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PROPOSING A MEASUREMENT SCALE OF THE STAKEHOLDERS' BASED SUSTAINABLE VALUE: A QUALITATIVE APPROACH

ABSTRACT

Given the limited reserves of fossil energy, the increasing consumption level of energy, and the problem of climate change, renewable energies are the best alternatives to other fossil energies. The number of ventures operating in the renewable energy sector has increased, there are approximately 160 active enterprises in 2019 (GIZ, 2019).

Usually, there is a constant tension between running an economically viable business and remaining faithful to environmental ideals. This research aims to examine how these challenges are achieved in different entrepreneurial firms by proposing a new construct labelled Stakeholders' based Sustainable Value. This study also aims to provide a measurement scale of the value that emerged from ventures in the renewable energy sector. We use a qualitative approach, which consists of 25 in-depth interviews, thematic analysis and Q sort technique. The Q-sort technique is used to evaluate the content validity of the construct. 56 items were retained after the process of qualitative purification. Results show that the SSV (Stakeholders' based Sustainable Value) is a multidimensional construct where enterprise value added and stakeholder value added are two sub-dimensions. This research is among the first studies that propose a valid measure of value creation in sustainable sectors like solar energy.

KEYWORDS: sustainable development; entrepreneurship; value creation; stakeholders; renewable energy

JEL: M13, Q2

INTRODUCTION

Developing a renewable energy sector in a country have a positive impact on its sustainability and provide a wide variety of socioeconomic benefits, contribute to the diversification of energy supply, enhances regional and rural development, and creates an opportunity for job creation (Del Rio and Burguillo, 2009). In Tunisia, the number of ventures operating in the renewable energy sector has increased and there are approximately 160 active enterprises in 2019 were 86% are installers (GIZ, 2019).

Sustainable development appears today as a new logic of economic and social development. It should authorize the institution of a just balance between the social context and economic growth which satisfies the needs of every generation without compromising the capacity of future generations to satisfy their needs. Therefore, it was defined by the Brundtland Commission in 1987 as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Commission, 1987, p. 37). Fraiman et al. (2005) recognize that, although the term

«sustainability» contains the balance between ecological, social and economic aspects, the environmental aspect is the important basis of sustainability.

In the literature review, research has dealt with value creation in a sustainable entrepreneurial context, on the one hand and the stakeholder theory on the other. However, little attention is placed on conceptualizing and measuring value creation as related to stakeholder management in a sustainable context. Leading enterprises are more in pressure to report their organizational performance beyond economic level. While there are some applied methods in practice like TBL report, Global reporting initiative (GRI) and Sustainable Balanced Scorecard (SBSC), there is no consensus about a common reporting standard.

In their study, Acosta-Prado and al. (2022) aim to analyze the impact of the three dimensions of sustainable value creation on the organizational performance of Colombian companies operating in the industrial sector. The results show an important and positive contribution of the social, economic and ecological dimensions on the creation of sustainable value and the organizational performance.

However, previous research failed to present an integrative concept which relates the entrepreneurship value creation to the stakeholder management and a measurement scale for this concept. We try to overcome this gap in the literature and we propose, the SSV construct which (stakeholders' based sustainable value) highlights the importance of considering the stakeholders' interests on the venture and therefore, the benefits to be gained from a successful project. Hence the construct is proposed on the basis of an extended literature review and semi structured interviews with entrepreneurs in solar energy sector. The purpose of this paper is to present the different steps which are followed to propose the SSV measurement scale and notably the content analysis and the content validity with the Q-sort technique.

1. LITERATURE REVIEW

Little attempts have been made in the literature in order to measure sustainable value creation.

Although it is still in its early stages, the current state of research quantifying stakeholder-based sustainable value shows a promising methodology. SIBIŃSKA and KRAWIEC (2023) present a measurement of shared value creation concept using the Delphi Method. The construct sustains that the venture is a multi-purpose system that create multiple values; the four dimensions of the construct are social value creation, environmental value creation, economic value creation and innovation value creation.

Porter and Kramer (2006) stated that the scope of shared value encompass the economic value and the social value, however, Sinthupundaja and al. (2020) broaden the scope of shared value for social entrepreneurship to enclose economic, social and environmental value and proposed that:” shared value refers to value creation for mutual benefits among an enterprise, society and the environment, including economic, social and environmental value. “(Sinthupundaja and al., 2020, p. 2). The environmental value was proposed by due to the ecological requirement, the climate change and the need to solve ecological problems.

Hossain et al. (2024) present a construct named corporate shared prosperity. The model composed with 16 items and five dimensions (stakeholder development, social well-being, infrastructure development, equality and non-discrimination, organizational stability) the dimensions were derived from systematic literature review, statistic analysis and focus group expert's verification. The reliability and validity of the construct were verified through exploratory factor analysis and confirmatory composite analysis. The construct is based on the stakeholder theory which recognizes that companies attain sustainable success by generating value for employee, customers, suppliers and communities (Mahajan et al., 2023).

1.1. Corporate sustainability

At a business level, sustainability is often viewed as similar to eco-efficiency, but the focus on this only aspect is not sufficient (Dyllick and Hockerts, 2002).

Dyllick and Hockerts (2002) transpose the definition of sustainable development at the business level and claim that corporate sustainability is defined as: “meeting the needs of a firm’s direct and indirect stakeholders such as (shareholders, employees, client, pressure groups, communities, etc.), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick and Hockerts, 2002, p. 131). In the case of corporate sustainability, we usually talk about economic capital, human capital and natural capital. Dyllick and Hockerts (2002) propose a model of corporate sustainability, which is often considered as eco-efficiency by enterprises. The model integrates six criteria which managers of sustainable businesses need to satisfy, especially eco-efficiency, socio-efficiency, eco-effectiveness, socio-effectiveness, sufficiency and ecological equity.

1.2. Sustainable entrepreneurship

The concept of entrepreneurship evolves, and it is not only a quest for economic success. Through his entrepreneurial behavior, the sustainable entrepreneur can manage the triple bottom line by reaching the equilibrium between the economic health, the social equity and the environmental resilience related to his enterprise (Kuckertz and Wagner, 2010). Successful entrepreneurs are those that can create, at the same time, social, ecological and economic objectives and then pursue the triple bottom line (Choi and Gray, 2008).

According to Watson and al. (2023), Sustainable businesses can contribute to sustainable development by seeking synergies between social aspects, environment and economics in order to turn market failures into business opportunities. However, Institutional conditions often hinder sustainable entrepreneurs. By using crowd sourcing approach, the authors explore how policy can support sustainable ventures. Dean and McMullen (2007) also used the Market imperfection to explain how sustainable entrepreneurs can seize opportunities arising from market imperfection, but they limit their attention to environmental issues.

Parrish (2007) proposed that: « Sustainability entrepreneurship is the process of creating new enterprises that survive and thrive by contributing to human well-being and the functioning of ecological systems» (Parrish, 2007, p. 1).

Sustainable entrepreneurship, as presented by Parrish (2007), is defined as entrepreneurship which combines environmental and social dimensions. The success of the sustainability-driven enterprise depends on the entrepreneur values and motives. Therefore, it is worth to note that some entrepreneurs are driven by sustainable motives and they have to conciliate between the motivation to reach the objectives of the sustainable development and the success of the enterprise in the market.

However, Cohen and Winn (2007) propose that sustainable entrepreneurs can resolve environmental problems with innovative solutions. Innovations probably come from entrepreneurs who can identify opportunities and therefore gain benefits while simultaneously addressing ecological and social issues reaching the triple bottom line. According to Venkataramen (1997): « Entrepreneurship as a scholarly field seeks to understand how opportunities to bring into existence « future » goods and services are discovered, created, and exploited, by whom, and with what consequences » (Venkataramen, 1997, p. 120). Taking this conception, Cohen and Winn (2007) expand the definition of Venkataramen (1997) and add environmental consequences to the initial definition. They, therefore, propose that sustainable entrepreneurship is: «How opportunities to bring into existence future goods and services are

discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences » (Cohen and Winn, 2007, p. 35).

Following the call of Venkataramen (1997) to broaden the scope of the entrepreneurship dependent variable, Cohen et al. (2008) develop a classification of the dependent variables which widely supports the area of entrepreneurship research. They proceed by creating a broad typology of entrepreneurship dependent variables to contain an economic, environmental and social value, and they try to consider all the important outcomes in entrepreneurship research. The typology reflects the triple bottom line concept where the economic, social and environmental motives define seven sets of entrepreneurial motivations and related objectives as well as seven areas of value creation: the economic performance, promise, perpetuity, socio-efficiency, eco-efficiency, stewardship and sustainability.

The sustainable entrepreneurship or sustainability entrepreneurship is different from corporate social responsibility, eco-efficiency and eco-effectiveness. It includes economic, social and environmental dimensions in a single venture. Based on the model of corporate sustainability presented by Dyllick and Hockert (2002) as well as the McDonough and Braungart's (2002) research of the triple top line, Young and Tilley (2006) propose a model of sustainability entrepreneurship which moves the business plan beyond the objectives of eco-efficiency and socio-efficiency. They consider sustainable entrepreneurship as: «An organization that has sustainability at the center of its structure, operations and management: in essence, an organization that is moving beyond the requirement to demonstrate efficiency in its drive to be sustainable » (Young and Tilley, 2006, p. 402).

