



Case study using RESPONSE project CSR:I3 model

CETEMSA CASE STUDY

1 INTRODUCTION TO THE COMPANY

1.1 Presentation

Cetemmsa was established in 1991 as a centre of innovation and technology for the industrial and professional in the Maresme region.

Was the result of a joint initiative of business associations and various public administrations, to facilitate the process of technological innovation and entrepreneurial development, offering assistance in the form of consulting and the ability to share technical resources.

In recent years, Cetemmsa has expanded its scope, it is now recognized by different entities and regional, state and international technology center as a reference in the field of applied research in **smart materials and smart devices**, with a broad portfolio of services evolved enough to be a true full service centre for innovation.

Moreover, information technology, consulting in organization and training are complementary axes which support the portfolio of services that jointly promote the concept of innovation continues to be managed as an overall strategic process.

The synergies of these actions we can assume a role of intermediate body, coordinating the efforts of all those involved in a particular course of innovation, firm-specific or grouped for a particular sector of activity.

Cetemmsa is a technology centre with over 18 years experience in carrying out applied research on Smart Materials and Smart Devices.

The results of this research are the basis of joint projects with companies for innovation and experimental development of smart products and Smart Innovation that bring new uses and experiences to a wide range of economic sectors.

Furthermore, one of the main functions of the technology centre is to establish collaborations with other research centres and universities to develop joint projects.

Cetemmsa is accredited as a Centre for Technology Innovation by the Ministry of Science and Innovation and a member of the network TECNIO of Catalonian government.



Figure 1: Cetemmsa Human Team

2 Resources

2.1 Human Team

Cetemmsa staff, its main asset during these years, it has a professional team experienced and able to connect to business needs through their university training and continuous upgrading of skills.

The composition of this team has increased and now has a permanent staff Cetemmsa sixty-eight professional and support of over thirty regular contributors.

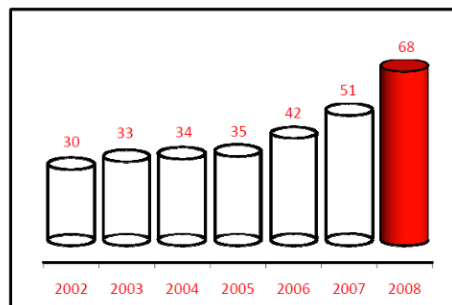


Figure 2: Human Team development 2002-2008

2.2 Quality

Cetemmsa is a certified according to the requirements of ISO 9001:2000 for the activities of R & D and services for the company: Information Technology, Business Advice and Continuing Education.

2.3 CSR

Cetemmsa has its own policy of Corporate Social Responsibility is committed to social and develops through concrete actions with different agents and environments with which the entity is related: internal team, customers and suppliers, society and community, and a half environment.

2.4 Facilities

Cetemmsa realizes an ongoing effort to maintain and improve its infrastructure support.

Continually investing in acquiring the latest equipment and the adequacy of the buildings where the activities take place daily.



Figure 3: Smart devices and Smart objects laboratories

3 Acknowledgments

3.1 Awards and accreditations

.Since its foundation, Cetemmsa gives answers to business needs in different areas. This has earned him various awards and accreditations:

- Centre for Innovation and Technology-CIT Vol. 69 recognized and registered in the CICYT (RD 2609/1996), Ministry of Science and Innovation.
- Advanced Technology Centre Network member TECNI promoted by the Generalitat of Catalonia.
- Tech Centre FEDIT-registered with the Spanish Federation of Technology Centres.
- Tech Centre enrolled in the ACT-Catalan Association of Technology.
- Member of the Spanish Textile Technology Platform and a member of the Platform European Textile Technology.
- Office of Research Results Transfer QTRI-nQ-214 recognized and certified by the Ministry of Science and Innovation.
- Member of ORGANIC ELECTRONICS ASSOCIATION - OAS.
- Member of the SMART TEXTILES Community.
- Member joined the Association of European Textile-ACTE collectivises.
- Member of European Network of Textile Research Organizations.
- Member of Industrial Textiles Monitoring undertaken by the Ministry of Industry, Tourism and Trade.
- Tech Centre enrolled in EFFECT-European Forum for Electronic Commerce and Trade.
- Collaborating Centre IAESTE-International Association for the Exchange of Students for Technical Experience
- CIDEM Innovation Point-PIC.
- Certifier Centre Microsoft Office Specialist.

