Management Information System – A Tool for Corporate Sustainability

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ABSTRACT. This paper represents the attempt to define a methodology that can evaluate the degree to which companies' information systems correspond to needs determined by the objectives of sustainability the firm imposes on itself. The result is the creation of a general model which define the correct approach to evaluating information systems – a model which should be adapted to the specificity of each single company which intends to adopt it. In the chart indicated, we obviously have not considered activities connected to the implementation of the survey system, which are particular to each company's situation. The first part of the paper consists of an overall introduction to the approach that has been used to assess the (MIS) of Granarolo, one of the Italian companies involved. The case study contains a profile of the company, the analysis of its MIS referred to the three dimensions of sustainability, and an evaluation of the strong points and issues to be developed. This approach to evaluate the gap between desired requirements of an information system for sustainability and current data available in a firm, has proved its consistency and usefulness. It helps to understand where data are, which dimensions, spheres, stakeholders account for and what is the level of integration between different information systems existing in the firm.

KEY WORDS: corporate sustainability, European corporate sustainability framework, management information system

ABBREVIATIONS: CSR – corporate social responsibility; CS – corporate sustainability; ECSF – European corporate sustainability framework; KPI – key performance indicators; MIS – management information system

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Introduction

In the European corporate sustainability framework (ECSF) research project corporate sustainability (CS) is generally defined as ''*the activities, demonstrating the inclusion of social and environmental aspects in the normal business operations of a company and in its interaction with its stakeholders*''. The approach to CS implies integration of criteria of economic, social and environmental performance (referring to the triple bottom line: people, planet, profit) in company's decision-making processes. To the above aspects we add a fourth dimension, that of principles: every firm is by definition guided by a system of values, which determines its context and orientation. Corporate Social Responsibility (CSR) expresses the company's will to be responsible for its impact on society. In answer to growing social, environmental and economic pressures on the part of stakeholders, firms are adopting a higher level of

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transparency. CS is inspired by the awareness that progress in social and environmental terms increases the long-term vitality of the firm itself. When combined in an integrated logic, the two concepts (CS/CSR) relate to the strategic answer that each enterprise adopts when external conditions change. According to the relative environmental conditions and the system of values developed within the enterprise, there are different motivations, which push an enterprise to include CS into its strategy. This means that each enterprise adopts a determined level of ambition towards the CS, on the basis of which it devises a specific behavior toward the CS. This allows us to speak of multiple levels of CS: CS determined by conformity or compliance to rules, regulations and procedures; a drive for profit; expressing community values, manifesting a synergetic approach resulting in together-win solutions and CS interpreted in a holistic approach (van Marrewijk and Werre, 2003).

The ECSF research project delivered a new generation management concept, as well as an integrated set of management tools. A particular ECSF tool has been developed by SCS consulting – a member of the ECSF consortium – aimed at analyzing management information systems (MIS). With this tool one can interpret the capacity of a company's information system to monitor the direct impacts of its activities on three dimensions (profit, planet and people): indeed, the transition to a more complex level of CS requires the inclusion, of economic information, as well as social and environmental information into the company's MIS, in order to manage and be able to report on the transition process. For each of the three dimensions there are different areas taken into consideration: prices, value for shareholders, relations with investors, environment and neighborhood, management of human resources and of the work environment, safety and health, diversity, ethical work and globalization, consumers and suppliers. The model allows enterprises to evaluate whether the information system is capable of covering the dimensions of sustainability, guaranteeing control of the effects/impacts that enterprises' actions and strategies produce on an economic, social and environmental level. The evaluation is carried out by positioning a general plan of supporting information, capable of analyzing:

- the existence of an integrated information systems or single data management systems;
- the homogeneity and completeness of information;
- the capacity of survey systems to adjust, given new objectives of sustainability;
- the methods used to gather data.