1.3. Value creation and Stakeholders

When talking about values, enterprises must take into consideration that they have responsibilities toward their stakeholders (Elkington, 1997). Lepak et al. (2007) propose that value is created across a hierarchy of stakeholders. Also, Schlange (2006) proposes that the objectives of sustainability in a business setting have to be balanced to moderate various stakeholders' interests, including "the ecological environment". Cohen et al. (2008) state that "Evidence is building that there is a significant need (and opportunity) to consider the environment as a critical stakeholder in business practice". (Cohen et al. 2008, p. 115). Therefore, the ecological environment is considered as a stakeholder for the venture. The stakeholder theory highlights the idea that enterprises have responsibility to act in the benefit of the society and the environment and not just their own interests (Zhou and Wei, 2023).

Decisions and actions of managers should affect stakeholders in addition to considering shareholder interests (Khomba, Kangaude-Ulaya, Hanif, 2013).

Schlange (2009) seeks to identify the most important stakeholders who are involved in the early stage of sustainability venture creation, which is opportunity recognition. To do this, he based his study on the entrepreneurial cognition theory and the model of stakeholder identification and salience by Mitchell et al. (1997). Schlange (2009) concludes that sustainability-oriented entrepreneurs tend to be more "comprehensive" and future-oriented when they observe stakeholders. Moreover, the author maintains "legitimacy" and substitutes the attributes "power" and "urgency" of the stakeholder identification and salience model of Mitchell et al. (1997) with "philosophy" and "impact". The two latter are, in his view, more appropriate for the context of sustainability-oriented ventures. Indeed, "philosophy" means that an entrepreneur tends to build a relationship with stakeholders which share partly the same value system with him. "Impact" means that entrepreneur selects stakeholders who are probably to induce a future change in the society through economic, social and ecological systems. "Legitimacy" refers to compliance of stakeholders with the social rules.

Schlange (2009) expands the definition of corporate sustainability presented by Dyllick and Hockerts (2002) to the value creation context and states that: “Sustainability driving entrepreneurship is oriented toward the creation of sustainable values in the most general sense. This comprises the furthering of long-term survival on all relevant levels: that is, the firm and its stakeholders, society and last, but not least, humanity as a whole. As a requirement for a sustainability-driven venture, value creation in this regard is based on the principle of meeting the needs of present stakeholders without compromising the ability to meet the needs of future stakeholders” (Schlange, 2009, p. 18).

When reviewing the notion of corporate sustainability presented by Dyllick and Hockerts (2002) as well as the expansion of this notion by Schlange (2009) to Sustainability driving entrepreneurship, we can conclude that the notion of stakeholder is important when talking about sustainability and value generation.

Freudenreich et al. (2020) proposed a conceptual framework of stakeholder value creation where value creation is considered from the business model and the stakeholder value perspectives. It organizes the relationships between the company and its stakeholders through five dimensions of the business model. The dimensions identify the fundamental activities of value creation and the mutual value exchanges between the company and its stakeholders. The retained dimensions of the stakeholder value creation framework are customer dimension, business partner dimension, employee dimension, Societal stakeholder dimension and the financial dimension

1.4. Stakeholder management and CSP measurement

Freeman and al. (2000) propose that an enterprise can have a leading role in enhancing the ecological environment. Enterprises must create value for different stakeholders such as employee, customer, supplier, and investors, considering the environmental issue (Buysse and Verbeke, 2003).

Stakeholder management has not been frequently measured in the literature (Hillman and Keim, 2001). Nonetheless, one of the most used measures of stakeholder management is the Kinder, Lydenburg, Domini (KLD) index. This index is used as a measure of stakeholder performance (Hillman and Keim, 2001). It is also usually used as a measure of corporate social performance. Sharfman (1996) tested the construct validity of the KLD and found that it is the best measure of corporate social performance (CSP).

Hillman and Keim (2001) adapted the KLD to exclude issue outside the primary stakeholder areas of corporate social performance. Therefore, the adapted KLD captures basic stakeholder management. The excluded subjects are used to form the social issue participation variable.

The authors screened items based on their direct relation with primary stakeholders. These items arise from the five categories of KLD: community relation, employee relations, diversity issue, product issue, and environment issue. They affected items from diversity issue and employee relations to the employee's group of stakeholders, they classed the items from community relations and product issues into the customer's group of stakeholders, and they affected the items of the environmental relations, diversity issues, and community relations into the community group of stakeholders. They also, affected the items related to military contracting, production of alcohol or tobacco, involvement in the gambling industry, participation in nuclear energy, and others into the social issue participating (SIP). Therefore, dimensions of stakeholder management as proposed by Hillman and Keim (2001) are the product, environment, employee relations, diversity, and community. These dimensions emphasize key stakeholder relations (Waddock and Graves, 1997a).

Agle et al. (1999) affirm that these dimensions reflect the stakeholder orientation towards social performance (Waddock and Graves, 1997a) and highlight the stakeholder view of the firm. They are judged as the most critical dimensions by rating panels (Waddock and Graves, 1997a, 1997b). Coombs and Gilley (2005) used five dimensions of KLD which best reflect the stakeholder management view of the organization (community relation, diversity, employee relations, environmental impact and product safety/quality (customer related)). However, Agle and al. (1999) shorten the dimensions into four by combining employee relations and the treatment of women and minorities into one category.

Waddock and Grave (1997) affirm that there is a problem of measurement of corporate social performance because it is a multidimensional construct which encompasses different behaviors and managerial decisions. Behavior related to input like an investment in green technology and environmental strategies; Behavior related to internal process such as customer relationship and decisions concerning the nature of the product manufacturing; Behavior related to output such as community relation. Moreover, these behaviors happen in industries with different characteristics. Therefore, there is a need for a multidimensional measure of the corporate social performance, which can capture all the issues, decisions, and behaviors of the concept. The measure also needs to be applied to a wide range of industries (Waddock and Grave, 1997).

Enterprises deal with explicit as well as implicit costs. The explicit costs are related to the payment of shareholders, and implicit costs are associated with stakeholders (Waddock and Grave, 1997). From a stakeholder perspective, enterprises which aim to decrease their inherent costs by acting as irresponsible towards stakeholders are likely to increase their explicit costs. This leads to lower competing performance (Waddock and Grave, 1997).

Better employee relationships have positive consequences on overall morale and satisfaction, therefore, on productivity (Moskowitz, 1972; McGuire et al., 1988). Moreover, an enterprise which has a favorable working climate can easily recruit qualified and experienced employees, which enhances its performance (Moskowitz, 1972). Such socially based objectives lead to positive financial outcomes.

2. METHODOLOGY

Because of the scarcity of works dealing with sustainable entrepreneurship (Parrish, 2007; Choi and Gray, 2008), we chose to conduct a qualitative analysis which consists of in-depth interviews and documentary research. Exploratory research has been undertaken to generate a pool of items which measure the SSV construct. Therefore, the content analysis consists of documentary research and 25 semi-structured interviews with business leaders and officials who experienced the development stages of the project in the field of renewable energies and energy efficiency in Tunisia.

Companies subject to the study operate in the field of renewable energies including solar photovoltaic such as installations, manufacturing of solar panels, installation and/or production of solar water heaters. In addition to these main activities, there are companies which sell energy efficiency products or provide consulting and energy auditing.

2.1. Sample description

Exploratory research has been undertaken to test the relevance of the model and to generate a pool of items which measure the SSV construct. Therefore, the basic sources of items are in-depth interviews with professionals in the renewable energy sector. The respondents were contacted face to face in their offices, mainly after having an appointment. One interview was

done by telephone after the first contact in the EnerSol WSEF 2014 forum and one through the internet. Besides semi-structured interviews, we did some informal discussions and an informal interview with the president of the national trade union of the renewable energies.

Moreover, we attended the following conferences where the respondents are contacted, and interviews have been administered:

- Enterprise exposition (Salon de l'entreprise) which took place in Sfax on 20 and 21 November 2013
- The World Sustainable Energy Forum and exposition 'Ener Sol WSEF 2014' which took place in the UTICA on 7-11 the November 2014
- The international conference on renewable energy development and application for a sustainable agriculture REAGRI which took place in Tunis on the 2-3-4 December 2014
- MEDIBAT which took place in Sfax- Tunis on 04 to 07 March 2015

The following table presents the sample characteristics. The interviews have two objectives. The first one is to readjust the process model of value creation and to substantiate the SSV concept.

