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Study and conceptualization of the Valometer: A system of business indicators for values-based management

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Abstract

In light of economic and social threats and challenges such as globalization, economic crises, child labor, climate change and technological transformation, this paper presents the results, conclusions and recommendations of a study and conceptualization of the Valometer, a system of business indicators designed to facilitate management with values. **Methodology**. It focuses on the use of three complementary techniques. The first phase comprised the exhaustive diagnosis of four bibliographic reviews focused on inclusiveness, sustainability, technology and communication. In the second phase, theoretical intentional sampling was used to select 50 professionals-experts (scientists and professors from different academic disciplines, businesspeople, entrepreneurs, managers and advisors from different business sectors) to participate in three semi-structured discussion groups combined with qualitative in-depth interviews to jointly conceptualize the Valometer. **Results** The resulting tool consists of 50 criteria and indicators constructed scientifically and divided into 5 spheres: A) Identity; B) Administration and management; C) People; D) Sustainability; and E) Technology. **Conclusions** The data obtained from a small sample of companies that have used the tool in pilot mode suggest that the Valometer may be a useful tool for facilitating business management with values.

Keywords

Valometer; Vusiness; companies with values; business indicators; management with values

Contents

Introduction. 2 Method 2.1. Methodological strategies. 2.2. Population and sample. 2.3. Data-gathering instruments. 2.4. Procedure. 3. Results. 4. Discussion and conclusions. 5. Acknowledgments. 6. Bibliographic references.

1. Introduction

According to Echazarreta y Costa (2018b), today's society presents a series of economic and social problems and challenges, including globalization, economic crises, child labor, climate change and technological transformation, which must be addressed if we are to achieve a sustainable globalization that will eradicate inequalities and poverty, protect the environment and guarantee prosperity in society.

Over the last forty years, the two most determining factors in the emergence of globalization are considered to be technology, which has transformed most industrial productive processes, and changes in political systems (de Urduña, 2018).

According to García, Mora, y Alés (2009), the loss of competitiveness suffered by local production in the global marketplace due to high wage costs, together with the appearance of countries with low production costs, has accelerated companies' relocation and internationalization. This phenomenon has profound effects, including very high social costs, widening the gap between the rich and poor. Regarding globalization, Bauman (1999): "It greatly benefits very few, while excluding or marginalizing two thirds of the population".

Secondly, according to Echazarreta y Costa (2017a): "Economic and financial crises are becoming increasingly more frequent, profound and global, with repercussions mainly for the social sectors. In this context, the economic slowdown has significantly increased the number of people in a situation of poverty and exclusion; resources, social protection systems and certain benefits specific to the welfare state have all declined".

According to Rocha y Aragon (2012), 7.2 million jobs were destroyed and 2.4 million created in Europe during the period 2008 to 2012, which represents a negative balance of almost 4.8 million jobs. In Spain, the exponential growth of employment in the construction sector followed by the subsequent real estate bubble, added to the policy of cuts in the face of the crisis, aggravated the situation of social groups left without employment. In the first quarter of 2013, the number of unemployed reached a record high of 6.2 million and the unemployment rate 27.16% (Gómez-Ruiz, 2018).

With regard to child labor, Briceño y Pinzón (2004) stated the following, "More than 246 million children between the ages of 5 and 17 are currently working around the world and 180 million are subjected to the worst forms of child labor, such as sexual exploitation, domestic chores, work in mines, pyrotechnic fireworks factories and armed conflicts". According to these authors, there are three main causes of child labor: poverty, the belief that it is positive, and a lack of socio-economic policies to counter child labor. The minimum working age is a key concept in achieving the effective abolition of child labor.

Fourth, regarding climate change, Carballosa (2017) states that "The world's leading climate scholars consider human activity the most likely principal cause for the increase in temperatures since the mid-twentieth century", and "These changes in the climate are already having a considerable impact on ecosystems, countries' economies, human health, the well-being of the population and economic forecasts; and they are not expected to reverse in the medium term".

In order to turn this situation around, bearing in mind the Kyoto Protocol on climate change, which limits emissions and commits the signatory countries to establish measures to reduce emissions and promote renewable energies, Echazarreta y Costa (2018c) conclude that “Sustainable companies are based on two fundamental principles: the environment (renewable energy resources, sustainable development, preservation of the environment, responsible energy consumption, minimizing emissions, eco-efficiency, circular economy) and mobility (collective public transport, electric vehicles, clean and non-motorized mobility systems)”.

Finally, a fifth key aspect that leads to significant changes in the labor market and the global economy is technological transformation. In relation to the 4.0 industry, Ceballos (2016) stated: that “The confluence of technologies allows the industry unimaginable opportunities, thus defining a new industrial model based on digitalization”. According to this author’s study, the new production model will involve the progressive disappearance of current mass production practices.

Recio (2018) states that “Some experts who have carried out empirical studies in highly industrialized countries such as Germany have found that unemployment is not the only problem and that other phenomena can be detected, such as inequalities among those who form part of the world of work due to differences in remuneration, which also represent important structural changes in the labor market”.