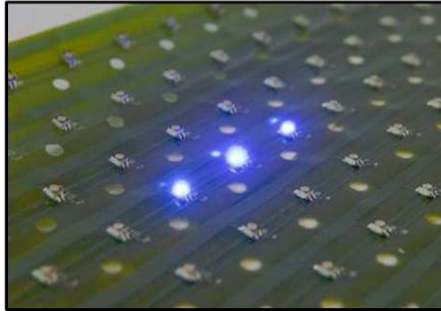


Figure 4: Flexible Leds surface

4 Alliances

4.1 Competitive alliances and functional alliances

One of the main objectives of the technology centre is to establish collaborations with other research centres and universities to develop joint projects in different technology areas: active materials, nano-encapsulation technologies, bio, etc..

4.1.1 National

- AIJU - Research Association of Toy Industries (Technology Centre) - Ibi. · AIMPLAS-Technological Institute of Plastics - Valencia.
- AIN - Industry Association of Navarra - Pamplona.
- BARCELONA - Barcelona.
- CENER - National Renewable Energy Centre - Pamplona.
- CENTIC - ICT Technology Centre - Murcia.
- Cephis - Prototypes and Solutions Centre Hw / Sw (UAB) - Barcelona.
- CETEM - Technological centre for Furniture and Wood - Murcia.
- CIDETEC - Centre for Electrochemical Technologies - San Sebastian.
- CNM - National Microelectronics Centre - Barcelona.
- CTM – Manresa Technological Centre - Barcelona.
- FOUNDATION HOSPITAL Mataró - Barcelona.
- GEMAT-IQS Materials Engineering Group - Barcelona.
- ICFO-Institute of Photonic Sciences - Barcelona.
- ICIQ-Institut Catala d'Investigació Chemistry
- ICMAB (nanomolecular) - Institute of Material Science of Barcelona.
- INASMET - Tecnalia Corporation - San Sebastian.
- INSTITUT GUTMANN - Barcelona.
- UPC-Department of Electronic Engineering (EEL) - Barcelona.

4.1.2 International

- Bavarian Centre for Applied Energy Research - ZAE Bayern - Germany.
- Brno University of Technology - Czech Republic.
- Cuban Centre of Program and Project Management Prioritized - Cuba.

- Centre for Nanotechnology and Materials Technical, Functional and Smart-centi-Portugal.
- Centro Ricerche Fiat - Italy.
- Centro Tecnológico das Indústrias Textil e do Vestuário -CITEVE-Portugal.
- Das Textile Technology Centre and do Vestuário-CITEVE-Portugal.
- Clothing Textile and Fiber Technological Development-CLOTEFI-Greece.
- Textilforschungszentrum Deutsches DTNW Nord-West-Germany.
- Fimi SRL - Phillips - Holland.
- Fundeso - Guatemala.
- Grado Zero Espace - Italy.
- Instituto Tecnológico de Santo Domingo - Dominican Republic.
- Julius-Maximilians-Universität Würzburg - Germany.
- Technical Office Technology Innovation Centres - Peru.
- Research Institute for the Belgian Textile Industry-CENTEXBEL - Belgium.
- National Secretariat of Science and Technology of Panama - Panama.
- Sofileta, SAS (SOPATEX Group) - France.
- Technical Research Centre of Finland - VTT - Finland.
- Universidad Autónoma de Asunción - Paraguay.
- University of Limerick - Ireland.

5 Applied Research

5.1 Materials and devices

Cetemmsa conducts applied research in materials and intelligent devices - Smart Materials & Devices - by deposition systems and technologies, printing, my nation and surface treatments.

The capabilities of the research team distributed a wide range of multidisciplinary scientific and technological specialties: Chemistry, Electronics, Telecommunications, Physics, Industrial Engineering and Textile Engineering, among others.

Cetemmsa is organized into different research groups with a clear orientation towards markets and applications: Energy and Photonics, Health and Welfare, Smart Materials, Electronics and Sensors, Smart Textiles and Radio Frequency Identification-RFID.

