way. Nonetheless, this is a gap in the evaluation of the issues of jewellery in the other phases of the life cycle, observed in the literature. For these reasons, the goal of this study is to assess the social and socio-economic aspects of a piece of jewellery from the artisan's point of view by considering the relationship between a piece of jewellery and the local community. The United National Environmental Programme/Society of Environmental Toxicology and Chemistry (UNEP/SETAC) Guidelines on Social Life-Cycle Assessment, the UNEP/SETAC Methodological Sheets and the Subcategory Assessment Method were implemented. The findings show that a piece of jewellery can play an important role in supporting the local cultural heritage by innovating the traditional product, and promoting educational activities related to the history of the product and the territory. Consequently, the local community with its historical background gives an added value to the piece of jewellery. Further research on this topic is desirable in order to improve the knowledge of this particular sector and to identify other social issues that can be involved in this product.

Keywords: social assessment; jewellery; subcategory assessment methods; social sustainability

1. Introduction

The goldsmith sector is defined as a set of activities which transform precious metals (i.e., gold, silver, platinum) and gemstones into products such as rings, necklaces, bracelets, brooches, earrings, cutlery, trays, etc. [1]. The piece of jewellery can be produced in an industrial and/or artisan way—goldsmith production. The difference between the goldsmith and industrial jewellery lies in the production techniques, which determine its quality and uniqueness. Furthermore, due to the high flexibility of the artisan sector, different types of products can be obtained from the goldsmith's workmanship given the multiple techniques of material processing and the use of precious stones that make it possible to create products that are different from one another.

Craftsmanship is a sector where the differentiation and flexibility of production are strategic elements for the companies that operate there. Goldsmithing has been for long time an important sector within the European Union (EU) economy. The EU is an essential supplier of precious jewellery in international trade, and it is also considered to be the 2nd or 3rd largest market for the consumption of jewellery [2]. The precious jewellery sector is defined as "driven by a growing demand for custom-made, personalised, individually designed and innovative designs of high-quality and high-value jewellery as high precious metal prices have resulted in many consumers now considering the design and

innovation within a jewellery item as equal to if not more important than its base intrinsic value" [3]. Nowadays, it is not possible to be competitive on price alone, thus, other aspects should be taken into account. Therefore, the increasing global focus on sustainability around the jewellery industry has raised questions about its social issues and ethics due to the negative impacts of gold mining which are considered among the worst.

A social focus on sustainable development moves beyond the identification of the social risks to understand the social and socio-economic aspects of the outcomes [4]. Sustainability is often seen by organisations as an add-on topic or communication initiative, while the awareness of the sustainability role could bring a long-term competitive advantage [5]. The assessment of the social drivers which takes into account the entire life cycle enables companies to be more and more aware of their role with respect to society and other stakeholders which can also be affected by the unethical behaviour of their own suppliers.

Life-cycle thinking (LCT) approaches allow assessment of both positive and negative impacts as well as potential ones in product decision-making processes [6]. LCT covers the three dimensions of sustainability through life-cycle assessment (LCA), life-cycle costing (LLC) and social life-cycle assessment (S-LCA) methodologies. The ISO 14040:2006 provides the technical framework for LCA, (identifying four phases: Goal and Scope Definition, Life-Cycle Inventory, Life-Cycle Impact Assessment and Life-Cycle Interpretation) adopted by the Guidelines for Social Life-Cycle Assessment [7] to implement S-LCA. S-LCA is a methodology to assess the social and social economic aspects, positive and/or negative, of the life cycle of products, services and technologies [7]. S-LCA allows for addressing human health and social aspects (e.g., equal opportunities/discrimination; secure living conditions; contribution to economic development; cultural heritage, etc.) by providing an assessment of their impacts (i.e., the consequences of pressures on well-being of individuals), performances (i.e., a "snapshot" of the current situation of the analysed object) and risks (i.e., possibility that a situation is exposed to danger). In the last ten years, several review papers (i.e., [8–11]) were published in order to give a state-of-development of the methodology by overcoming the main challenges of S-LCA. Indeed, several authors highlight that there is not a direct link between the functional unit (FU) and the social impacts emerging from the assessment [12–14] and there is not a common consensus about the impact assessment methods as well as the social indicators used for the assessment. In this perspective, different authors (i.e., [15–19]) developed a specific framework of indicators underlining that S-LCA is a topic and context-related assessment.