Table 1. The sample characteristics

	Used in	Interviewee position	Gender	Interviews' approximate time spent
Enterprise 1 AEP	process	Technical employee/staff	Male	5 min
Enterprise 2 VoltaPv	Process/SSV	The entrepreneur	Male	0 h 43 min
Enterprise 3 Afrisolar	Process/SSV	Technical director	Male	0 h 17 min
Enterprise 4 APER	Process/SSV	The entrepreneur	Male	0 h30 min (app)
Enterprise 5 ATER	Process/SSV	The entrepreneur	Male	0 h 17 min
Enterprise 6 ATS	Process/SSV	Commercial employee	Male	0 h 15 min (app)
Enterprise 7 Aurasol	Process/SSV	Marketing manager	Female	0 h 45 min (app)
Enterprise 8 BSI	Process/SSV	Director	Male	0 h 49 min
		An executive	Female	0 h 3 min
Enterprise 9 Ecowatt	Process/SSV	The entrepreneur	Male	0 h 45 min (app)
Enterprise 10 Energy Système Solaire	Process/SSV	The entrepreneur	Male	0 h 29 min
Enterprise 11 FBE	Process/SSV	The entrepreneur	Male	0 h30 min (app)
Enterprise 12 Gamco	Process/SSV	The entrepreneur	Male	0 h 28 min
Enterprise 13 Kasdeoui/unité de fabrication	Process/SSV	The entrepreneur	Male	1 h 09 min
Enterprise 14 ETI Enabled Technology Industry	Process/SSV	The entrepreneur	Male	0 h 29 min
Enterprise 15	Process/SSV	Regional Manager	Male	0 h 14 min

	Used in	Interviewee position	Gender	Interviews' approximate time spent
Mime				
Enterprise 16 GPC (Geen Power Company)	Process/SSV	The entrepreneur (director)	Male	0 h 24 min
Enterprise 17 PES	Process/SSV	The entrepreneur	Male	0 h 31 min
Enterprise 18 SDR	Process/SSV	The entrepreneur	Male	0 h 43 min
Enterprise 19 SDS	Process	-The entrepreneur -Commercial manager	Male	0 h 7 min
Enterprise 20 SolarFm	Process/SSV	-Technical and sale executive	Male	2 h 16 min 1 h 34 min
		-The entrepreneur intervention	Male	0 h 42 min (at 1 h 34 min)
Enterprise 21 Solaria	Process/SSV	-The entrepreneur	Male	
Enterprise 22 Sotume (SOTEEP)	Process/SSV	-The entrepreneur -The co entrepreneur intervention	Male	0 h 35 min 0 h 10 min (At 0h 25min)
Enterprise 23 Spectra	Process/SSV	-Director	Male	0 h 44 min
Enterprise 24 Sunsol	Process/SSV	The entrepreneur	Male	0 h 17 min
Enterprise 25 Sunway	Process/SSV	-associate manager	Male	0h 39 min

Source: Own

2.2. The Interview and the content analysis procedure

Our research is mainly based on a back and forth process between literature and the field study. This approach is called abductive. The aim of the confrontation between literature and the field study is to enrich well-defined concepts from the field study. This approach enables us to combine the benefits of the deduction and induction approaches.

Table 2. Interview Guide

Themes /categories		Sub-themes /subcategories	Questions
Part 1	Entrepreneur's personal factors	Entrepreneur's background	-Introduce yourself, please - When did you launch the project? - Is that your own project?
		Motivations	-Why did you choose this sector? - What are your main reasons for creating the company?
	The entrepreneurship process	Stages of the entrepreneurial process	-What is the main speciality of the company -Introduce the history of the company: source of the idea, the main stages of development -What are the problems you encountered? -What are the most significant events in the life of society -For this activity, how many projects have you done, and what is the installation capacity for each project? - Tell us about the characteristics of the products you installed, is there any innovations, and what are your sources of supply?
		Company's Stakeholders	-Introduce your team (position, qualifications) -What are your sources of funding? -Any state subsidy? Is it sufficient and advantageous in your view? -Tell us about the demand (customers) and supply (competitors) side
Part 2	Value creation	Economic value	-Is your business performing and successful? - What is your added value as compared to your competitor's? -If you have the opportunity to go through the same experience again, what do you change and what do you maintain?
		Sustainable value	-In the specific case of Solar energy ventures, do you think you are creating sustainable value, and what are its components? -How do you measure the value (benefits) created by your venture (economic, social, environmental sides)/ what are your added value from the economic, social and ecological sides?

Source: Own

The research about sustainable value is designed as follows:

- 1- Literature review
- 2- Semi-structured interviews
- 3- First floating reading and transcribing of some interviews (Value takes different forms and meanings according to respondents)
- 4- Back to the literature and deepening of the sustainable value concept
- 5- Proposing definition of the value concept as SSV (stakeholders' based sustainable value)
- 6- Interviews transcription
- 7- Content analysis for the substantiation of the SSV concept
- 8- Adjusting the proposed definition
- 9- Proposal of a preliminary scale of the SSV concept

Barden (1983) proposes a detailed approach to content analysis according to three steps:

- The pre-analytical step: brief reading, documents choice, formulation of hypotheses and objectives, indicators elaboration, material preparation,
- The material exploitation: coding
- Result treatments, inferences, and interpretation.

Firstly, we proceed by the transcription of interviews. We tried to be faithful to the interviewee discourse. In the categorization phase, we used the semantic unit of analysis, which corresponds to an idea. As it is proposed by Barden (1983), the criteria of categorization are always semantic and may correspond to a sentence, word, or group of words. Our categories are basically emergent, indeed while we tried first to be faithful to the literature; categories emerged as we advance in the analysis to highlight all aspects of value. The process of categorization and dimension identification was conducted using an abductive logic, moving back to the literature deemed relevant to verify the theoretical roots of our concepts and dimensions. Finally, we exploited the written material by using data coding and categorizing the unit into categories.

Following the claim of Bardin (1983) in order to assess the content validity, the categorization has been made at different times by the same researcher. Moreover, a part of the corpus has been subject to categorization by two other researchers. This step has been done to assess the objectivity. In this paper we focus on substantiating the SSV concept and proposing a preliminary measurement scale of the construct.

3. RESULTS

3.1. Definition of SSV

We found through the discussion that the value affects not only the result of the entrepreneurial activity exercise but also it is manifested throughout the implementation phase and the development of the activity. The values are the benefits provided to the company and the different elements in interaction with the company. That is why we talk about the added value for the stakeholders of the company.

Several aspects of the value have been identified at the stage of the implementation of opportunity. Indeed, the value appears as a result of the entrepreneur's behaviors and actions as a response to interactions with the external and internal elements of the environments.

The value concerns not only the result of the entrepreneurial activity, but it is manifested throughout the implementation phase and development of the business. Values are the benefits to the company and the different actors which interact with the company. That is why we talk about added value for the stakeholders of the company. Hence, the company can generate value for itself and its various stakeholders throughout the entrepreneurial process despite the complex reality and the difficulties encountered.

We define the sustainable value based on the stakeholders (Stakeholders' based sustainable value) as follows:

The ability of the entrepreneur to create value for the enterprise and its main stakeholders given the economic, social, psychological and environmental aspects as a manifestation of the effective exercise of the activity and given the complexity of the reality and the difficulties encountered throughout the entrepreneurial process.

3.2. Content analysis for SSV

3.2.1. The thematic analysis and items generation procedure

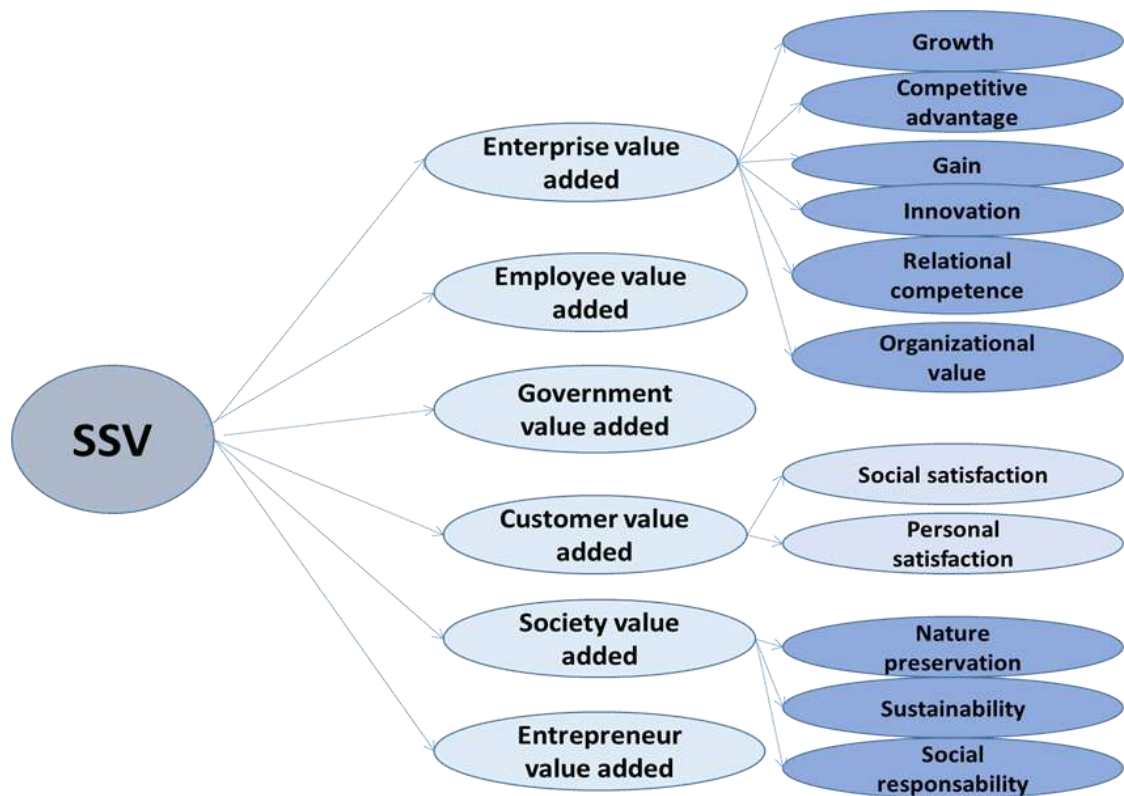
As long as we advance in the analysis, we found that the value is deeply stakeholders' oriented. Moreover, we noted that the value has different destinations. Indeed, different advantages concern the enterprise and its shareholders but also other stakeholders. This is also consistent with sustainable development and corporate sustainability research in that social and environmental side are also important beside the economic one and that the venture must

generate economic, social and ecological benefits to be a sustainable venture notably in the case where it is in a sustainable and environmental field like solar energy one. Therefore, another consideration was taken into account, which consists of assigning value in terms of who is the receiver of value.