A study by Frey y Osborne (2017), which consisted of a comprehensive analysis of occupations in the US labor market, concluded that 47% of jobs present a high risk of disappearance as a result of digital transformation over the next twenty years. In a similar sense, Arntz, Gregory, y Zierahn (2016) estimate an impact on jobs of between 25% and 45%.

In contrast to the above, Seghezzi (2016) stated that the robotization of industry and the digitization of the services sector may lead to opportunities to generate employment. Also, Todolí-Signes (2017) reflected on the collaborative economy and its disruptive capacity in the virtual market thanks to transformation of the network.

Eguiguren (2011), who is executive director of The Global Alliance for Banking on Values (GABV), concluded that management of the problems and challenges identified accelerates research on alternative economic and business management models capable of offering a better alternative to the shortcomings inherent in the current model based fundamentally on capitalism. According to said author, companies should be led by corporate values based on sustainability, ethics, responsibility, transparency, democracy and participation.

With the same objective, the University of Girona promotes a study to conceptualize the Valometer, a system of business indicators for facilitating management with values whose research methodology consists of four bibliographic reviews, three forums and in-depth interviews. The tool forms part of the Vusiness project [from business, but with a “V” for values], which aims to promote sustainable, intelligent, open, democratic and inclusive companies to inspire the future. The project is led by the Arpa Research Group (Analysis group for reception and playback quality of Audio-visual Screens), which belongs to the University of Girona’s Philology and Communication Department, and has been presented at different North American universities: Harvard, MIT-Massachusetts Institute of Technology, Emerson College, Boston College and Suffolk University in Boston.

Following an exhaustive bibliographic review phase, three forums were held to reflect and debate on sustainable, inclusive and intelligent companies. The first was entitled “People, the heart of companies”, the second “Smart companies, generating the future” and the third “Sustainable companies, tackling climate change”. The diagnosis of the current situation led to the conclusion that there is a need to create an alternative business management model to the one currently in place.

2. Method

The main aim of this study is to conceptualize a business value management tool to promote sustainable, intelligent, open, democratic and inclusive companies, which must inspire the future.

2.1. Methodological strategies

Faced with a research problem that has been the object of very few studies, we proposed to carry out an exploratory investigation with the objective of designing indicators for business management by values from a new perspective. Different studies have coincided in pointing out that the most influential variables for defining indicators to measure, evaluate and make decisions in a given sector are obtained from the target public (Nieto-Galan, 2011). For this reason, our exploratory research was based on previous theoretical studies, consisting of four bibliographic reviews aimed at describing the current state of knowledge regarding how inclusiveness, sustainability, technology and communication are applied in today's business environment.

Based on the results of the documentary reviews, our exploratory research continued with the adoption of a qualitative approach that combined discussion forums with interviews using open questions, so as to compile the indicators in a participatory manner.

2.2. Population and sample

A través de un muestreo intencional teórico se seleccionan 50 profesionales-expertos (científicos y profesores de distintas disciplinas académicas y empresarios, emprendedores, técnicos y asesores de distintos sectores empresariales). El interés de los foros recae en el hecho de incluir distintos enfoques complementarios sobre un mismo tema para obtener un punto de vista más representativo. La Table 1 recoge la ficha técnica del estudio.

Fifty professional-experts (scientists and professors from different academic disciplines, businesspeople, entrepreneurs, managers and advisors from different business sectors) were selected by means of theoretical intentional sampling. The appeal of the forums lay in the fact that different complementary approaches on the same topic were included to obtain a more representative overall viewpoint. Table 1 contains the technical data for the study.

Table 1. Study data

Sample size	50 professionals-experts (scientists and professors from different academic disciplines, businesspeople, entrepreneurs, managers and advisors from different business sectors)
Data-gathering methods	4 Bibliographic reviews 3 Participatory discussion forums 21 In-depth interviews with open-ended questions
Sampling procedure	Intentional theoretical sampling
Dates	January 2016 to October 2018

2.3. Data-gathering instruments

The complex current situation and its wide spectrum of needs requires knowledge from different disciplines. Thus, it was clear from the outset that designing a tool of indicators for business management with values had to count on the participation of different points of view. For this reason, a methodology was proposed to conceptualize the Valometer, divided into the three tools listed below.

The first phase entailed conducting a comprehensive diagnosis to analyze the four key axes for developing values-based companies, namely technology, inclusiveness, sustainability and communication.

- Inclusive companies, reinventing quality of life: A theoretical review (Echazarreta & Costa, 2018a)
- Sustainable companies, tackling climate change: A theoretical review (Echazarreta & Costa, 2018c)
- Smart companies, inspiring the future: A theoretical review (Echazarreta & Costa, 2017b)
- Amplifying citizens' voices in the face of media globalization (Echazarreta & Costa, 2016).