To date, few studies [4,20] of S-LCA have concentrated on the field of the jewellery sector. These have used the Disability-adjusted life years (DALY) indicator to evaluate the product impacts on human health, that allows considering different types of causes of death and impairment, including conflicts, occupational and environmental hazards. One study, Yi Teach et al. [21] highlights that decent working conditions of a miner depend on the culture of the mining company. Furthermore, it can depend on developed or developing countries. Indeed, a study shows that in the developing countries there is a high rate of employment and non-fatal injury intensities, while in the developed countries there is a higher rate of injuries and lower levels of employment [22]. Land-use and territorial aspects, environmental impacts affecting health and human rights, are the impacts of mining, emerging mainly from the review conducted by Mancini et al. [23]. Despite the negative social impacts, which appear especially in the mining phases and for the workers' stakeholder, there is a gap in the literature on the evaluation of the impacts of the jewellery in the other phases of the life cycle and for the other stakeholders, as well. Indeed, to identify the overview of social impacts of the jewellery sector, it is important to take into consideration the entire life cycle of the product and not focusing only on the upstream processes (i.e., extraction and transformation of the raw materials). Furthermore, it is important to also analyse the positive impacts that can be identified from the production to sale of a specific product on stakeholders. Determining and evaluating the social positive impacts are a support for local communities to define development objectives and ensure that positive results are maximised [24].

For this reasons, the aim of this paper is to assess the social aspects of a piece of jewellery from the artisanal point of view through the relationship between the product and the local community in order to identify the eventual social positive impacts. The social performance is assessed though the S-LCA methodology by evaluating the goldsmith's behaviour in using on-site primary data from Italy. The social conditions of a local community that affect and are affected by a piece of jewellery was assessed at the subcategory level, through subcategory assessment method (SAM).

This paper is structured as below: Section 2 provides the description of the implemented method for assessing the social aspects of a piece of jewellery from the local community perspective. The results of the performed evaluation are shown in Section 3 and lastly, in Section 4, the conclusions, implications and future developments are outlined.

2. Methods

The social and socio-economic aspects of a piece of jewellery were assessed with a particular focus on the local community stakeholder. The implemented methodology is based on the UNEP/SETAC Guidelines [7] and on the Methodological Sheets [25]. The goal and scope phase of the study is described in Section 2.1. Data collection and impact assessment are discussed in Sections 2.2 and 2.3, respectively. Finally, the results of the study are discussed in Section 3 and the conclusions are drawn in Section 4.

2.1. Goal and Scope Definition

The goal of this study is to outline and to assess the potential social aspects, both positive and negative, of an artistic hand-made piece of jewellery created by an artisan in Abruzzo, Italy. The analysed piece of jewellery is called "Stregonia", and it is realised with fossilised heart-shaped coral and set in a silver frame. "Stregonia", or rather "Pietra Stellaria", is a fossil coral used, since ancient times, as a precious gem due to its rarity and uniqueness: the term "stellar" derives from the evident poriferous structure of the coral that obtains a brilliant decorative effect similar to a starry sky. The ancient people did not know the origin of fossils; they believed that this stone fell from the sky during night time and, therefore, used it as an amulet to cast out witches, hence the name "Stregonia" (Figure 1).

Figure 1. The "Stregonia" pendant.

The definition of a FU is mandatory according to the UNEP/SETAC Guidelines [7], even though in the S-LCA it is not linked to the results of the study [26]. Indeed, some studies consider working hours to report the social performance (e.g., [26–29]) or apply its added-value (i.e., the amount of the valued added created in each process) of a product system. Nevertheless, in this study the FU was defined as the "Stregonia" pendant, to be worn for a life-time. Indeed, it is a typical timeless artisanal piece of jewellery passed down through generations. The reference flow allows for the conversion of the FU into a specific product flow. In this perspective, Table 1 allows for identifying the material inputs necessary for the fulfilment of the analysed FU.

The social performance of a piece of jewellery was evaluated through the consideration of the organisational behaviours gathered at company level [7,30]. For this reason, a master goldsmith is analysed by considering the activities ranging from the design to the sale of jewellery. Indeed, the defined System Boundary is from Gate to Gate, taking into account the jewellery manufacturing stage and retail stage, as shown in Figure 2.