Firstly, we propose a pool of items for the SSV scale. Indeed, the first categorization enables us to identify the dimensions and sub-dimensions. After the codification process, the first group of items has been generated as a result of the inference process; the items generated are mainly drowning from the field study. In this stage, we refer to three academicians to assess the good formulation and the understanding of the enunciations. We also aimed to reduce the number of items by removing blurred, redundant and not appropriate formulations (DeVellis 1991, Diamantopoulos and Winkelhofer, 2001). However, the number of items still important. Therefore, we refer to frequency analysis to maintain the most recurrent dimensions, to lower the number of items and to retain items which refer to the most cited verbatim.

The SSV construct is multidimensional were enterprise value added, employee value added, government value added, customer value added, society value added and entrepreneur value added are the dimensions of the construct.

Figure 1. The SSV primary construct Model resulted from the content analysis



Source: Own

3.2.2. SSV qualitative measurement scale purification process: pretest process and content validity assessment

After the item generation procedure, we proceed by the qualitative measurement purification process in terms of the pretest and the content validity phases. We propose the Q-sort technique.

3.2.2.1. The pretest phase

An initial pool of items was generated according to the inference process and based on the frequency analysis of citations and ideas.

However, a pretest phase was done to reduce the original number of items after the generation process. This phase was done with the collaboration of three academic researchers to identify redundant items, and it was done simultaneously with the frequency analysis. The frequency analysis results in 106 items, which will be subject to content validity with expert judges.

3.2.2.2. The content validity

Straub et al. (2004) propose that the content validity is: “The degree to which items in an instrument reflect the content universe to which the instrument will be generalized. This validity is generally established through literature reviews and expert judges or panels” (Straub et al., 2004, p. 424).

This stage follows the generation of items, and it is important notably for formative constructs (Petter et al. 2007).

According to Straub et al. (2004), content validity is “an issue of representation. The essential question posed by this validity is: Does the instrumentation (e.g., questionnaire items) pull in a representative manner from all of the ways that could be used to measure the content of a given construct”. (Cronbach, 1971; Kerlinger, 1964; Straub et al., 2004; p. 10).

Moreover, following Churchill (1979), Stratman and Roth (2002, p. 618) propose that a scale of items has content validity if it forms a “representative sample of the theoretical domain of the construct.”

Different techniques were used to evaluate the content validity of a construct such as extensive literature review; expert panels or judges, CVR validity ratios (Lawshe, 1975); Q-sorting (Straub et al., 2004). In this study, we tried to use these techniques to evaluate if the items pull in a representative way to measure the concept’s content (Cronbach, 1971, Kerlinger, 1964, Straub et al. 2004).

The content validity phase has two main objectives. On the one hand, we aim to reduce the number of items generated, which was too long. In the other hand, we aim to assess the reliability of the proposed index. That is if the items are in their correct destinations. Moreover, the judges were asked to evaluate if the items are understandable and well formulated.

Therefore 11 judges (academic researchers, professors, and professionals) were requested to respond to a questionnaire were different items, and their respective destinations (dimensions/sub-dimensions) are present. We provide a short description of each dimension, and the judges are asked to read the definitions and to indicate if the item is essential or not necessary. Two other columns were added. In the first one, the judge was asked if the item needs to be reformulated. The second one indicates if the item should be reclassified in another category (dimensions/ sub-dimensions).

Therefore, the first two columns allow us to calculate the CVR ratio. The CVR procedure coupled with the Q-sort technique allows reducing the number of items (we are notably based on the result of the Q-sort technique). Moreover, reformulation of some items was done according to the judgment of experts that are involved in this research.

Four items were added as a result of two judges’ recommendations. However, they are finally removed from the final items’ pool retained because of their low CVR ratios.

For the first stage of items sorting by the expert judges, we use the Q-sort technique to assess if the items are in their correct destinations. Indeed, in this stage, only nine responses which were involved in the CVR procedure are used. The sample of expert judges involved is composed of eight academic researchers and one customer.

The first three judges (round 1) were asked to sort the items in their appropriate categories without having a priori knowledge about the classification that we have done.

Therefore, we note that the procedure was difficult and the number of non-response was high. Therefore, we tried to alleviate the task by presenting the classification of items according to their respective dimensions and sub-dimensions, and we asked the judges to note if the item is misclassified (round 2 and 3). In this stage, we use Perreault and Leigh (Ir) inter-Judge agreement score as well as Moore and Benbasat item placement ratio (hit ratio).

We present the item sort responses by the expert judges (The first stage of the Q-sort technique) were three rounds are identified. Each one concerns a sample of three expert judges. The green cells indicate a perfect accord; the yellow cells indicate a random error, and the red cells indicate a systematic error.

3.2.2.3. The Q-sort technique

The second stage: After the specification of the construct as a reflective-formative hierarchical component model and its consideration in a nomological network.

This second stage of the content validity concerns the 67 items retained by the first stage of content validity, and it focuses on the stakeholders' (internal and external) perspective.

In this stage, the items are randomized and recorded. The new codes better reflect the sub-dimensions and dimensions retained. Some changes have been made after the first stage of items' reduction. Indeed, Social satisfaction and Personal satisfaction have been merged into one sub-dimension that we called "Customer Value Added" and "Customer satisfaction" has been identified. Moreover, Social responsibility has been recalled "Society Value Added" and Protection of nature has been recalled, "Environment Value Added." "Employee satisfaction" was even identified as a reflective side of the "Employee Value Added" sub-dimension.

Another sample of judges is involved. Hence the panel of judges is composed of experts in the solar energy that are professional as well as the primary external stakeholders that are the customers of photovoltaic and thermic solar panels. Indeed, the sample is composed of 13 expert judges: 9 professionals in the solar energy field, two experts (a certified public accountant and engineering) and two customers.

We use a questionnaire where we proposed different definitions of sub-dimensions. Each item and category is traduced in Arabic and therefore offered in French and Arabic language to ensure that it is well understood.

Following Moore and Benbasat (1991), the procedure consists of sorting the items into separate categories according to differences and similarities. Moreover, after examining the placement of items, the ambiguous and misworded items could be eliminated or rephrased.

This step aims to demonstrate convergent validity as well as discriminant validity of items. Firstly, a high inter-judge agreement indicates a high item placement ratio. The item which is consistently placed in a specific dimension demonstrates convergent validity with this dimension and discriminant validity with the others. Moreover, the high item-placement ratio indicates that the proposed measurement scale is reliable, and the generated items are valid. Therefore, a high item placement ratio indicates that the scale has high construct validity, and it is likely to be reliable (Stratman and Roth, 2002). However, this procedure is qualitative rather than quantitative (Moore and Benbasat, 1991).

As it is adopted by Stratman and Roth (2002) and Moore and Benbasat (1991), a minimum of 70% is acceptable for the items placement ratios. Therefore, we present the item sort responses by the expert judges (The second stage) were we consider both Enterprise value-added and Stakeholders value added. The green cells indicate a perfect accord; the yellow cells indicate a random error, and the red cells indicate systematic error dimensions.

Table 3. Color Key

Color key		Perfect agreement
		Random Error
		Systematic Error

Source: Own

$$\text{Perreault and Leigh (Ir)} = \sqrt{\left(A - \frac{1}{k}\right) \left(\frac{k}{k-1}\right)}$$

k= number of dimensions.

A=propensity of agreement between judges = (number of agreements between judges / total number of items).

Perfect agreement between judges is realized when Ir=1; the minimum required is 65% for the Inter-judge (Ir) ratio (Moore and Benbasat, 1991).

In order to manage the high number of items and to distinguish between them, we use keys. The Code keys of Sub-dimensions are presented as follows:

Table 4. Code Key Sub-dimension

Code key of Sub-dimension	<u>Enterprise value Added</u>	
	Competitive Advantage	AC
	Innovation	Innov
	Relational Competency	CR
	Organizational Value	VO
	Economic performance	
	Growth	Croiss
	Profitability/Gain	Rent
	<u>Stakeholders Value Added</u>	
	Customer Value Added	CLT
	Employee Value Added	EMP
	Society Value Added	SOC
	Environment Value Added	ENV
	Government Value Added	ETAT
	Social performance	
	Customer Satisfaction	SATISClit
	Employee Satisfaction	SATISEmp
	Sustainable Development	DD
Entrepreneur Satisfaction	SATISEnt	

Source: Own

The Perreault and Leigh Inter-judge (Ir) agreement ratio, as well as the hit-ratio are calculated. Most of “Ir” scores exceed the minimum required of 65% for expert pairs except of (1-13), (2-13), (3-13), (4-13), (5-13), (6-13), (8-13), (10-13), (11-12), (11-13), (12-13). We note that the latter results are a little bit lower than 65%, and they are related to the expert 12 and 13, which are customers. Therefore, the perception of the customers is quite different from that of professionals. However, we can conclude that the items are valid and reliable.