This approach is consistent with the basic models integrated in the ECSF framework. Furthermore, the **SqEME®** approach structured this framework and defined the fundamental dynamics as *changes*, *shifts* and *transformations:* changes occur within a specific context/situation, shifts happen as developments in the environment cause companies to turn to a new (strategic) orientation, creating a new situation within the existing context and transformations occur as a response to new challenges resulting in a new way of doing business. SqEME also introduced a holistic approach to reduce complexity by offering four windows through which reality can be studied: through *Constitution* one ultimately seeks the sense of direction; in *Chemistry*, one finds out about all processes and developments which will have impact in implementing the objectives, resulting in norms for action and key performance indicators (KPI) with whom one can assess the progress; in *Conduct* one can see all action, institutions, procedures, etc., while through the window of Control, one studies the learning and monitoring within an organization (van Marrewijk and Hardjono, 2003). Adapting or rebuilding the MIS allows companies to monitor and evaluate the achievement of new objectives, related to higher awareness and ambition levels of organizations in terms of CS. Therefore this approach to analyze MIS is a *Control*-tool, but remains connected to *Conduct*, as it is the way actions, procedures and tasks are carried out as a consequence of new objectives defined.

Methodology: evaluation model for information systems

The objective of the evaluation model for information systems is to define the different dimensions of sustainability, the information needed in order to control

the effects that strategies and actions have on the enterprise itself, on the stakeholders and on the environment. Social responsibility categorized in the three traditional dimensions – economic, social and environmental – will be elaborated later. Each dimension is characterized by spheres that correspond to sections derived from financial budget, stakeholders analysis, clusters of environmental issues that can be generally found in the sustainability reports. These dimensions have thus been correlated to the sources of data (budget, sphere, application sections, and various data banks), in order to obtain a matrix in which to place the plan of the information system (Figure 1).

In short, evaluation of the information system entails an analysis of traced information which permits it to measure the course of the company's objectives of social responsibility, the sources of data and the needs to redesign the system, brought about by the gap between the required and current data within the information system. For this reason the dimensions of social responsibility have been highlighted, and for each one the existing control system, consisting of different information systems, has been traced. Some of these are integrated with each other and managed with specific software, others are not integrated and managed by single persons with company responsibilities, which often consist of computerized data banks or information on paper.

The model adopted for the studied cases entails four phases:

- identification of necessary data;
- identification of sources;
- design of a survey system;
- implementation of a survey system.

This model is summarized in Chart 1.

Starting from the firm's defined objectives in its sustainability strategy, the first phase in the analysis process is the identification of necessary data. In this phase we need to define the set of control indicators and parameters, which the super-users, in this case management, has to make available. Management need to measure the discrepancy between its objectives in terms of social responsibility, and the effects the adopted actions are having. In the reporting systems of sustainability, the objectives/strategies are the firm's respective assumptions of responsibility regarding the economic sustainability of its performance, the social sustainability in view of all its stakeholders, and environmental sustainability with respect to the surrounding territory and the use of natural resources. These objectives are measured by way of data flows; to be meaningful and usable as parameters of control, the indicators need to be supplied with data for which the system operates a characterization. For this reason, for the data necessary to managing sustainability, we have established characteristics, frequency and those responsible for collection, as well as reference benchmarks to measure the significant discrepancies, and so forth. The data are then adjusted to the firm's reporting format (economic, social or environmental) and aggregated according to the control needs expressed by the super-users. The source of every piece of data is analyzed. The identification of sources is a phase in which the super-users and the system administrator analyze the data's origins, the informative systems of support and the complexity of the process by which data is obtained. Evaluation of data sources guarantees the possibility of individuating the gap between the existing informative level and that necessary for monitoring sustainability. This phase is carried out by interviewing company personnel who know and manage the company's informative system (for example those responsible for CED…). One instrument that can be used advantageously in this phase of analysis is a checklist, rated adequately, and geared to understanding the existing systems. To evaluate the informative system's suitability for managing the company's social responsibility in the two cases studied, the following check list was used (Table I).

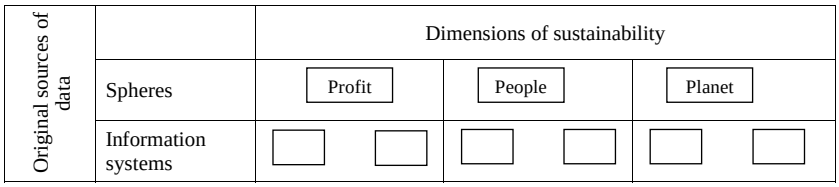

Figure 1.