The product system can be split between foreground processes and background processes [4]. The stages included in the System Boundary are the foreground processes. The peculiarity of the goldsmith is that he works in all the processes necessary for the creation and sale of a piece of jewellery, starting from the supply of the cabochon-cut starstone, metals and the necessary equipment considered. In detail, the analysed jewellery is composed of "Pietra Stellaria" and silver. These elements undergo a technical process which makes for the "Stregonia" pendant. During the jewellery production phase, the "Pietra Stellaria" is cut into a heart shape, then the silver is fused with a small amount of copper in order to obtain an alloy. By so doing, the alloy is transformed to into a silver slab. At this point, the silver slab undergoes a series of processes (i.e., cooling and drawing of the silver slab) in order to have the modelled slab for the "Stregonia" pendant. Subsequently, "Pietra Stellaria" is shaped and then, welded to the silver slab. Lastly, the "Stregonia" pendent is finished and polished for sale.

The background processes (i.e., secondary processes) such as the mining activities, refining activities in the upstream and use phase in downstream, were excluded for a lack of available primary data. Indeed, it was not possible to include the processes concerning raw materials, given that it is very difficult to collect data and information, both with regard to precious stones and metals such as gold or silver. Furthermore, the process regarding the production of packaging was excluded from the system as it was not significant with regard to the goal of the study.

Table 1. Input, processes and output involved for the manufacturing of the "Stregonia" pendant.

Input	Process	Output
"Stellaria" Stone; Cabochonatrice; Energy; Water.	Cutting "Pietra Stellaria".	The heart-shape of "Stellaria" stone; Wastewater.
Silver and copper; Casting oven; Energy.	Fusion of silver with a small amount of copper.	Alloy.
Alloy; Tools to shape the alloy.	Transformation of the alloy.	Silver/copper slab.
Silver/copper slab; Non-toxic acid	Cooling of silver/copper slab.	Cooled silver/copper slab.
Slab; die plate; Energy.	Processing of the slab in the wire drawing machine.	Flat slab; Slab residues that are also recovered from the used gloves.
"Stellaria" stone; Silver slab; Caliper and file.	Shaping of the "Stellaria" stone with the silver slab.	"Stellaria" stone shaped in silver.
Shaped "Stellaria" stone; Laminated slab; Welding machine; Energy.	Welding of the pendant on the laminated slab.	Frame of "Stregonia" pendant.
Thick slab; Frame of "Stregonia" pendant; Welding machine; Energy.	Welding of the pendant bails made with thicker slab.	Pendant bails.
Pendant bails; Milling machine.	Cutting of the shape of the "Stellar stone" with a cutter, production of the indentation.	Jagged "Stregonia" pendant.
"Stregonia" pendant; Gray rubber.	Finishing of the pendant with a rubber.	Finished "Stregonia" pendant.
"Stregonia" pendant; Polishing paste; Energy.	Polishing of the "Stregonia" pendant with a brush and a silver paste.	Polished "Stregonia" pendant.

Figure 2. System boundaries of "Stregonia".

The stakeholder categories, subcategories and indicators should be defined in the Goal and Scope Definition phase. In this study the local community stakeholder was assessed in order to pinpoint

the relationship with the product under study. The analysed subcategories of Local Community are shown in Table 2.

Table 2. Description of the analysed subcategories for the local community stakeholder.

Subcategories	Sources	Description	Type of Data Collection
Access to Immaterial Resources	UNEP/SETAC Methodological Sheets [25]	To evaluate the extent to which the company organisation provides and improves local community access to intangible resources.	1 question
Access to Material Resources	UNEP/SETAC Methodological Sheets [25]	To assess the extent to which the company organisation provides and improves the local community's access to material resources such as water, minerals and resources or infrastructure such as school roads, etc.	4 questions
Delocalisation and Migration	UNEP/SETAC Methodological Sheets [25]	To evaluate if the contribution of the organisations towards delocalisation, migration within local communities and the treatment of populations is adequate.	Interviews
Cultural Heritage	UNEP/SETAC Methodological Sheets [25]	To recognise the local cultural heritage (i.e., language, social and religious practices, knowledge and traditional craftsmanship) and to promote the cultural development of the members of local community.	7 questions
Safe and Healthy Living Conditions	UNEP/SETAC Methodological Sheets [25]	To promote the general safety conditions of the community in terms of use of hazardous materials and pollution emissions.	4 questions
Respect of Indigenous Rights	UNEP/SETAC Methodological Sheets [25]	To highlight any conflicts with native inhabitants and respect for their rights.	Interviews
Community Engagement	UNEP/SETAC Methodological Sheets [25]	To involve the community in the development and implementation of business policies and decisions.	6 questions
Local Employment	UNEP/SETAC Methodological Sheets [25]	To provide income and training activities to community members in terms of technical and transferable skills.	2 questions
Secure Living Conditions	UNEP/SETAC Methodological Sheets [25]	To contribute to the security of local communities in respect to the private security personnel status.	2 questions
Territory	Authors [1]	To promote artistic-cultural tourism linked to the analysed geographical territory.	2 questions