In this round, all items and all sub-dimensions are involved, and the judges are called to classify each item into its specific destination. The number of sub-dimensions is high (15), which can explain the hard task of the judges and therefore, the low item-placement ratios (hit ratios)

score, which indicates 56.39%. This result can be a consequence of the confusion of experts because of the high number of sub-dimensions presented in a first step. Therefore, we proposed another classification where the items referring to a specific dimension are randomized and sorted according to the relevant sub-dimensions.

a. The Enterprise Value Added (EVA): Round 4-1 (A.1)

We present three tables dealing with the Enterprise Value Added sub-dimensions. The first one concerns the items sort responses for the items generated to measure the EVA, the second table presents the Perreault and Leigh Inter-Judge (Ir) agreement scores, and the third one deals with Moore and Benbasat items placement ratio.

Table 5. Item sort responses for (EVA) dimension by the expert judges (The second stage)

Valeur ajoutée pour l'entreprise Items	Key	Experts												
		1	2	3	4	5	6	7	8	9	10	11	12	13
5- nous confrontons la concurrence par la qualité de nos produits	AC	AC	AC	AC		AC	AC	AC	Innov	AC	AC	AC	AC	AC
29-nous travaillons en équipe (discussion, partage d'information)	VO	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	VO
23- nos fournisseurs nous proposent une meilleure qualité du produit	CR	AC	AC	AC	AC	AC	AC	VO	AC	AC	AC	AC	AC	CR
7- nous confrontons la concurrence par la qualité de notre service après-vente	AC	AC	AC	AC	VO	AC	AC	VO/AC	VO	AC	AC	AC	AC	AC
25- nos fournisseurs nous supportent financièrement (meilleurs prix, facilités)	CR	CR	AC	CR	VO	CR	AC	VO	AC	CR	CR	CR	AC	CR
22- en cas de réclamation, notre fournisseur nous permet un gain de temps	CR	CR	VO	VO	AC	VO	AC	VO	CR	VO	VO	VO	VO	
27-nos employés ont de l'expérience	VO	AC	AC	AC	AC	AC	CR	CR	CR	AC	AC	CR	CR	VO
6-nous confrontons la concurrence par la qualité de nos services (étude, installations)	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
11- nous faisons une veille sur toutes nouveautés sur le marché (suivre les nouveautés dans le domaine pour être à jour)	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov
28-nos employés sont qualifiés (diplômés)	VO	AC	VO	AC	AC	VO	CR	AC	VO	AC	AC	AC	CR	VO
20- nous cherchons un gain mutuel avec nos partenaires	CR	CR	VO	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
8- nous confrontons la concurrence par nos prix	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
21- nos fournisseurs nous proposent une meilleure garantie (durée, fiabilité)	CR	AC	CR	AC	AC	CR	AC	AC	AC	AC	VO	CR	CR	CR
9- nous disposons d'un savoir-faire dans le domaine des énergies renouvelables	AC	Innov	Innov	CR	Innov	AC	Innov	AC	Innov	Innov	AC	Innov	Innov	AC
24- nous essayons de maintenir une bonne relation avec nos fournisseurs	CR	VO	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
12- nous introduisons des améliorations sur les technologies existantes	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov
10- nous veillons à préserver une bonne réputation	AC	AC	VO	AC	AC	AC	AC	AC	AC		AC	VO	AC	AC
26- nos fournisseurs nous conseillent et nous octroient une information nécessaire	CR	CR	CR	CR	AC	CR	VO	CR	CR	AC	CR	CR	VO	CR
13- nous proposons des solutions innovantes	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov

Source: Own

The table 6 shows some disagreements between four couples of judges (2-4); (2-7); (6-13) and (9-13) where the minimum score of 65% is not obtained. However, for the other judge pairs, the scores deviate between (66, 2%) and (96, 4%).

Table 6. Perreault and Leigh Inter-judge (Ir) agreement scores (EVA)

Pairs judge	Ir	Pairs judge	Ir
1-2	0.713	4-11	0.662
1-3	0.888	4-12	0.662
1-4	0.760	4-13	0.477
1-5	0.805	5-6	0.713
1-6	0.760	5-7	0.760
1-7	0.713	5-8	0.662
1-8	0.760	5-9	0.805
1-9	0.848	5-10	0.927
1-10	0.848	5-11	0.848
1-11	0.805	5-12	0.805
1-12	0.713	5-13	0.848
1-13	0.713	6-7	0.713
2-3	0.760	6-8	0.805
2-4	0.606	6-9	0.760
2-5	0.848	6-10	0.713
2-6	0.713	6-11	0.760
2-7	0.606	6-12	0.927
2-8	0.713	6-13	0.606
2-9	0.760	7-8	0.713
2-10	0.760	7-9	0.713
2-11	0.848	7-10	0.805
2-12	0.805	7-11	0.760
2-13	0.662	7-12	0.713
3-4	0.760	7-13	0.662
3-5	0.888	8-9	0.662
3-6	0.760	8-10	0.662
3-7	0.805	8-11	0.713
3-8	0.713	8-12	0.760
3-9	0.964	8-13	0.662
3-10	0.927	9-10	0.848
3-11	0.848	9-11	0.848
3-12	0.760	9-12	0.760
3-13	0.713	9-13	0.606
4-5	0.662	10-11	0.848
4-6	0.760	10-12	0.760
4-7	0.713	10-13	0.760
4-8	0.760	11-12	0.848
4-9	0.805	11-13	0.713
4-10	0.713	12-13	0.662

Source: Own

Table 7. Item sort responses (Hit-ratios) for EVA dimension

Sub-dimensions	Actual classification				Total	%Hits
	AC	Innov	VO	CR		
AC	61	9	4	1	75	81.333%
Innov		39			39	100%
VO	14		6	19	39	15.384%
CR	26		15	49	90	54.444%
Total	101	48	25	69	243	
% hits	60.396%	81.25%	24%	71.014%		
Total item Placements= 155/243=63.786% hit ratio						

Source: Own

According to the previous table, the hit-ratios score is about 63.786%, which is a little less than 70% required. Among 243 items placements, 155 items were placed in their correct places. 14 items are misclassified into the competitive advantage sub-dimension and 19 into the relationship capacity sub-dimension rather than the organizational value sub-dimension. Moreover, 26 items are misclassified into the competitive advantage sub-dimension and 15 items into the organizational value sub-dimension rather than the relationship capacity sub-dimension. This misclassification highlights the possibility of confusion between the competitive advantages, the relationship capacity, and the organizational value sub-dimensions. Therefore, we try to revisit some off-target items.

When examining the items related to the VO sub-dimension, we found that:

- The item “29: “we work as a team (discussion, information sharing)” has a systematic error. Indeed, twelve experts have classified the item into the relationship competency, and only one put the item into the right destination.
- The item 27: «our employees are experienced » is misclassified by 7 experts into the AC sub-dimension and by 5 experts into the CR sub-dimension.
- The item 28: «our employees are qualified (graduates) » is misclassified by 7 experts into the AC sub-dimension and by 2 experts into the CR sub-dimension.

We think that if the AC sub-dimension had a formative specification, the classification of the last two items 27 and 28 will be correct in such a way that they cause a competitive advantage. However, we considered the organizational value sub-dimension with a reflective specification and when taking into account the 19 misclassifications into the relationship capacity sub-dimension, we deduced that the experts don't differentiate between the two sub-dimensions and have misunderstood the organizational value which deals with internal relationships between employees instead of external relationship of company with external actors (relationship capacity).

Therefore, we decide to merge the two sub-dimensions into one sub-dimension which we labeled: organizational competency.

When examining the items related to the VO sub-dimension, we found that:

- The item 23: «our suppliers offer us better product quality » presents a systematic error because 11 experts misclassify the item into the AC sub-dimension and one expert classifies it into the VO sub-dimension.
- The item 22: «in the case of a complaint, our supplier saves us time » presents a systematic error because 8 experts put it into the VO sub-dimension and 2 experts place it into the AC sub-dimension.
- The item 21: «our suppliers offer us a better guarantee (duration, reliability) » presents a systematic error because 7 experts classify the item into the AC sub-dimension and one expert into the VO sub-dimension.

A deeper look of the items 21, 22, and 23 reveals that the misclassification of the items into the AC sub-dimension is related to a misunderstanding and confusion about the nature of specification of the sub-construct. Indeed, the formative specification of the AC sub-dimension in such a way that the product quality, warranty, and delay time provoke the competitive advantage. However, we are concerned with a reflective specification of the sub-dimension. Considering 10 misclassifications of the three items into the VO sub-dimension, we decide to merge the two sub-dimensions CR and VO into the one sub-dimension which we labeled: organizational competency.