As a result of the above, we obtained an image of the object of study that allowed us to focus on subsequent processes. Following this descriptive phase, the qualitative exploration phase entailed three forums with experts and opinion leaders. The focus group discussions were structured in three areas, in accordance with the results obtained from the diagnosis and bibliographic review phase: inclusiveness, sustainability and technology.

In order to design the criteria and indicators that define the Valometer without previously conditioning the participants, the forums were complemented by in-depth interviews using open questions.

2.4. Procedure

The focus groups were structured in three areas, in accordance with the results obtained from the diagnosis and bibliographic review phase: on inclusiveness, "People, the heart of companies", held on 18 October, 2016 with 9 participants; on technology, "Smart companies, generating the future" held on 22 November, 2016 with 12 participants; and on sustainability "Sustainable companies, tackling climate change" held on 24 January, 2017 with 8 participants. In total, the forums comprised 29 professionals in multidisciplinary groups.

In parallel, 21 interviews with open questions were conducted from January 2016 to October 2018.

The initial draft of the Valometer indicators was formulated between June and October 2018 on the basis of the data obtained from the four bibliographical reviews, previous working documents such as Smart Cities: The digital transformation of cities by PwC's and IE Business School's Public Sector Innovation Center (Seisdedos et al., 2015) and the article Industry 4.0, the great opportunity (Ceballos, 2016), the three discussion forums and the in-depth interviews.

Using the initial proposal, the professionals-experts revised and reformulated the criteria and indicators according to their knowledge and specialization in each of the five areas through meetings with the steering group and virtual interviews.

The first Valometer model was tested in pilot mode with a reduced sample of eight companies during the period June to August 2018 in order to assess its initial usefulness and viability.

3. Results

The Valometer, a system of business indicators to facilitate management with values, is a voluntary tool designed for companies. The Valometer aims to help and guide companies to control and measure the results of their management in five areas using a common comparable methodology.

The resulting tool is illustrated as a wind turbine consisting of 50 criteria and indicators constructed scientifically and divided into 5 areas: a) Identity; b) Administration and management; c) People; d) Sustainability; and e) Technology (See Figure 1).

The criteria and basic indicators are provided below (See Tables 2 to 6).

Figure 1. Sections of the Valometer



Valometer, a system of business indicators to facilitate management with values

Table 2. Section A: Identity

SECTION A: IDENTITY		
CRITERIA	INDICATOR REFERENCE NUMBER	BASIC INDICATORS
A1. ENTREPRENEUR. Characterized by being creative, innovative, communicative, sensitive, honest, committed, ethical, empathetic, approachable, effective, efficient, transparent, responsible and possessing leadership skills.	A1.1	Percentage of the entrepreneur's personality traits and characteristics that determine whether he or she knows how to identify an opportunity and has the skills to put it into operation, over the total.
A2. MISSION. Our mission pursues a noble and commendable purpose. For ex. quality education; gender equality; decent working conditions and economic growth; responsible production and consumption, etc.	A2.1	Percentage of coincidence between company's declared mission and some of the 17 challenges defined in the UN's Sustainable Development Goals (SDGs)
A3. VISION. The company aims to achieve future goals aimed at developing people and sustaining the environment.	A3.1	Percentage of coincidence between the future challenges facing the company and those defined by the UN's Sustainable Development Goals (SDGs)
A4. VALUES. Profound commitment to ethical, social, labor and environmental values that favor the harmonious development of the planet and humanity.	A4.1	Percentage of company's ethical, social or environmental values compared to pragmatic-economic values (efficiency, quality, etc.)
A5. SUSTAINABLE. Contributes to wealth and the common good and does not consume more resources than it generates in any sphere.	A5.1	Percentage of energy resources generated by the company compared to those consumed.
A6. PROGRESS. Acts on technological progress and redirects it to be of help for a better world.	A6.1	Percentage of use of new technologies to promote quality of life compared to their use to eliminate jobs.
A7. RESPONSIBILITY. Freely acts out of full responsibility, especially towards society and the environment.	A7.1	Percentage of products and/or services, produced or rendered by the company, respectively, that favor society and the environment, over the total.
A8. TRANSPARENCY. Act in a fully transparent way on the free market.	A8.1	Percentage of access to the decision-making process, free access to documents, instructions, formulas, contracts, etc. that affect citizens or the environment over the total.
A9. ETHICS. Does not engage in any kind of speculative activities, not even marginally, and extends its ethical commitment to its chain of suppliers, distributors and customers.	A9.1	Number of ethical actions taken with regard to suppliers, distributors and customers compared to total activities.