[1] Subcategory introduced by the authors.

2.2. Life-Cycle Inventory (LCI)

The LCI data were gathered on-site for the year 2016 at a master goldsmith located in Italy. The collection of on-site data allows us to assess the relationships between the organisation and its stakeholders ([25,28], (in this study the local community)). Primary data were collected through questionnaires created specifically for this study. The subcategories, the sources and the type of data collection (questions or interviews) are shown in Table 2. The investigated subcategories were identified through the Methodological Sheets [25], except for the "Territory" subcategory, which was introduced by the authors. The Territory is a social theme which needs to be assessed given that the effects of the business activities (i.e., artistic-cultural tourism; museums, exhibitions) have repercussions both on the environment and on the local community. Indeed, the biodiversity protection, the landscape enhancement as well as the social and economic effects of the product on the community, should be considered.

Once the subcategories to assess had been defined, they were modelled into questionnaires to be submitted. The questionnaires were structured following the Methodological Sheets [25], and the questions were tailored to the involved actors. Indeed, the results were related to the three developed questionnaires and submitted to the three key stakeholders selected through the expert consultation as below:

1. A company questionnaire compiled by the owners of the goldsmith;
2. A Confederation of the Nation of Craft and Small and Medium Enterprises (CNA) questionnaire compiled by a representative of a local confederation;
3. A member of the local community questionnaire compiled by the director of a local museum: The Museum of Fossils and Ambers, S. Valentino in Abruzzo Cit., Italy.

The aim of involving different people is to validate the collected data through a triangulation [3,4,31]. A cross-check between the data provided by the goldsmith and those provided by the external actors indirectly involved in the organisation activities, was carried out [15]. The questions were asked in order to confirm (or not) the answers given by the other two people interviewed [31]. The interviews were conducted for two subcategories (i.e., Respect of Indigenous Rights and Delocalisations and Migrations). This choice has been made in order to understand some social situations that may not emerge with a questionnaire. Indeed, only the organisation manufacturing the product can provide information on social issues.

2.3. Life-Cycle Impact Assessment

According to the UNEP/SETAC Guidelines [7], the inventory results should be classified and aggregated in relation to the Stakeholder and Impact Categories. Currently, it is evident that there is no scientific agreement on the characterisation approach in S-LCA [26]. Furthermore, a social impact assessment method has not been standardised and internationally accepted [26,32]. Indeed, the S-LCA literature suggests different impact assessment methods which are broadly classified in Type 1 (i.e., performance reference point based methods) and Type 2 (i.e., Impact pathway methods) [8,9]. Most S-LCA studies implement Type 1 methods [9], by using scoring systems [30,33–39]. This study also used a Type 1 Impact Assessment method through the implementation of SAM. Since the goal of this study is to assess the social performance of a product, SAM enables us to describe the social context of the analysed product. SAM evaluates the subcategories identified in each process through the organization behaviour. Four phases have been implemented: (1) the definition of the role of the organisations involved in the product chains; (2) the definition of the basic requirements (BR) to evaluate each subcategory; (3) the definition of a four-level assessment scale; (4) the definition of the quantitative assessment and its characterisation in terms of social performances [6,15,30]. A level scale and a score scale are employed to convert the data from qualitative to quantitative. SAM makes for the analysis a piece of jewellery throughout its life cycle based on goldsmith behaviour, as showed in Table 3.

Table 3. Description of the subcategories for analysed local community—Source [15].