- The item 9: « we have expertise in the field of renewable energy» represents a systematic error because 8 experts misclassify the item into the innovation sub-dimension and one expert misclassify into the CR sub-dimension; therefore, we decide to remove the item 9.

b. The Enterprise Value Added (EVA): Round 4-1 Adjusted (A.2)

The round 1 Adjusted of the EVA dimension concerns the combination of the organizational value and the relationship competency sub-dimensions into one sub-dimension.

The item sort responses for the EVA construct are illustrated as follows:

Table 8. Item sort responses for EVA dimension (Round 4-1 adjusted)

Valeur ajoutée pour l'entreprise	Experts													
Items	Key	1	2	3	4	5	6	7	8	9	10	11	12	13
5- nous confrontons la concurrence par la qualité de nos produits	AC	AC	AC	AC		AC	AC	AC	Innov	AC	AC	AC	AC	AC
29-nous travaillons en équipe (discussion, partage d'information)	VO-CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	VO
23- nos fournisseurs nous proposent une meilleure qualité du produit	CR/VO	AC	AC	AC	AC	AC	AC	VO	AC	AC	AC	AC	AC	CR
7- nous confrontons la concurrence par la qualité de notre service après-vente	AC	AC	AC	AC	VO	AC	AC	VO	VO	AC	AC	AC	AC	AC
25- nos fournisseurs nous supportent financièrement (meilleurs prix, facilités)	CR/VO	CR	AC	CR	VO	CR	AC	VO	AC	CR	CR	CR	AC	CR
22- en cas de réclamation, notre fournisseur nous permet un gain de temps	CR	CR	VO	VO	AC	VO	AC	VO	CR	VO	VO	VO	VO	
27-nos employés ont de l'expérience	VO/CR	AC	AC	AC	AC	AC	CR	CR	CR	AC	AC	CR	CR	VO
6-nous confrontons la concurrence par la qualité de nos services (étude, installations)	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
11- nous faisons une veille sur toutes nouveautés sur le marché (suivre les nouveautés dans le domaine pour être à jour)	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov
28-nos employés sont qualifiés (diplômés)	VO/CR	AC	VO	AC	AC	VO	CR	AC	VO	AC	AC	AC	CR	VO
20- nous cherchons un gain mutuel avec nos partenaires	CR/VO	CR	VO	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
8- nous confrontons la concurrence par nos prix	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC	AC
21- nos fournisseurs nous proposent une meilleure garantie (durée, fiabilité)	CR	AC	CR	AC	AC	CR	AC	AC	AC	AC	VO	CR	CR	CR
9- nous disposons d'un savoir-faire dans le domaine des énergies renouvelables	AC	Innov	Innov	CR	Innov	AC	Innov	AC	Innov	Innov	AC	Innov	Innov	AC
24- nous essayons de maintenir une bonne relation avec nos fournisseurs	CR/VO	VO	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR	CR
12- nous introduisons des améliorations sur les technologies existantes	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov
10- nous veillons à préserver une bonne réputation	AC	AC	VO	AC	AC	AC	AC	AC	AC		AC	VO	AC	AC
26- nos fournisseurs nous conseillent et nous octroient une information nécessaire	CR/VO	CR	CR	CR	AC	CR	VO	CR	CR	AC	CR	CR	VO	CR
13- nous proposons des solutions innovantes	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov	Innov

Source: Own

Table 9. Perreault and Leigh Inter-judge (Ir) agreement scores of EVA dimension (Round 4-1 adjusted)

Pairs judge	Ir	Pairs judge	Ir
1-2	0.777	4-11	0.668
1-3	0.917	4-12	0.606
1-4	0.827	4-13	0.538
1-5	0.873	5-6	0.777
1-6	0.827	5-7	0.777
1-7	0.827	5-8	0.725
1-8	0.777	5-9	0.777
1-9	0.917	5-10	0.959
1-10	0.917	5-11	0.827
1-11	0.827	5-12	0.873
1-12	0.827	5-13	0.917
1-13	0.777	6-7	0.725
2-3	0.777	6-8	0.873
2-4	0.606	6-9	0.725
2-5	0.873	6-10	0.725
2-6	0.827	6-11	0.777
2-7	0.606	6-12	0.917
2-8	0.777	6-13	0.777
2-9	0.777	7-8	0.725
2-10	0.873	7-9	0.725
2-11	0.873	7-10	0.827
2-12	0.917	7-11	0.777
2-13	0.777	7-12	0.777
3-4	0.777	7-13	0.873
3-5	0.873	8-9	0.668
3-6	0.725	8-10	0.668
3-7	0.827	8-11	0.725
3-8	0.725	8-12	0.873
3-9	0.873	8-13	0.725
3-10	0.917	9-10	0.827
3-11	0.827	9-11	0.827
3-12	0.725	9-12	0.725
3-13	0.777	9-13	0.668
4-5	0.668	10-11	0.873
4-6	0.725	10-12	0.827
4-7	0.668	10-13	0.873
4-8	0.725	11-12	0.873
4-9	0.827	11-13	0.827
4-10	0.725	12-13	0.873

Source: Own

The readjustment enhances the Ir scores, as it is shown in the above table.

Therefore, merging the two sub-dimensions ameliorates the reliability and the validity of the organizational competency sub-dimension (VO-CR) and therefore to enhance the Enterprise Value Added (EVA) reliability and validity.

Table 10. Item Placement ratios (hit ratios) for the EVA dimension (Round 4-1 adjusted)

Sub-dimensions	Actual classification				% Hits
	AC	Innov	VO-CR	Total	
AC	61	9	5	75	81.333%
Innov		39		39	100%
VO-CR	40		91	131	69.465%
Total	101	48	96	245	
% hits	60.396%	81.25%	94.791%		
Total item Placements= 191/245=77.959% hit ratio					

Source: Own

The hit ratio obtained is (77.959%). It is largely superior to the original hit rate of (63.786%) before the combination operation.

The new hit score (77.959%) is superior to the minimum score requested (70%). Moreover, the new hit ratios (69.465%) and (94.791%) related to the merged VO and CR sub-dimensions largely exceed the originals hit ratios (15.384%; 54.444%) and (24%; 71.014%). Furthermore, considering the new significant Ir scores obtained, we deduce that the content validity is achieved for the (EVA) dimension.

c. The Stakeholders Value Added (SVA): Round 4-2 (B. 1)

In the first place we present the item sort responses for the Stakeholders Value Added dimension and the Perreault and Leigh Inter-judge (Ir) agreement scores.

Table 11. Item sort responses for SVA dimension (Round 4-2)

Valeur ajoutée pour les parties prenantes		Experts												
Items	Key	1	2	3	4	5	6	7	8	9	10	11	12	13
59- nous proposons des produits écologiques qui préservent la planète contre le réchauffement climatique en diminuant l'utilisation des énergies fossiles	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV
39 - la subvention est suffisante pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
58- nous sommes une entreprise citoyenne (vie associative, aides...)	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC
41-nous proposons des facilités de paiement et/ou réductions pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
67-nous participons à la diminution de l'importation des énergies fossiles ce qui stabilise les prix et améliore le budget de l'Etat	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
43-nos produits permettent aux clients de réduire leurs consommations énergétiques et de faire une économie d'énergie	CLT	CLT	CLT	CLT	ETAT	CLT	ETAT	CLT	ETAT	CLT	CLT	CLT	CLT	CLT
44-nos produits permettent aux clients de gagner sur le plan d'indépendance énergétique	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
56-nous créons de l'emploi	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC
45-nous expliquons et nous convainquons les clients des caractéristiques, du fonctionnement et des avantages (gains d'argent, qualité) de nos produits	CLT	CLT	CLT	CLT	CLT	CLT	EMP	CLT	CLT	CLT	CLT	CLT	CLT	CLT
10-nous sensibilisons nos clients à réduire leurs consommations énergétiques	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
65-nous aidons l'Etat à gagner des points carbone et à avoir des subventions de l'étranger	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
53-nous encourageons nos employés par la mise en place de quelques actions sociales (crédits, primes d'entrée scolaire...)	EMP	SOC	EMP	EMP	EMP	EMP	EMP	EMP	SOC	EMP	SOC	EMP	SOC	EMP
63-nos produits peuvent aider l'Etat pour diminuer son déficit énergétique	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
54-nous maintenons une bonne relation avec nos employés	EMP	EMP	SOC	EMP	EMP	SOC	EMP	SOC	EMP	EMP	SOC	SOC	SOC	EMP
42-les produits que nous proposons sont utiles et répondent aux besoins des clients (échauffement d'eau, pompage, éclairage...)	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
60-nous réduisons la pollution (émission de CO2 et du gaz à effet de serre, pollution sonore) à travers nos produits/services	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	SOC	SOC	ENV	ENV	ENV	ENV
40-nos produits sont rentables pour les clients (diminutions de dépenses, retour sur investissement satisfaisant)	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
55-nous encourageons le produit local, même s'il coûte plus cher	SOC	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	SOC	ETAT	ETAT	ETAT	ETAT	SOC
38-les programmes (subvention et crédit) mis en place par l'Etat facilitent et encouragent l'achat de nos produits	CLT	CLT	CLT	CLT	ETAT	SOC	ETAT	CLT	SOC	ETAT	SOC	SOC	ETAT	SOC
64-nous participons à alléger la charge de la subvention dédiée à l'énergie fossile à travers nos installations	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	SOC	ETAT	ETAT	ETAT	ETAT	ETAT
48- l'enseigne de notre entreprise est un gage de confiance et de fiabilité dans un environnement où l'origine du produit est parfois douteuse	CLT	CLT	CLT	ETAT	CLT	ETAT	CLT	ETAT	CLT	CLT	ETAT	CLT	CLT	CLT
57- nous avons formé plusieurs ingénieurs et techniciens qui travaillent aujourd'hui dans ce domaine	SOC	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP
66-nous participons au développement économique du pays	ETAT	ETAT	SOC	SOC	ETAT	ETAT	SOC	ETAT	ETAT	SOC	SOC	ETAT	SOC	ETAT
46-nos certifications sont des gages de confiance pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT