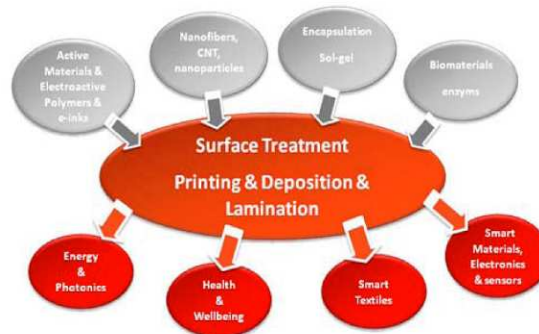


Figure 5: Research activities focus

5.2 Applied Research Projects Featured

- DERMO SMART PEPTIDE DELIVERY . Development of a dressing releasing a controlled substance.
- DEPHOTEX - DEVELOPMENT OF PHOTOVOLTAIC TEXTILES BASED ON NOVEL FIBRES Research and development in solar cells for photovoltaic Flex weave transform sunlight into energy.
- BATTERIES CLOTHING Development of a cell / battery on textile substrate.
- NEURO-REHABILITACIÓN Modelling of electromechanical systems to automate and sensitization monitoring in functional rehabilitation.
- NANOSTRUCTURED MATERIALS WITH ACTIVE Development of an electro-active substrate for healthcare applications.
- Supine - Research and development of smart structures with nano-functional fibbers.
- CLIMATRESS. Research and development of an air conditioning system of mattresses and upholstered furniture based on smart materials.
- PLASeTOY - PLASTIC ELECTRONIC TOYS Research and development of plastics applied to electronic toys.
- INREDIS. Research and development of Smart Textile interaction environment for the disabled. *Tissue Thermo chromatic Electroluminescent Textiles*

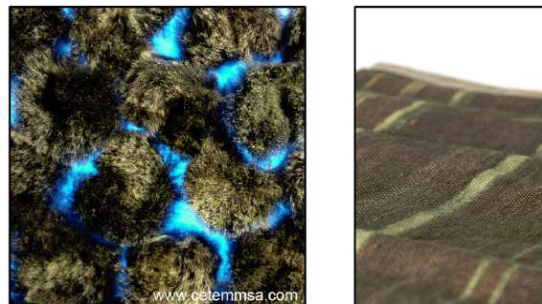


Figure 6: Thermo Chromatic Textiles

6 Experimental development and product innovation

As a result of the investigation itself deposition systems, printing, lamination and surface treatment for the development of Smart Materials, Cetemmsa offers businesses a joint project to create intelligent and innovative objects - Smart Objects -.

Smart Object: Object or product born of applied research of new materials and technologies that make it interactive with new capabilities added to its original nature. Product or part of a product sensitive to a stimulus and responds by offering new functionality, achieving competitive advantage in the markets.



Figure 7: Innovation process

7 Technological services and training

7.1 Technological services

Cetemmsa, since its foundation, has enhanced the processes of technological innovation of enterprises through the introduction of information technology-IT-as a tool to automate work processes and increase efficiency and competitiveness.

The basic objective is to transfer the concept of innovation to the different areas of the company. That is why we are introduced management systems to ensure innovation, quality, productivity and continuous improvement throughout the organization.



Figure 8: Child Temperature Bluetooth transmission integrated on the textile

7.2 RFID Technology

Cetemmsa has a professional team specializing in RFID technology to help companies evaluate, test pilot, and implement projects using RFID in different points of the logistics value chain to ensure traceability of all or part - The functionality of the system and the advantages or disadvantages of its implementation in the various activities of the company.

7.3 Training

Cetemmsa as a centre for training people in active business, has supported much of the innovation transfer strategy. The quality of teaching business and professional service has been increasing annually.