Corporate Behavior	Proactive	Basic Requirement (BR)	Not Satisfactory BR (Negative Context)	Not Satisfactory BR (Positive Context)
Levels Scale	A	B	C	D
Scores Scale	4	3	2	1

The BR is defined in compliance with international agreements (e.g., Universal Declaration of Human Rights; International Labour Organisation) and represents a point of reference. The organisation that respects the BR is assessed on level B. Level "A" is assigned when the organisation shows a proactive behaviour with regard to the BR, since it promotes and satisfies the requirement also towards its suppliers and local community. Levels "C" and "D" identify the social aspects that do not satisfy the BR [24]. Precisely, level "C" is attributed to the organisation located in an unfavourable context and for this reason does not meet the BR. Level "D" is assigned when the organisation does not meet the BR, even if located in a favourable context which, for example, protects that particular problem and where there is a specific regulation not taken into consideration [15,24].

3. Results and Discussion

3.1. Results of Subcategory Assessment Method (SAM) for the Local Community

Table 4 shows for each subcategory evaluated, the indicators used as well as their unit of analysis, while Table 5 shows the giving questions and answers received for Cultural Heritage subcategory. Indeed, the questions were formulated in order to answer to the identified indicators as shown in Table 4. In fact, each subcategory has a set of corresponding inventory indicators selected according to [34] and the UNEP/SETAC Methodological Sheet [25]. The indicators used for this study were classified into two types: Quantitative and semi-quantitative. The first are characterised by percentages (%), while the semi-quantitative by the presence or absence of social issues (Yes or No). The indicators give a synthetic representation of a set of characteristics that allow us to understand a determined phenomenon or reality. This set of indicators allows to identify the findings of this study shown for each analysed subcategory of the local community in Table 6 and Figure 3. Table 6 highlights each level assigned the analysed subcategories, while Figure 3 shows the social performance of the goldsmith for each subcategory.

Table 4. Set of indicators used to assess the social performance of the local community.

Local Community Subcategories	Social Indicators	Unit of Measure	Results
Access to Immaterial Resources	• Presence of intellectual property policies that respect the economic and moral rights of the community. • Presence of community education initiatives.	y/n y/n	Evidence the promotion of community services (educations, information sharing).
Access to Material Resources	• Evidence of concern with material resources. • Presence of an environmental risk assessment and possible conflicts with the local community. • Evidence of environmental management system in the company.	y/n y/n y/n	No evidence of environmental management system in the company and formal environmental risk assessment.
Community Engagement	• Evidence of company policy on behalf of local community. • Number of meetings (exhibitions, … .) with the members of the local community. • Evidence of the company promoting local community initiatives.	y/n Nr y/n	The organisation actively organises and joins in events of local community (cultural exhibitions, concerts, book presentations).
Delocalisation and Migration	• Number of individuals resettled (voluntarily and/or involuntarily) that can be attributed to the organisation. • Number of migrant workers integrated into the community.	Nr Nr	No evidence of resettlement caused by the organisation.
Cultural Heritage	• Presence of corporate policies aimed at protecting cultural heritage. • Evidence of the promotion of cultural, historical and artistic events. • Presence of business programs that allow the inclusion of cultural heritage in the choice of products.	y/n y/n y/n	Evidence of the promotion of cultural historical and artistic events to considers activities of cultural heritage preservation.
Safe and Healthy Living Conditions	• Evidence of company efforts to strengthen community health and reduce possible conflicts with the local community. • Presence of an evaluation system of risks related to the health and safety of the local community. • Evidence of company efforts to minimize the use of hazardous substances.	y/n y/n y/n	Absence of conflict with the local community and presence of safe system within the surroundings the shop.
Respect of Indigenous Rights	• Presence of policies to protect the rights of local community members. • Annual meetings held with Local community members.	y/n Nr	Communities and regions were engaged by similar activities and there is no conflict with the local community.
Local Employment	• Evidence of company policies for the promotion of local employment. • Percentage of expenditure of buying from local suppliers. • Percentage of hired local workforce.	y/n % %	When uses local suppliers.
Secure Living Conditions	• Evidence of private security management policies. • Presence of actions endangering the conditions of the local community. • Number of legal complaints against the company regarding the breach of public security.	y/n y/n Nr	The organisation does not reveal any conflicts or problems with the local community proven by the absence of judicial appeals to the organisation.