Source: Own

Table 12. Perreault and Leigh Inter-judge (Ir) agreement scores SVA dimension (Round 4-2)

Pairs judge	Ir	Pairs judge	Ir
1-2	0.918	4-11	0.889
1-3	0.918	4-12	0.889
1-4	0.918	4-13	0.918
1-5	0.859	5-6	0.797
1-6	0.859	5-7	0.918
1-7	0.918	5-8	0.728
1-8	0.829	5-9	0.889
1-9	0.889	5-10	0.889
1-10	0.918	5-11	0.946
1-11	0.889	5-12	0.859
1-12	0.918	5-13	0.889
1-13	0.918	6-7	0.829
2-3	0.946	6-8	0.763
2-4	0.889	6-9	0.918
2-5	0.889	6-10	0.859
2-6	0.889	6-11	0.829
2-7	0.946	6-12	0.889
2-8	0.728	6-13	0.859
2-9	0.918	7-8	0.763
2-10	0.946	7-9	0.859
2-11	0.918	7-10	0.889
2-12	0.946	7-11	0.946
2-13	0.889	7-12	0.889
3-4	0.889	7-13	0.889
3-5	0.859	8-9	0.797
3-6	0.889	8-10	0.797
3-7	0.918	8-11	0.797
3-8	0.763	8-12	0.763
3-9	0.918	8-13	0.859
3-10	0.889	9-10	0.889
3-11	0.889	9-11	0.859
3-12	0.889	9-12	0.918
3-13	0.889	9-13	0.889
4-5	0.859	10-11	0.918
4-6	0.946	10-12	0.973
4-7	0.889	10-13	0.889
4-8	0.829	11-12	0.889
4-9	0.918	11-13	0.918
4-10	0.859	12-13	0.859

Source: Own

The above table shows that all Ir values are higher than the minimum required of (65%). Hence, the scores vary between (0.728) and (0.946), and all expert pairs are in agreement. Thus the items are trustworthy and credible.

Table 13. Item Placement ratios (hit ratios) for the SVA dimension (Round 4-2)

	Actual classification						% Hits
	CLT	EMP	SOC	ENV	ETAT	Total	
CLT	125	1	5		7	138	90.579%
EMP		16	10			26	61.538%
SOC		12	28		11	51	54.901%
ENV			2	24		26	92.307%
ETAT			7		58	65	89.230%
Total	125	29	52	24	76	306	
% Hits	100%	55.172%	53.846%	100%	76.315%		
Total item Placements= 251/306=82.026% hit ratio							

Source: Own

According to the above, the global hit ratio is (82.026%), which is higher than the minimum score requested (75%). Among 306 item placements, 251 were placed in the target. A deeper examination of each sub-dimensions hit ratio shows that there are unsatisfactory hit ratios (54.901%; 61.538%) which are related to the “Society value added” and “Employee value-added” sub-dimensions. Indeed, 10 items are misclassified into the “Society value added” rather than the “Employee value added.” Moreover, 12 items are misclassified into the “Employee value added,” and 11 items are misclassified into the “Government value added” rather than the “Society value-added” sub-component.

Therefore, according to the hit-ratio scores and the item sort responses, we proceed as follows:

- The item 38: « The government's programs (subsidies and loans) make it easier and more attractive to purchase our products. » has a systematic error and 9 experts reclassify it into two different sub-dimensions « Society value added” and “Government value-added » instead of « Customer value-added » therefore, we decide to remove it from the analysis.
- The item 55: « We encourage local products, even if they are more expensive. » has been classified by 11 experts into « Government value-added » instead of « Society value added », hence the item is reclassified into the « Government value-added » sub-dimension.
- The item 57: “We have trained several engineers and technicians who are now working in this field. », has been classified by 12 experts into “Employee value added” instead of a “Society value added” sub-dimension, therefore we replaced the item into the “Employee value added” sub-dimension.

We note that there is a confusion between the two sub-dimensions “Society value added” and “Employee value added,” therefore we decide to merge the two sub-dimensions into one sub-dimension labeled “Social value added.”

d. The Stakeholders Value Added (SVA): Round 4-2 adjusted (B.2)

The round 2 Adjusted of the SVA dimension concerns the combination of the Society value, and the Employee value added sub-dimensions into one sub-dimension.

The item sort responses for the SVA construct are illustrated as follows:

Table 14. Item sort responses for SVA dimension (Round 4-2) adjusted

Valeur ajoutée pour les parties prenantes		Experts												
Items	Key	1	2	3	4	5	6	7	8	9	10	11	12	13
59- nous proposons des produits écologiques qui préservent la planète contre le réchauffement climatique en diminuant l'utilisation des énergies fossiles	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV
39 - la subvention est suffisante pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
58- nous sommes une entreprise citoyenne (via associative, aides...)	SOC/EMP	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC
41-nous proposons des facilités de paiement et/ou réductions pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
67-nous participons à la diminution de l'importation des énergies fossiles ce qui stabilise les prix et améliore le budget de l'Etat	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
43-nos produits permettent aux clients de réduire leurs consommations énergétiques et de faire une économie d'énergie	CLT	CLT	CLT	CLT	ETAT	CLT	ETAT	CLT	ETAT	CLT	CLT	CLT	CLT	CLT
44-nos produits permettent aux clients de gagner sur le plan d'indépendance énergétique	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
56-nous créons de l'emploi	SOC/EMP	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC	SOC
45-nous expliquons et nous convainquons les clients des caractéristiques, du fonctionnement et des avantages (gains d'argent, qualité) de nos produits	CLT	CLT	CLT	CLT	CLT	CLT	CLT	EMP	CLT	CLT	CLT	CLT	CLT	CLT
10-nous sensibilisons nos clients à réduire leurs consommations énergétiques	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
65-nous aidons l'Etat à gagner des points carbone et à avoir des subventions de l'étranger	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
53-nous encourageons nos employés par la mise en place de quelques actions sociales (crédits, primes d'entrée scolaire...)	SOC/EMP	SOC	EMP	EMP	EMP	EMP	EMP	EMP	SOC	EMP	SOC	EMP	SOC	EMP
63-nos produits peuvent aider l'Etat pour diminuer son déficit énergétique	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT
54-nous maintenons une bonne relation avec nos employés	SOC/EMP	EMP	SOC	EMP	EMP	SOC	EMP	SOC	EMP	EMP	SOC	SOC	SOC	EMP
42-les produits que nous proposons sont utiles et répondent aux besoins des clients (échauffement d'eau, pompage, éclairage...)	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
60-nous réduisons la pollution (émission de CO2 et du gaz à effet de serre, pollution sonore) à travers nos produits/services	ENV	ENV	ENV	ENV	ENV	ENV	ENV	ENV	SOC	SOC	ENV	ENV	ENV	ENV
40-nos produits sont rentables pour les clients (diminutions de dépenses, retour sur investissement satisfaisant)	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
55-nous encourageons le produit local, même s'il coûte plus cher	SOC/EMP	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	SOC	ETAT	ETAT	ETAT	ETAT	SOC
38-les programmes (subvention et crédit) mis en place par l'Etat facilitent et encouragent l'achat de nos produits	CLT	CLT	CLT	CLT	ETAT	SOC	ETAT	CLT	SOC	ETAT	SOC	SOC	ETAT	SOC
64-nous participons à alléger la charge de la subvention dédiée à l'énergie fossile à travers nos installations	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	ETAT	SOC	ETAT	ETAT	ETAT	ETAT	ETAT
48- l'enseigne de notre entreprise est un gage de confiance et de fiabilité dans un environnement où l'origine du produit est parfois douteuse	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT
57- nous avons formé plusieurs ingénieurs et techniciens qui travaillent aujourd'hui dans ce domaine	SOC/EMP	EMP	EMP	EMP	EMP	CLT	EMP	EMP	EMP	EMP	EMP	EMP	EMP	EMP
66-nous participons au développement économique du pays	ETAT	ETAT	SOC	SOC	ETAT	ETAT	SOC	ETAT	ETAT	SOC	SOC	ETAT	SOC	ETAT
46-nos certifications sont des gages de confiance pour les clients	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT	CLT

Source: Own

Table 15. Perreault and Leigh Inter-judge (Ir) agreement scores of SVA dimension (Round 4-2) adjusted