Training portfolio in 2008: 3773 participants / 291 courses / 1238 companies impacted

7.4 Leading technology projects

- MEDICAL ROOM RFID Implementing RFID systems, RFID-in theatres.
- INDUSTRIAL LAUNDRY Define and install RFID systems, RFID in industrial laundry.
- RFID MEDICAL Define and develop systems of radio frequency identification-RFID-to medical instruments.
- MUESTRARIOS TEXTILES: DEDUCTIONS TAX AND SOCIAL SECURITY FEE Document and follow to obtain a certificate of project R & D + i (AENOR) and the reasoned report of the Ministry of Industry, Tourism and Trade, or the corresponding bonus shares in Social Security.
- TRANSFER OF KNOWLEDGE MANAGEMENT Management consulting innovation.
- .ACTIONS AND FOLLOW-UP TRAINING Innovative multimedia tool to train professionals in new jobs in emerging areas of design, logistics and marketing.
- TRANSFIT Promotion of trends and opportunities for smart fabrics.
- DILOCOMTEX Promote strategies for success by improving brand positioning, the eBRANDING.
- PEGAHSO Identifying companies for making a directory technology that allows technological monitoring.
- INNOPROD Competitive monitoring methodology for product innovation.
- WORKFLOW Technology Platform business flow management.
- PDA REAL TIME Remote Platform systematic collection of information on individual and mobile demand.
- RATINGS R & D Platform to assess the knowledge of R & D in textiles.
- DRIVER B2B Intermediate platform for exchanging information between client and supplier.

- MARESME CLUSTER OF TEXTILES Identify structures of R & D in textiles and promotion of a course for Textile industry executives.
- . TEX x GUA Promote technological innovation in Guatemala.
- BOND TECHNOLOGY Advise companies to promote their participation in European projects.
- IP-BASE promoting the rights of intellectual property in enterprises.
- PLAN PROMOCIÓN INTERNACIONAL To promote the international presence of CETEMMSA.

8 Dissemination

In order to achieve the founding objectives need to Cetemmsa professionals engage and develop outreach activities to convey technological innovation in different professional and business fields.

- Information Session: New Technologies and legislation.
- Week: Fashion Textile Cluster.
- Meeting: NEGO & TEC.
- Week: Textile Cluster Mataró - Maresme.
- Visit delegation: Pious Schools Santa Anna.
- International Session: Improving RFID Fashion.
- Information Sessions: Smart Textiles and Smart Objects.
- Salón internacional AVANTE - International Exhibition - Technical Papers RFID and Smart Objects. Salón Internacional de la logística (Sil) -Espacio ICII-. International Exhibition Logistics (Sil)-ICII Area.
- Open doors Session.
- Feria Internacional: FIMI - Children's Fashion.
- Sesión informativa: Briefing: Internet Marketing & Internet Money.
- Sesión informativa: Briefing: School of Design Llotja - Technical Paper.
- National Fair: Innova 3602.



Figure 9: Some dissemination shoots

9 RESPONSE RSC: I3 Model

9.1 STAKEHOLDER RELATIONSHIPS & THEIR STRATEGIC IMPORTANCE

The relationship sphere illustrates the degree of relationship and partnerships that exists between the company and its stakeholders. It also shows the importance of the stakeholders as sources of information to develop new products.