Table 4. *Cont.*

Territory	• Presence of company programmes/activities aimed at the management and protection of the local ecosystem. • Presence of company programmes/activities aimed at promoting the territory.	y/n y/n	The organisation is engaged in programs and activities in order to protect the local ecosystem by supporting educational and cultural events.

Nr: number, %: per cent, y/n: yes and no.

Table 5. Cultural heritage questions asked to the members of local community with their answers.

No.	Submitted Questions	Answers
1	Does the goldsmith have policies aimed at protecting cultural heritage?	No
2	Does the goldsmith finance, support and promote cultural or artistic events that are an expression of local cultural heritage?	Yes
3	If yes, how?	The company supports the community through the promotion and organisation of exhibitions of natural stones, local artists and typical products.
4	Does the goldsmith provide programs that allow the inclusion of cultural heritage in the selection of products?	Yes
5	If yes, name a few.	The choice of traditional stones and traditional design of the product.
6	Does the goldsmith implement policies to defend cultural heritage?	No
7	Does the goldsmith carry out studies, historical, artistic and cultural studies?	Yes

Table 6. Assessment through subcategory assessment method (SAM) of the local community stakeholder.

Subcategories	Level Scale
Community Engagement	A
Local Employment	B
Access to Material Resources	B
Access to Immaterial Resources	A
Safe and Healthy Living Conditions	B
Secure Living Conditions	A
Cultural Heritage	A
Territory	B
Delocalisation and Migration	B
Respect of Indigenous rights	B

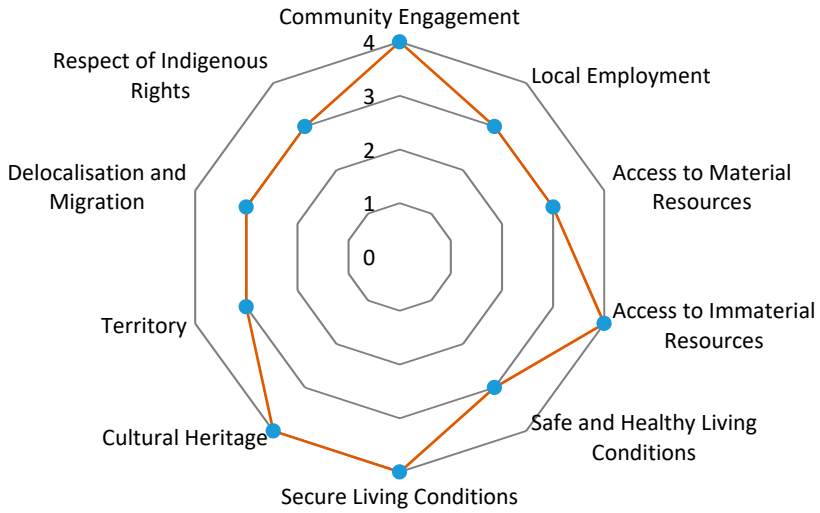

Figure 3. Social performance of the "Stregonia "pendant on local community.

S-LCA helps to identify the social issues, both negative and positive, related to the "Stregonia" pendent in order to understand the social benefits that can be promoted within the local context.

In order to obtain reliable and robust results, it is necessary to provide a complete analysis of the product by including in its assessment, also its qualitative characteristics. The "Stregonia" pendant does not only have an economic value, but it also has an intrinsic value conveyed by cultural and traditional aspects beyond the general characteristics of a piece of jewellery. The goldsmith under study promotes a cultural company policy in favour of the members of the local community and hence, tourists—a fact confirmed also by the head of the local "S. Valentino" Museum. Indeed, around 10 events per year are usually organised in terms of concerts, exhibitions or book presentations in order to promote culture. For this reason, the Community Engagement subcategory was evaluated at level "A", given that the goldsmith company actively participates in and is committed to the promotion and development of the local community.

The promotion of activities for the local community allows contributes to the Access of Immaterial Resources. Indeed, the goldsmith carried out initiatives aimed at educating the members of the local community by providing information, sharing knowledge and transferring technology. The sharing of these resources with the local community has helped classify the Access to Immaterial Resources at level "A".