Pairs judge	Ir	Pairs judge	Ir
1-2	0.971	4-11	0.912
1-3	0.942	4-12	0.942
1-4	0.942	4-13	0.912
1-5	0.912	5-6	0.816
1-6	0.881	5-7	0.942
1-7	0.971	5-8	0.849
1-8	0.816	5-9	0.849
1-9	0.912	5-10	0.912
1-10	0.942	5-11	0.971
1-11	0.942	5-12	0.881
1-12	0.912	5-13	0.912
1-13	0.942	6-7	0.849
2-3	0.971	6-8	0.781
2-4	0.912	6-9	0.912
2-5	0.881	6-10	0.912
2-6	0.912	6-11	0.849
2-7	0.942	6-12	0.942
2-8	0.781	6-13	0.849
2-9	0.942	7-8	0.816
2-10	0.971	7-9	0.881
2-11	0.912	7-10	0.912
2-12	0.971	7-11	0.942
2-13	0.912	7-12	0.912
3-4	0.881	7-13	0.912
3-5	0.881	8-9	0.816
3-6	0.881	8-10	0.816
3-7	0.942	8-11	0.881
3-8	0.781	8-12	0.781
3-9	0.942	8-13	0.881
3-10	0.942	9-10	0.942
3-11	0.912	9-11	0.881
3-12	0.942	9-12	0.971
3-13	0.881	9-13	0.881
4-5	0.881	10-11	0.942
4-6	0.942	10-12	0.971
4-7	0.912	10-13	0.942
4-8	0.849	11-12	0.912
4-9	0.912	11-13	0.942
4-10	0.912	12-13	0.912

Source: Own

The majority of the “Ir” scores in the above table (Table 15: Perreault and Leigh Inter-judge (Ir) agreement scores of SVA dimension (Round 4-2) adjusted) are enhanced. Merging the two sub-dimensions ameliorates the reliability and the validity of the society and employee value added sub-dimension (EMP-SOC) and therefore enhances the Stakeholders Value Added (SVA) reliability and validity.

Table 16. Item Placement ratios (hit ratios) for the SVA dimension (Round 4-2) adjusted

	Actual classification					%Hits
	CLT	EMP/SOC	ENV	ETAT	Total	
CLT	125	6		7	138	90.579%
EMP/SOC		66		11	77	85.714%
ENV		2	24		26	92.307%
ETAT		7		58	65	89.230%
Total	125	81	24	76	306	
%Hits	100%	81.481%	100%	76.315%		
Total item Placements= 273/306=89.215% hit ratio						

Source: Own

The hit ratio obtained is (89.215%). It is superior to the original hit rate of (82.026%) before the combination operation. The new hit score (89.215%) is superior to the minimum score requested (70%). Furthermore, the new hit ratios (85.714%) and (81.481%) related to the merged EMP and SOC sub-dimensions widely exceed the originals hit ratios (61.538%; 54.901%) and (55.172%; 53.846%). Moreover, considering the new “Ir” scores obtained, we deduce that the content validity is achieved for the (SVA) dimension.

After the achievement of the Q sort technique, we propose that the two formative second-order dimensions: the “Enterprise value added” and the “Stakeholders Value Added” form the third order hierarchical component model labeled the “Stakeholders’ based sustainable value.”

The second order dimension ‘Stakeholders Value Added’ is formed by Customer value added, Government value added, Environmental value-added, Social (Employee and Society) value added.

Innovation, competitive advantage, organizational competence and relational value, are likely to form and cause the Enterprise value added. Hence, the Enterprise value added is a formative second-order model.

These dimensions (innovation, competitive advantage, organizational competence and organizational value), are reflective. Therefore, they represent the first order reflective dimensions forming the second order formative dimension that is “The Enterprise value added.”

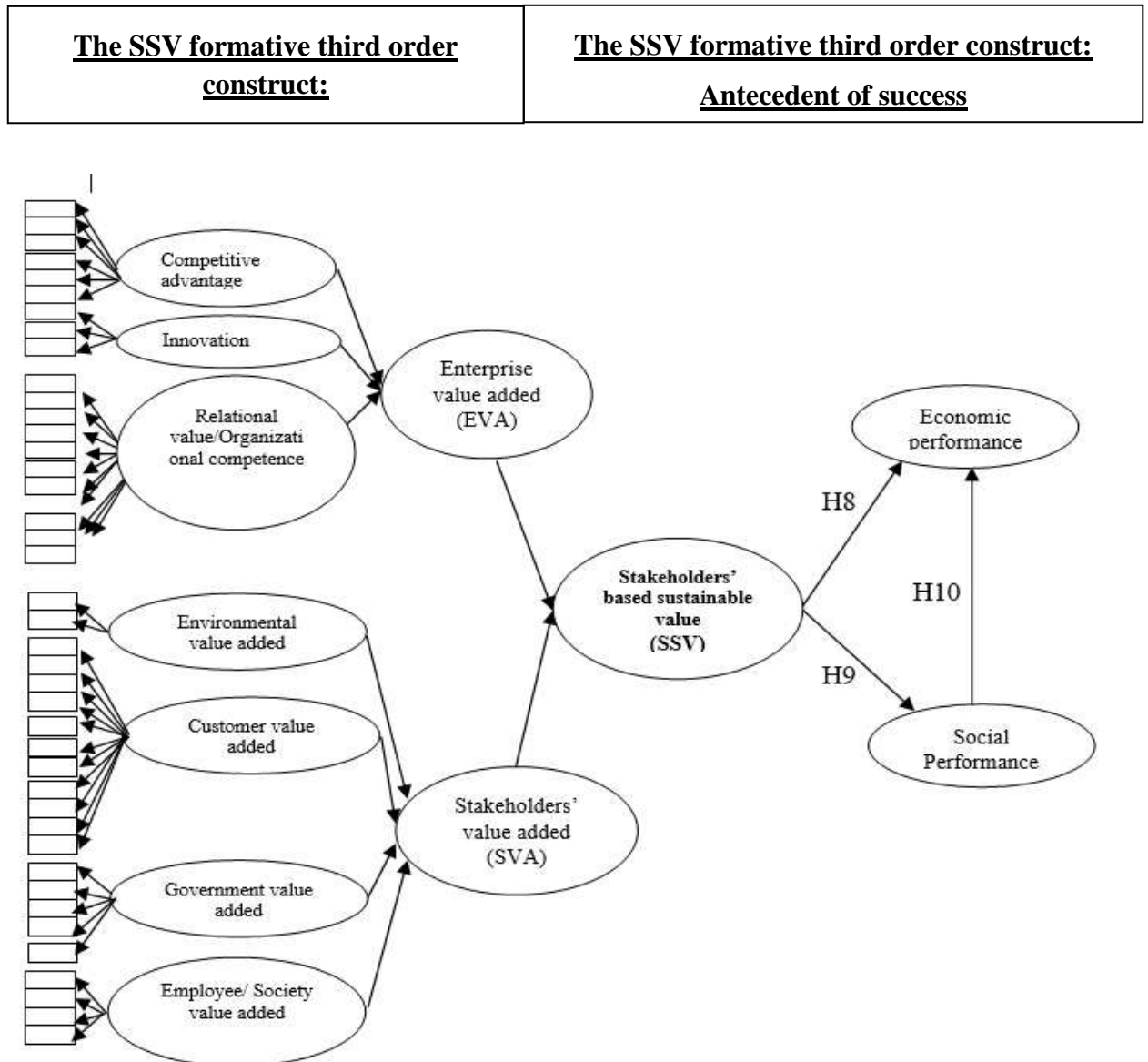
Concerning the structural model, the following hypothesis are presented

H1: Stakeholders’ based sustainable value (Enterprise value-added and Stakeholders value added) positively impacts economic performance.

H2: Stakeholders’ based sustainable value (Enterprise value-added and Stakeholders value added) positively impacts social performance.

H3: Social performance positively impacts Economic performance.

Figure 2. The SSV measurement and structural models



Source: Own

CONCLUSION

Given the limited reserves of fossil energy, the increasing consumption level of energy and the problem of climate change, the need for green energies is emerging and a better understanding of the process of sustainable initiatives is required. The development of renewable energy technologies as well as the passage towards renewable energies production will not happen without the involvement of entrepreneurs. However, ecological and sustainable entrepreneurship in the field of renewable energy is not widely explored in the literature and still at an early age (Kirkwood and Walton, 2010).

In this paper, a qualitative research is presented by conducting semi-structured interviews with entrepreneurs in solar energies ventures. Following abductive research approach, we propose an emerging concept which is specific to the case of the entrepreneurial initiative in a sustainable area. The concept is labeled “Stakeholders’ based Sustainable Value” (SSV) and it is based on the value creation, sustainable development and stakeholder management literature. Another qualitative phase using CVR and Q-sort methods assesses the content validity of the proposed construct. The content validity of our third-order reflective formative measurement

scale is approved. In this stage, 56 items were retained. However, our measurement model is still raw; further research is needed to assess its reliability and validity. In the future publications we intend to propose a psychometric analysis in order to assess the reliability as well as the construct validity of SSV by means of an exploratory and a confirmatory factor analysis using a sample of 133 enterprises in the solar energy sector in Tunisia. We propose a new construct reflecting a global view of value that links the economic and financial perspectives to the social and ecological aspects. This construct is specific to the case of entrepreneurial initiative in a sustainable area, notably the solar energy sector. This research is among the first studies that propose a valid measure of value creation in sustainable sectors like solar energy.

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