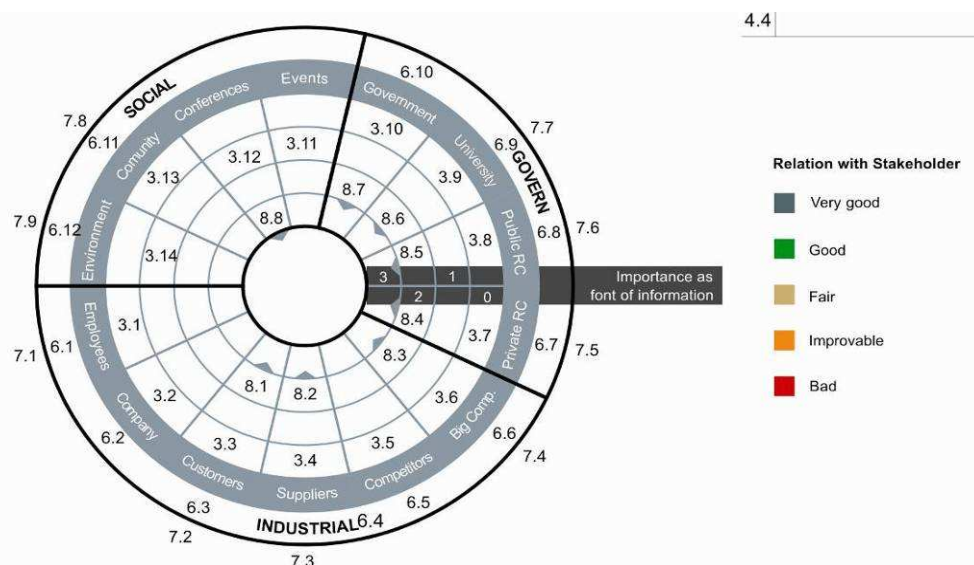


Figure 10: Relationship Sphere

Employees: It is a project based company and develops the employees by continuous formation plans. There is a conciliation plan for the familiar life. The employees are not expected to provide our budget they are evaluated by performance. There is very formal map of communications. The employees have incentives to innovate and continuously improve the company processes and products.

Sister companies: Anytime there is a common project all the strategies are aligned and the scope and objectives fully accorded and planned.

Customers: The customers usually are involved in the research and development of new products. It is open to co-innovation.

Suppliers: They look for long time agreements

Competitors: As soon as Cetemsa is a research centre it is open to innovate in team with competitors. The open innovation or co-innovation process is of application.

Large Firms: Cetemsa is acting as a provider of innovation to large firms and also as a client. The relations are correct and sometimes the large companies are interested in the adoption of ISO certifications.

Public Research Centres: Co-innovation agreements

Private Research Centres: Co-innovation agreements

Universities: Close cooperation. The universities are viewed as a font of human capital and knowledge.

Government: Cetemsa is member of the XIT web of the Catalan government and collaborates in the research with the innovation department. The government acts as a triple helix of innovation actor

Community: No special relation.

Environment: High involvement with the environmental policies.

In general the company has good business relationships with all its stakeholders and considers them strategically important to the organisation especially its suppliers and customers as these provide invaluable information on the existing products and processes that could potentially transform into product or process innovation.

A list of the winning activities is listed. There are some that are actually developed by Cetemsa (Green). The unmarked one's are possible ways to improve Cetemsa relationships with his stakeholders.

Environmental
ISO14001
Waste minimisation, re-use and recycling schemes
Reduction in use of harmful chemicals
Reduction in atmospheric emissions
Use energy from renewable sources
Membership of environmental organisations
Investment in new technology
Environmental reporting
Award winning environmental schemes
Employees
Investors in people
Flat management structures
Creation of good work-life balance and family friendly employment
Employee newsletters
Social events for staff
Employees sent to developing countries to undertake community projects
Award winning training and development programmes for employees

Employment of older and disabled people
One to one mentoring of employees
360_ appraisal schemes
Supply chain/business to business
Open house policy for customers, suppliers and competitors to look around
Directors of business associations
Seeking to develop long-term partnerships with customers and suppliers
Supplier learning schemes
Measurement of key performance indicators and feedback to staff, customers and suppliers
Winners of industry awards e.g., world class manufacturing or service industry excellence
Support and encouragement for suppliers to become more socially responsible
Take part in industry best practice programmes
ISO9001 Quality standard
Community/society
Work with local schools on projects e.g., working with children with learning difficulties
Donate percentage of profits to charity
Supporting local homeless people
Sponsorship of local sports teams
Involvement in awards schemes for young people
Time banks for employees to work in the community
Social auditing
Employ people from the local community
Working on community projects in developing countries
Work experience placements
Award winning community engagement programmes
CUSTOMERS
Design for all
Ecodesing

Table 1: Winner CSR activities

Cetemsa is a project based organization and as such take very seriously all the items related with his employees. Particularly they invest in people and are proud to create a good work-life balance.

Cetemsa is intensive in knowledge and has a really good relation with universities and research centres. They are continually developing research activities in cooperation.

They could perform it's relation with the community and increase efforts on supply chain and environment. The proposed activities are:

Environment: Reduction in atmospheric emissions, Environmental reporting

Employees: 360_ appraisal schemes

Supply Chain: Measurement of key performance indicators and feedback to staff, customers and suppliers, Take part in industry best practice programmes.

Community: Work with local schools on projects e.g., working with children with learning difficulties

We do not propose any activity with customers because the relation is over the standard by now and it is better to devote time with other stakeholders.