On the other hand, and with regard to the Access to Material Resources, it emerged that the goldsmith carried out an environmental risk assessment of its activities. Nevertheless, the goldsmith does not have an environmental certification system, even though he claims to use a "voluntary" environmental management system. Furthermore, no conflicts were identified in terms of use of material resources between the organisation and the local community. For these reasons, the Access to Material Resources subcategory was classified with SAM at level "B".

Since the goldsmith is a family managed organisation, there are no employees. For this reason, local employment is not encouraged through goldsmith policies given that only business owners work at the goldsmiths and no qualified person can be found to assist them. Furthermore, the goldsmith (in line with the replies of the CNA questionnaire and unlike what appears in the questionnaires of the members of the local community), states that there is a preference in the choice of local suppliers. This subcategory is evaluated at level "B", since it emerges that the goldsmith prefers to choose local suppliers.

As regards the Safety and Healthy Living Condition subcategory of the local community, a risk assessment system is not implemented by the goldsmith; however, even though this is a small artisan company with limited time- and money-related resources, they try to limit the use of dangerous substances to the minimum during their working activities. For this reason, there has never been a conflict between the local community and the organisation regarding Safety and Healthy Living Conditions. Following the analysis of the related questionnaires, this subcategory is evaluated at level "B".

With regard to the Secure Living Conditions subcategory of the local community members, the goldsmith supports the activities of sustainable waste management. Furthermore, no complaints have ever been reported by the community in terms of Secure Living Conditions. Level "A" was assigned to this subcategory given that the organisation promoted and provided secure activities for the local community.

The Cultural Heritage subcategory is the most characteristic social aspect amongst the subcategories with regard to the analysed object of the study. Indeed, the jewellery acquires value through its strong connection with the local community which acknowledges a part of the history of the own community in the "Stregonia" pendent. The "Stregonia" pendant protects and enhances local cultural heritage over time by being passed down from one generation to the next. The data collection shows that the goldsmith, implements policies aiming at protecting cultural heritage through the support and promotion of cultural and artistic events, such as exhibitions, concerts and book presentations. These data were confirmed by both the head of the "S. Valentino" Museum (representative of the members of the local community) and the CNA. This subcategory was evaluated at level "A".

The Territory subcategory considers the environmental and human aspects that affect a specific community located in a specific area. The questions submitted to the analysed stakeholder allowed to identify how the goldsmith supports initiatives aimed at promoting the territory, such as artistic and cultural tourism. For this reason, the Territory subcategory is classified at level "B".

The Delocalisation and Migration and Respect of Indigenous Rights subcategories are analysed by means of interviews and the observation of the context elements where the goldsmith is located. Therefore, it points out that the goldsmith would be able to discourage migration by leveraging on the discovery, enhancement and sense of attachment of the population to local traditions and cultural heritage. Furthermore, no conflicts with the indigenous inhabitants have been observed over time and for this reason, both these subcategories are assigned level "B".

3.2. Social Performance of "Stregonia" on Local Community

From the social and economic point of view, different significances are attributed to jewellery: from the economic and aesthetic to the symbolic, apotropaic and communicative values. Today, the main function of jewellery is to express a feeling, but it can also have a specific religious purpose linked to religious cult, or a symbolic meaning or communicate a social status. From this perspective, this study confirmed that the "Stregonia" pendent plays different roles within the local community. Some of these functions are inextricably linked to the definition of jewellery. Figure 4 shows the several functions covered by the "Stregonia" pendant.

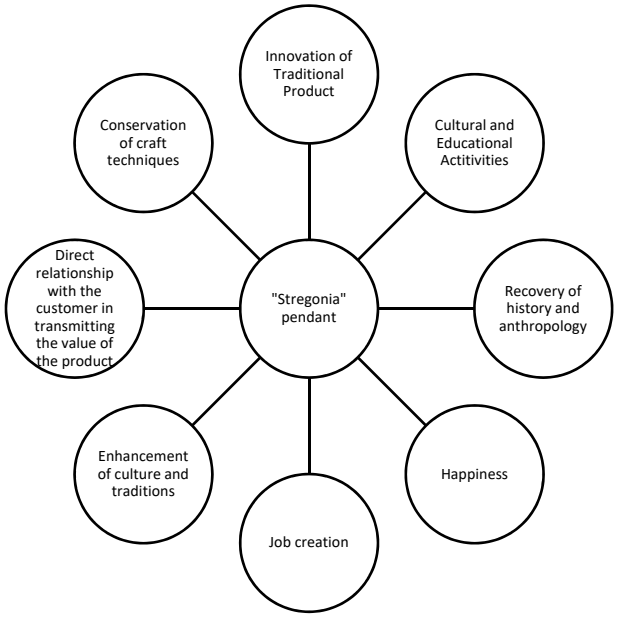

Figure 4. The functions of "Stregonia".