<p>A10. FAIR PROFIT. Aspires to obtain sufficient profit to continue contributing to social development and to provide just compensation to those who risk their capital and who dedicate their work to the company.</p>	<p>A10.1</p>	<p>Profits assigned to employees for just compensation for their work or social development and to improvement of the company in comparison to those assigned to oversized or unnecessary personal expenses or wasteful spending in euros.</p>
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Table 3. Section B: Administration and management

SECTION B: ADMINISTRATION AND MANAGEMENT		
CRITERIA	INDICATOR REFERENCE NUMBER	BASIC INDICATORS
<p>B1. TRANSFORMATIVE LEADER. Characterized by being entrepreneurial, innovative, inspiring, creative, sensitive, honest, committed, social, ethical, empathetic, approachable, effective, efficient, transparent, discreet, reliable and responsible.</p>	<p>B1.1</p>	<p>Percentage of personality traits and profile characteristics that determine whether it is an authentic, inspiring leader capable of motivating, uniting and favoring team performance, over the total.</p>
<p>B2. GOVERNANCE. The board of directors, shareholders, management team, audit committee, etc. are organized and make decisions to achieve their legitimate objectives, always acting in a fully transparent, ethical and responsible manner.</p>	<p>B2.1</p>	<p>Number of strategic decisions taken ethically and responsibly and communicated compared to those that are hidden or do not respond to noble ends.</p>
<p>B3. SOCIO-ECONOMIC CONTEXT AND OPPORTUNITIES. The company is attentive to the challenges, opportunities and needs of society for it to become more sustainable, developed, just and equitable.</p>	<p>B3.1</p>	<p>Percentage of products and/or services developed in response to environmental challenges or needs to favor the circular economy, sustainable development or a more just and equitable society, over the total.</p>
<p>B4. VALUE PROPOSAL. Product or service that satisfies the rational needs of society.</p>	<p>B4.1</p>	<p>Number of products and/or services needed to live or make a better world compared to those that respond to mere consumerism.</p>
<p>B5. PARTNERS. The company relates with suppliers, distributors and influencers who have certain ethical principles and values and treats them fairly.</p>	<p>B5.1</p>	<p>Percentage of suppliers, distributors and influencers that operate honestly, transparently and fairly, over the total.</p>
<p>B6. CHANNELS. Relates to its clients in an honest way, with marketing that promotes responsible consumption and not consumerism and establishes positive and lasting relationships.</p>	<p>B6.1</p>	<p>Percentage of communications (campaigns, meetings with clients, product presentations, press conferences, brochures, etc.) based on complete, verified, truthful, honest and transparent messages and information, over the total.</p>

<p>B7. PRICES. In accordance with the proposal for value, fair prices are established that allow adequate remuneration for the production or manufacture of the product, especially for small local producers, and fair remuneration of workers who provide a service.</p>	<p>B7.1</p>	<p>Percentage of sales allocated to suppliers, over the total.</p>
<p>B8. TRIPLE BALANCE FINANCE. Seeks a balance between growth and the distribution of wealth, including the aspiration to obtain a sufficient and just economic profit while attending to the social and environmental dimension.</p>	<p>B8.1</p>	<p>Percentage of sales revenue allocated to improving the remuneration of workers based on the company's results or social projects or improving the environment, over the total.</p>
<p>B9. LEGALITY. The legal, mercantile, fiscal and labor practices employed are the most adequate for achieving the company's noble ends and contributing to the community as a company, and under no circumstances are aimed at obtaining better fiscal treatment. Ensuring correct behavior in the real economy and not for speculative ends.</p>	<p>B9.1</p>	<p>Number of legal, mercantile, fiscal and labor practices suitable for carrying out its noble aims and contributing to the community as a company in comparison with those designed exclusively to obtain a better fiscal treatment.</p>
<p>B10. SOCIAL ROI (RETURN ON INVESTMENT). Has a system of evaluation indicators aimed at continuous improvement and related to concepts that enhance responsibility and transparency. Seeks continuous improvement through innovation in sustainability, intelligent use of technology and practices cohesive with preserving the environment (local employment, community focus, etc.)</p>	<p>B10.1</p>	<p>Social return on invested capital (ROIC. Return on Invested Capital) in euros.</p>

Table 4. Section C: People

SECTION C: PEOPLE		
CRITERIA	INDICATOR REFERENCE NUMBER	BASIC INDICATORS
<p>C1. JOINT LEADERSHIP. Encourages joint leadership distributed among team members and project leadership to take advantage of individual skills. Leaders must show initiative and a pro-active attitude, acting as an inspiring and</p>	<p>C1.1</p>	<p>Percentage of workers with leadership responsibilities within the workforce over the total number of personnel.</p>