9.2 The Social Sphere. Development of social products

The following diagram (Figure 11) represents the capacity of the organisation to develop social products.



Figure 11: Social Sphere

Design new and innovative products or concepts are the core activity for Cetemsa. Almost all the considerations of the Social sphere are on the agenda.

The most developed one is Ecodesign.

I.E. the project TAFF, Flexible Photovoltaic Car Roof:

research into flexible photovoltaic modules employing Roll-to-Roll printing techniques for use the automotive industry.

This project is based on research into flexible photovoltaic cells for applications in the automotive industry. The photovoltaic technology that is being developed involves low-cost techniques such as ink-jet and roll-to-roll printing.

Technology producing cheap, flexible, lightweight photovoltaic materials has potential as a source of energy that can easily be integrated into a variety of technological environments. These characteristics mean this project belongs to a strategic field of research in regard to both environmental protection policies and technology.

The technology being developed makes it possible to produce flexible systems using cheaper equipment than that traditionally employed in manufacturing

photovoltaic products. Not only that, but it performs better, covering a larger surface area per unit of time. The ultimate aim, therefore, is to come up with a low-cost photovoltaic technology able to meet at least part of the energy needs of a means of transport, such as supplying the power for components inside the vehicle.

They're involved on health products:

I.E. cvREMOD, R&D in new technologies (telecare and telemonitoring) for treating cardiovascular diseases

R&D in new technologies (telecare and telemonitoring) for treating cardiovascular diseases.

Cardiovascular diseases are the main cause of death in the world and therefore have a major social and economic impact on healthcare. Modern medical diagnostic and operating technology has made great strides, but management of these diseases is currently being undermined by the fragmentation of data, poor analysis and inadequate interpreting techniques.

Objectives:

To carry out R&D with a view to generating IT databases, models and tools for investigating cardiovascular diseases.

To gain a holistic understanding of the main mechanisms of cardiovascular remodelling using these new technologies.

To develop personalised models of the cardiovascular system by combining the clinical information, advanced signals and acquisition of images, on the one hand, with the analysis, modelling and physiology of calculation, on the other.

To develop databases, models and tools enabling industrial research and the transfer of cardiovascular remodelling processes showing the potential of the integrated approach in handling diseases and optimising the use of medical products.

Social Inclusion:

I.E. HOPE project. Smart HOme for the elderly People.

he "Hope" solution consists of an integrated, smart platform that will enable the elderly people with Alzheimer's disease to use innovative technology for a more independent life, easy access to information, monitor their health, and serve as a source of inspiration for users as well as for people working with assistive devices. Moreover, it will enable them to perform by themselves activities they were not able to do before and which are important for their daily personal life.

Technological Objectives:

Tech 1: Implementation of an intelligent IP based Universal Control Box

(UCB).

Tech 2: Development of building ontologies.

Tech 3: Development of a policy-based rule engine reasoning module.

Tech 4: Development of a decision-making (DM) module.

They are not involved on Design for crime but they are developing really interesting innovations on light emission devices that could be used very easily with that technology.

I.E. Smart portable computer or mobile phone surfaces capable of flash messages as “Stolen” or “That device is property of..., please call...”

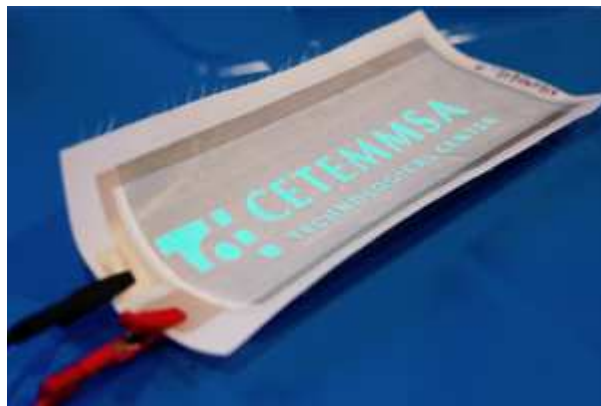


Figure 12: Photonic devices

The fair trade is presumed due to their knowledge of all the value chain they are on.

Here they have devoted efforts really over the standard and they have little path to improve but a lot of path to evolution.