Furthermore, the "Stregonia" pendant plays the role of supporting the local cultural heritage through its educational activities related to the history of the product and is promoted by recovering its history and anthropology. "Stregonia" represents a social memory as it protects the cultural and social identity of the local community through ritualised situations. The concept of cultural heritage leads the discussion of the continuity between past and present [40].

4. Conclusions

In this study, the "Stregonia" pendant was assessed in order to identify its existing relation with the local community. This piece of jewellery is a typical artisan product that promotes the local culture and it is produced by local goldsmith experts. For these reasons, it was decided to verify the social aspects that affected the local community by manufacturing this product.

This product is a symbol of belonging to a place and, thereby, is strongly linked to the territory itself. From the emerging analysis, it is the local community with its history and background that mainly gives the added value to the "Stregonia" pendant.

Jewellery enterprises have been working increasingly on sustainability issues within some of the world's most disadvantaged communities by empowering artisans and persevering traditional crafts. This requires companies to grow in transparency and traceability of where their raw materials are coming from, as they might be (unintentionally) supporting social and environmental impacts (deforestation, violent conflicts, illegal trade, child labour) [41].

This study highlighs some typical aspects of the social responsibility which characterised the analysed piece of jewellery. Indeed, it was possible to identify three relevant thematic areas (i.e., the environment, the people and the local cultural heritage) on which the goldsmith has built his mission.

- The goldsmith is committed to producing the piece of jewellery by respecting the environment: by making use of the best available clean technologies, by using energy, materials and natural resources efficiently, and by consuming water resources responsibly and reasonably.
- The goldsmith cares for both consumers and members of the local community in general. The care for the consumer is not only a value, but a daily practice that has its foundation in a sense of responsibility that goes far beyond commercial objectives. This responsibility is accomplished through continuous customer loyalty, by guaranteeing product quality, consumer privacy and transparency. Furthermore, the goldsmith pays constant attention to the communities in which it operates. This commitment is demonstrated through the multiple activities of cultural involvement, through all the initiatives and meetings activated for the local community in the form of exhibitions, concerts, conferences or book presentations.
- The goldsmith protects and enhances cultural heritage and local traditions. The goldsmith carries out historical, artistic and cultural studies and he is a collector of ancient medals, books, and fossils; all this constitutes a broad cultural background that reflects on the added value that they can offer to the customer.

The present study allows further development of S-LCA in terms of implementation of the methodology for a specific stakeholder in order to assess the positive social impacts. In fact, the suitability of SAM to identify positive impacts of the product was highlighted at level "A". The evaluation carried out mainly shows positive results in terms of support and promotion of the local community. This allows for the following implications:

- the evaluation highlights that the product does not have a value to itself (in terms of materials and manufacturing) but generates shared value for the members of the local community;
- the product, through its history handed down over generations, promotes artisan craft activities and related cultural and landscape activities;
- the product supports the continuation of historical commercial activities;
- SAM highlights the positive impacts of products at level "A", whose achievement is only possible through the performance of proactive activities;
- SAM defines a performance reference point for each indicator analysed, which is based on the current international and national legislation.

The present study has allowed us to illustrate how the positive impacts of a product also depend on the intrinsic value of the product itself as shown for the "Stregonia" pendant. The artisanal pieces of jellewery under study give a mutual benefit among people and landscape because they announce and praise nature, art and the history of a local community by means of their identifying symbols and shapes of the territory. The main contribution of this study is the awareness of the capability of the implemented tool to provide a social evaluation of the product by highlighting its positive social effects on the local community.

Further developments of this study may include the expansion of the system boundary by taking into consideration the background processes (i.e., extraction and transformation of the raw materials) and other stakeholders such as workers, society, consumers and value chain actors. Furthermore, it is necessary to evaluate the social aspects of traditional products and to develop support tools that are able to capture the magnitude of their value.

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