stimulating driving force for groups to carry out their work.		
C2. TEAMWORK. Development of and care for work teams through emotional values such as joy, solidarity and freedom to enhance creativity, talent and innovation, acting transparently, promoting active participation and creating mechanisms to make it real and possible. Influences the working environment and gives free rein to people’s talent.	C2.1	Percentage of usual hours of teamwork compared to total hours worked.
C3. PROFESSIONAL DEVELOPMENT. Promotes staff development through professional development, offering promotion possibilities.	C3.1	Annual percentage of workers promoted compared to total workforce.
C4. KNOWLEDGE AND TRAINING. Creates mechanisms to attract talent and bring through emerging talent. Enhances knowledge through training adapted to new times and current challenges. Promotes the transmission of knowledge among workers. Uses conventional media as well as digital and virtual reality platforms.	C4.1	Annual average number of hours dedicated to training workers, sessions to enhance their talent or specific meetings to share knowledge.
C5. EQUALITY AND INCLUSION. Creates an environment that respects and promotes social diversity, gender, functional diversity, generational and cultural diversity in the company.	C5.1	Number of measures and projects that promote equality and inclusion (for example, hiring people with disabilities, participation in social programs to promote the workplace insertion of immigrants, adaptation of facilities to improve accessibility, etc.)
C6. CONCILIATION AND TELEWORKING. Promotes the reconciliation of work with personal and family life through measures such as flexible hours and teleworking.	C6.1	Number of measures and projects that promote conciliation and teleworking (e.g. flexible working hours, discretionary transport for workers, possibility of teleworking, etc.)
C7. FAIR REMUNERATION. Makes payments correctly and on time and remunerates according to the specific functions and characteristics of the job as well as assigned tasks, also valuing the worker’s involvement, skills and abilities. Also includes motivation.	C7.1	Number of benefits, agreements and additional advantages of personnel at the level of remuneration compared to that determined by the current status of workers’ or collective agreements.

<p>C8. NETWORK. Encourages and communicates corporate volunteer activities, the development of participants' personal skills, donations to local institutions, facilitates school visits to the workplace, etc.</p>	<p>C8.1</p>	<p>Number of measures and actions taken to promote links with nearby networks (e.g. guided tours, possibility of non-work placements in companies, ease of internship contracts, collaboration and sponsorship of entities or neighborhood associations, etc.)</p>
<p>C9. MEDICAL ATTENTION, HEALTH AND WELFARE. Medical care and health and safety measures in the workplace. Health assistance services complementary to public services: cardiovascular, diabetes, wellness, stress management, etc. to improve the work environment and encourage healthy habits such as sports.</p>	<p>C9.1</p>	<p>Number of cases and situations that receive medical, health or welfare coverage in addition to the mandatory average for each worker (for example: weekly check-ups for pregnant women, online medical consultations, dental coverage, coverage of glasses and contact lenses, etc.)</p>
<p>C10. COLLABORATION. Encourages communication and active collaboration between different departments using all available means, and allowing staff rotation between departments (meetings, communication screens, interactive Ipad tiles, etc.).</p>	<p>C10.1</p>	<p>Number of channels, media, tools and spaces available to encourage communication and collaboration (intranet, instant messaging, email, telephone, cafeteria space, etc.)</p>

Table 5. Section D: Sustainability

SECTION D: SUSTAINABILITY		
CRITERIA	INDICATOR REFERENCE NUMBER	BASIC INDICATORS
<p>D1. ENVIRONMENTAL IMPACT. Consumption of water, gas, electricity, detection and reaction to environmental emergencies: leaks, fires, etc.</p>	<p>D1.1</p>	<p>Percentage of the company's premises controlled via networks of intelligent environmental sensors and smart metering that allows consumption as well as pollutant particles and emissions caused by environmental emergencies to be automatically detected, over the total</p>
<p>D2. CONSUMPTION AND PRODUCTION OF RENEWABLE ENERGIES. Self-generation of energy from renewable sources: photovoltaic plates, low enthalpy geothermics, mini wind turbines, etc.</p>	<p>D2.1</p>	<p>Percentage of renewable energy use (e.g. solar, thermal, photovoltaic, bioenergy, hydraulic, tidal, wind, wave and geothermal) compared to finite energy use (based on oil, coal and natural gas)</p>
<p>D3. ENERGY EFFICIENCY. Allows efficiencies to be increased and energy management improved. Solutions that promote energy consumption management in air conditioning, elevators and lighting.</p>	<p>D3.1</p>	<p>Percentage use of energy efficient equipment: for energy storage, high-energy efficiency and low consumption, such as cogeneration and high-efficiency boilers, automation and LED technology, smart and on-demand lighting systems or presence sensors in comparison with conventional non-efficient means.</p>