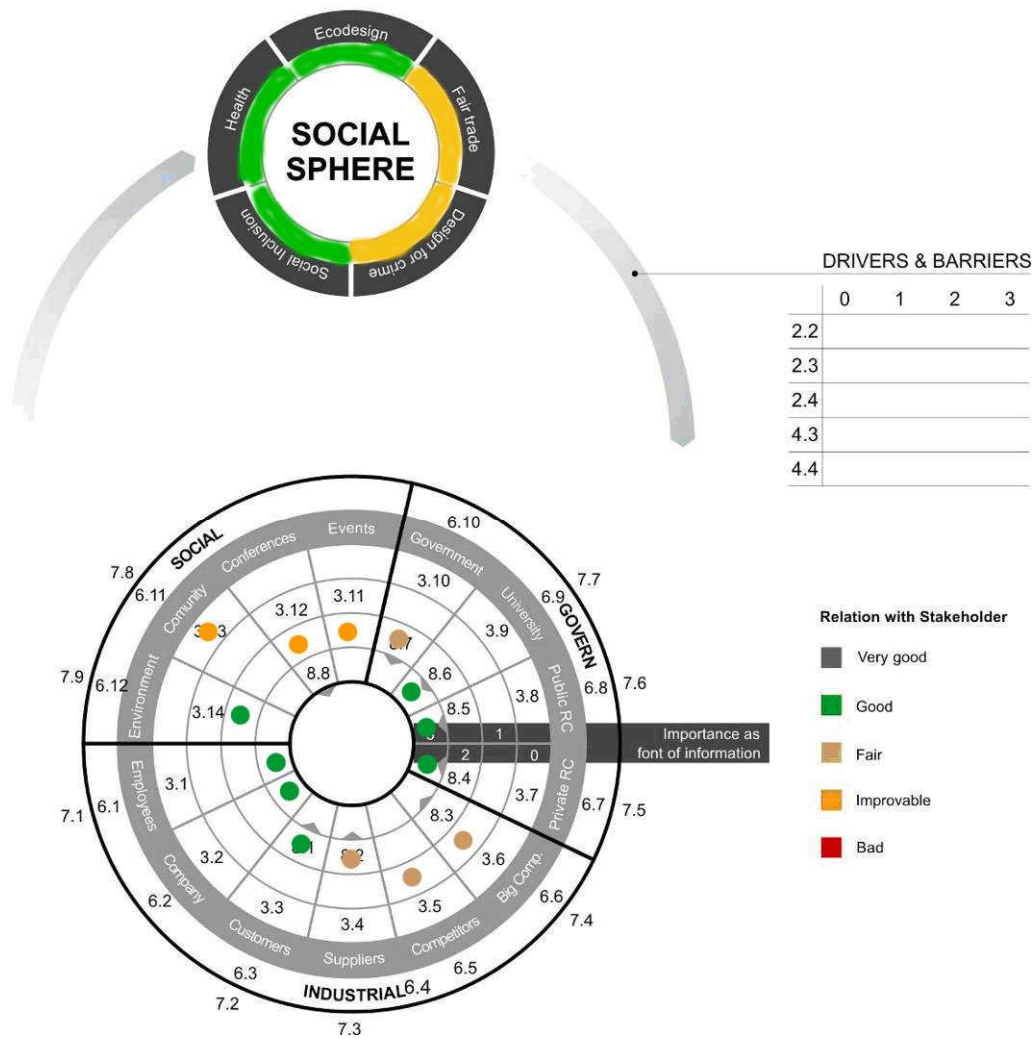


Figure 13: Response Diagram for CETEMSA

10 Conclusions

Cetemsa is a good example of how Corporate Social Responsibility may support the implementation of business strategy. CSR initiatives are thought and put in practice to be at the service of the corporate mission. Being employees the most important resource, Cetemsa puts significant attention and resources to empower workforce, stimulate their creative thinking, offering places and ways to express new ideas and solutions, in the hope they increasingly contribute to innovation. Cetemsa attempts to align strategic and social aspects in its business, in which CSR plays a support role offering a set of tools to search for economic value.

Cetemsa approach to CSR should characterize all initiatives, so that CSR would become a strategic issue, not with a supporting role but with a leading one.