<p>D4. BIOCLIMATICS AND SUSTAINABLE BUILDING. Zero consumption buildings, allowing reduced consumption without the need for more sustainable energy installations.</p>	<p>D4.1</p>	<p>Percentage use of sealants, windows, building covers, etc. in comparison with systems that do not favor reduced consumption.</p>
<p>D5. INTEGRATION IN THE LANDSCAPE AND THE ENVIRONMENT. To favor integration in the natural landscape and environment and promote thermal reduction through production systems that promote biodiversity and respect for nature in agricultural areas.</p>	<p>D5.1</p>	<p>Number of measures designed to favor integration in the landscape and the environment (e.g. plants and vegetation on roofs, walls and company premises to create shade, air moisture and avoid heat islands, color integration of facilities in the environment, and promoting the consumption of local products that are respectful of the environment).</p>
<p>D6. MANAGEMENT OF INTEGRAL WATER CYCLE AND INTELLIGENT IRRIGATION</p>	<p>D6.1</p>	<p>Number of technological resources used to favor water being a closed cycle (e.g. catchment, transportation, distribution, sewage, consumption meters, invoicing, collection, purification and treatment, etc.; low-energy gardening integrated into the environment and automated sprinkler and sensor networks to measure when and how much to irrigate).</p>
<p>D7. CIRCULAR ECONOMY, REDUCTION, REUSE, RECYCLING AND INTELLIGENT WASTE MANAGEMENT The circular economy involves generating products that maintain their usefulness and value and is characterized as being reparative and regenerative production.</p>	<p>D7.1</p>	<p>Number of measures adopted to favor the ecodesign of products and the reduction, reuse, recycling and intelligent management of waste above and beyond legal compliance. For ex., purchasing materials taking into account the life cycle, eco design in new products, the use of recycled products and products with environmental certification or eco labels, real-time information on container levels, etc.)</p>
<p>D8. PUBLIC TRANSPORTATION AND REMUNERATION FOR TRAVEL Encourages employees' use of public transport to go to work</p>	<p>D8.1</p>	<p>Number of measures encouraging employees' use of public transport to get to work (contribution to the costs of polygonal mobility, adaptation of transport schedules, real-time information on incidents and frequencies, digital advice to the traveler, etc.)</p>

<p>D9. NON-MOTORIZED MOBILITY Ecologically-propelled vehicles and promotion of the use of conventional bicycles or walking</p>	<p>D9.1</p>	<p>Number of measures adopted to favor the use of non-motorized mobility (electric bicycle, motorcycle and car, conventional bicycle or on foot). For example: parking, access to buildings for folding bicycles, provision of a space for changing and showering, availability of charging networks, information systems on location and availability, rental systems, etc.</p>
<p>D10. TRANSIT MANAGEMENT Reducing the carbon footprint via the management of company fleets and promote vehicle sharing</p>	<p>D10.1</p>	<p>Number of measures proposed to favor the flow of traffic (calculation of company fleet's carbon footprint, mobility plans, favoring car sharing for workers' vehicles, optimizing the transport of goods, traffic forecasting, smart traffic lights, real-time driver information, warnings about incidents, etc).</p>

Table 6. Section E: Technology

SECTION E: TECHNOLOGY		
CRITERIA	INDICATOR REFERENCE NUMBER	BASIC INDICATORS
<p>E1. DIGITAL TRANSFORMATION. Establishes mechanisms to facilitate the incorporation of technology in all processes. Facilitates the change of mindset that digitalization involves, including trends and advances in fields such as nanotechnology, genetics, and the maker movement, the collaborative economy and the circular economy. All this while addressing ethical issues in favor of people and quality of life over robotization.</p>	<p>E1.1</p>	<p>Average number of annual hours per worker the company allocates to raising awareness, training and guiding employees towards digital transformation and to addressing ethical questions in the face of robotization.</p>
<p>E2. INTERNET OF THINGS (IOT). Internet of things applied to different sectors of activity, allows objects to be to connected to each other and to the Internet.</p>	<p>E2.1</p>	<p>Percentage of the company's products that have sensors and embedded computing that allows them to send and receive information in real time, over the total.</p>
<p>E3. OPEN DATA. Makes information available to workers, suppliers and customers in standard, open and interoperable formats to promote transparency.</p>	<p>E3.1</p>	<p>Percentage of the company's data that are in open and accessible formats for workers, suppliers and customers, over the total.</p>

<p>E4. CYBER PHYSICAL SYSTEMS. Systems connected to each other and in turn to the virtual world of digital networks. These are advanced communications networks that comprise integrated platforms for management. They integrate monitoring, management and operation capabilities, facilitating supervision and/or control.</p>	<p>E4.1</p>	<p>Percentage of company data monitored and controlled via a platform with a cyber physical system (technical infrastructure connected to open standards; systems connected via the IoT; software-defined platforms and smart service platforms), over the total.</p>
<p>E5. 5G, CONNECTIVITY, CLOUD COMPUTING AND DIGITAL COMMERCE. 5G is the telecommunications infrastructure that enables new digital-based services (autonomous vehicle, remote medical assistance, remote surgical operations, etc.). Cloud computing makes information available to workers, clients and suppliers anywhere and any time thanks to flexible technology that allows all resources to be stored in the cloud. Offers the possibility of buying and selling online.</p>	<p>E5.1</p>	<p>Percentage of company information enabled in 5G, stored in the cloud and accessible from anywhere and at any time thanks to communication technologies used for working, buying and selling, over the total.</p>
<p>E6. COLLABORATIVE TECHNOLOGY Enables collaborative models that allow the birth of new C2B businesses (e.g. Waze, etc.) capacity and asset sharing (e.g. Uber, Cabify, AirBnb, Blablacar, etc.) or the integration of customers and partners in the business process, in addition to new forms of collaboration in business (crowdsourcing data, crowd-funding). Appearance of the blockchain and the possibilities it offers. Also includes collaborative robotics, a new generation of more versatile robots, easy to program and manage.</p>	<p>E6.1</p>	<p>Company's annual financial resources allocated to collaborative technology in euros.</p>
<p>E7. ADDITIVE MANUFACTURING. Or 3D printing, includes those devices that produce a 3D object from a digital input, without the need for molds or tools of any kind, through the depositing of layers of material and its consolidation.</p>	<p>E7.1</p>	<p>Percentage of produced objects that are manufactured through 3D printing, over the total.</p>

<p>E8. ARTIFICIAL INTELLIGENCE. Multidisciplinary area that aims to equip machines with cognitive processes typical of human reasoning such as deducing, reasoning and solving complex problems. Includes the branch of machine learning or automatic learning, which seeks to develop techniques that allow machines to learn automatically.</p>	<p>E8.1</p>	<p>Company’s annual financial resources allocated to artificial intelligence in euros.</p>
<p>E9. IMMERSIVE TECHNOLOGY Augmented Reality (AR) is the technology that offers digital information superimposed on real vision. Virtual reality or simulation (VR) is used in the factory to recreate a mirror of the physical world in a virtual model. Mixed reality (MR) is the combination of virtual reality and augmented reality.</p>	<p>E9.1</p>	<p>Company’s annual financial resources allocated to Immersive Technology en euros.</p>
<p>E10. CYBERSECURITY AND CYBERINTELLIGENCE. Systems for protection and warning of attacks on Internet security of essential services for companies or that can cause damage to users and clients. Physical security of data in the face of Ransomware and/or technological failure. Protection of personal data, complying with current regulations (currently the GDPR, General Data Protection Regulation).</p>	<p>E10.1</p>	<p>Number of measures taken to protect data and critical systems from cyber attacks (e.g., software protection systems, backup copies, personal data protection protocols, etc.)</p>

4. Discussion and conclusions

According to Echazarreta and Costa (2017a): “The destruction of thousands of jobs, precarious labor market conditions and a lack of work are risk factors in environments of exclusion and social marginalization. Victims in industrialized societies tend to be the least qualified workers”. Business management with values may provide a progressive and effective response to these problems, challenges and threats arising from globalization and economic and financial crises, the consequences of child labor, the irruption of technology and severe climate change.

The axis of Identity is committed to creating a more balanced society since, according to Rocha and Aragon (2012), modern society is presenting an increasingly unequal distribution of wealth. In a complementary sense, the axis of Administration and Management aims to promote more horizontal and collaborative management models, in which the involvement and loyalty of suppliers, workers and customers is essential and decisive for the company, in line with the conclusions of studies by Todolí-Signes (2017).

The Valometer’s axis of People is designed to prevent the effects of economic and financial crises since, according to Hadad Hadad and Valdés Llanes (2010), crises create precarious labor markets,

causing the destruction of thousands of jobs and an increase in embargoes and evictions that have a social impact on the most vulnerable groups.

In addition, it shows a commitment to awarding value to people, with the aim of enhancing productive processes and slowing down the outsourcing of processes characteristic of a globalized culture committed to offshoring. In line with the theories posited by Mendizabal and Errasti (2006), awarding people value in an organization is shown to have a direct impact on the productive fabric.

Fourthly, the axis of Sustainability is designed to address and respond to climate change, which according to Echazarreta and Costa (2018c) represents a pressing threat with potentially irreversible effects. Globalization increases the unbalanced use of non-renewable finite energy resources, largely due to high transport transits. Hence the need for business management models that combine the development and growth of companies with protection of the environment and the planet.

Finally, the axis of Technology is designed to facilitate the transition to the processes of digitization and artificial intelligence development, which according to Recio (2018) entail a profound change in how companies organize their work.

The purpose of the indicator system is to improve business management and help determine priorities for action. The data collected during the phases of tool development and pilot testing suggest that only comprehensive management programs using values in the different areas can help overcome the shortcomings of the current business management model described in the four bibliographic reviews.

The results of using the Valometer are based on self-evaluation, observations, data collection from different sources and the analysis of these data by companies. No minimum values were established and no certifications provided.

However, identifying indicators provides companies with the basic information to monitor in the five areas, which facilitates more effective management according to values towards people and the environment.

By way of conclusion, based on the comments received from the companies involved in this study, a group of experts from the University of Girona will periodically review the system. The 2018 edition of the tool is the result of the pilot test. It is our hope that later editions will offer a verified and suitable system.

We recommend a steering group be created to make changes and award value to the tool and a unified communication strategy be established for the tool, in the same direction and with the same attributes and values.

With the aim of raising awareness of it in the business world, it is proposed that a White Paper be drafted on “good practices” to encourage management with values.

At the educational level, it is proposed that teaching materials be generated for elementary, secondary, post-secondary and university education. In the field of entrepreneurship, it is recommended that materials and formats be adapted for entrepreneurs to explore and start their business venture with a business plan aimed at values.

After analyzing different studies on business management focused on people, the environment and the use of technology, we conclude that the Valometer can serve as a useful tool to address some shortcomings presented by business management models aimed at human resources, energy resources and the use of technology.

The aim of this study, which adopted a theoretical-conceptual approach, was to design an open reference framework for the study, initial conceptualization and drafting of the Valometer. The results

should be considered preliminary and need to be confirmed by later studies. Research in the field of business management with values must be ongoing and multidisciplinary.

Finally, experimental studies are needed that are capable of evaluating the results of using the Valometer as a tool for management with values in the business environment.

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3. Andreu Mas-Colell, professor of Economics and Business at Pompeu Fabra University. Formerly Professor of Economics at Harvard University, Professor of Economics and Mathematics at the University of California (Berkeley) and President of the Barcelona Graduate School of Economics (2006-10).
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9. Marc Genés, Economist and Tourism Manager for Baix Empordà County Council

10. Katarzyna Watras, law graduate, advises companies in the fields of internationalization and exports.

PEOPLE

1. Sandra Jiménez, Human Resources, International Recruitment at Mango
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5. Mariona Serra, Co-founder and CEO at GoodGut

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6. Bibliographic references

- Arntz, M., Gregory, T., & Zierahn, U. (2016). The risk of automation for jobs in OECD countries.
- Bauman, Z. (1999). La globalización. Consecuencias humanas. *Fondo de Cultura*.
- Briceño, L., & Pinzón, Á. M. (2004). Efectos del trabajo infantil en la salud del menor trabajador. *Revista de Salud Pública*, 6, 270-288.
- Carballosa, B. (2017). *Evolución de la huella de carbono per cápita en la Unión Europea (1999-2010)*. *Enfoque multiregional basado en el consumo*. Caminos.
- Ceballos, V. E. (2016). Industria 4.0, la gran oportunidad. *Economía Aragonesa*, 109.
- de Urdanivia, X. D. (2018). Los desafíos políticos y jurídicos de la globalización. *Derecho y economía de la integración*(5), 11-21.
- Echazarreta, C., & Costa, A. (2016). Amplificando la voz de los ciudadanos ante la globalización mediática. *Communication papers: media literacy and gender studies*, 5(9), 75-86.
- Echazarreta, C., & Costa, A. (2017a). Inclusive Companies, Reinventing Quality Of Life: A Theoretical Review. *Eurasian Journal of Business and Management*, 5(4), 12-21.
- Echazarreta, C., & Costa, A. (2017b). Smart Companies, Inspiring the Future: A Theoretical Review. © *Journal of Business and Economic Policy*, 2017, vol. 4, núm. 1, p. 138-144.
- Echazarreta, C., & Costa, A. (2018a). Empresas inclusivas, reinventando la Calidad de Vida: una revisión teórica= Inclusive Companies, Reinventing Quality of Life: A Theoretical Review. *Global journal of Human social science*, 2018, vol. 18, núm. 3, p. 1-8.
- Echazarreta, C., & Costa, A. (2018b). Empresas Inteligentes, Inspirando el Futuro. *Journal of Business Management and Economics*, 6(02), 01-06.
- Echazarreta, C., & Costa, A. (2018c). Sustainable Companies, Addressing the Climate Change: A Theoretical Review. *Global Journal of Management And Business Research*.
- Eguiguren, M. (2011). Empresa 3.0 Políticas y valores corporativos en una cultura empresarial sostenible: Madrid: Pirámide.

Frey, C. B., & Osborne, M. A. (2017). The future of employment: how susceptible are jobs to computerisation? *Technological forecasting and social change*, 114, 254-280.

García, B. F., Mora, C. M., & Alés, G. P. (2009). Las estrategias de competitividad de la industria del calzado ante la globalización. *Revista de estudios regionales*(86), 71-96.

Gómez-Ruiz, C. (2018). Diferencias salariales en el mercado de empleo español.

Hadad Hadad, J. L., & Valdés Llanes, E. (2010). La protección social en salud como enfrentamiento a una crisis económica. *Revista Cubana de Salud Pública*, 36(3), 235-248.

Mendizabal, A., & Errasti, A. (2006). Aspectos económicos y sociales de las deslocalizaciones productivas. *Lan Harremanak. Revista de Relaciones Laborales*.

Nieto-Galan, A. (2011). *Los públicos de la ciencia*: Marcial Pons Historia.

Recio, E. (2018). La digitalización y la robótica provocarán cambios estructurales en el mercado de trabajo.

Rocha, F., & Aragon, J. (2012). La crisis económica y sus efectos sobre el empleo en España. *Gaceta Sindical*, 19, 67-90.

Seghezzi, F. (2016). Lavoro e relazioni industriali nell'Industry 4.0. *Diritto delle relazioni industriali: rivista della Associazione lavoro e riceche*, 26(1), 178-210.

Seisdedos, G., Richart, B., Gallego, G., Paz, J. d., Esponera, J., & Kolotouchkina, O. (2015). Smart Cities: La transformación digital de las ciudades Centro de Innovación del Sector Público de PwC e IE Business School.

Todolí-Signes, A. (2017). *El trabajo en la era de la economía colaborativa*. Valencia: Tirant lo Blanch.

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