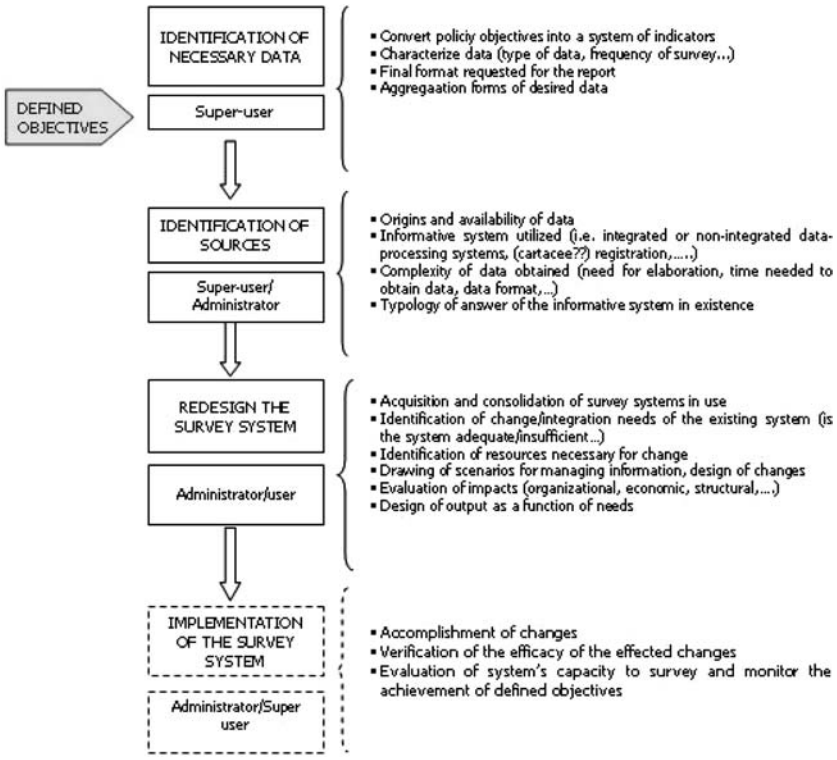

Chart 1.

With the goal of evaluating the efficiency of the information system in providing valid support in controlling the achievement of objectives of CS, the analysis has been focused, separately, on the three dimensions of sustainability: economic, social and environmental. Through interviews with the person responsible for the company's information systems, the informational supports involved in each dimension and sphere of sustainability and their level of integration were identified.

The *general mapping out* of information supports thus obtained guarantees a global vision of company systems, and specifically allows the evaluation of:

- the existence of data collection and elaboration related to each dimension;
- typology of data gathered (data description, description of the information system used to gather the data) and the correspondence of these data to the needs connected to the objectives of company sustainability;
- the interaction of information systems with which the data have been collected, with other company information systems;
- the need to conduct new collection and elaboration of data, the possible needs of new collection systems, and the relative possibilities of integration, extension and interface with existing system and/or the possible adoption of one of the existing systems as a system of support for collecting and elaborating data for the sustainability balance (for example data warehouse).

The position of mapping out within the matrix defined above allows one to clearly and rapidly evaluate whether the information system can cover the dimensions of sustainability. In order to have an overall view of the information system's coverage with regard to the dimensions of sustainability, the map of these systems has been shown to correlate information needs, classified according to the dimensions of sustainability with the data management systems use in the company (ERP, general applications, data banks, data warehouse.). Chart 2 shows a synthesized view of the mapping out of information systems in the matrix correlating dimensions–spheres–sources.

The schematic map is thus integrated through an examination of single dimensions, structured by

TABLE I
Check list

Aspect examined	Audit noted
(1) Existing level of computerization	
Analysis of existing applications for each area (map)	
Presence of integration systems for applications: ERP,	
Use of control panel: Data warehouse (consolidated list), board table (KPI), management control (management list)	
(2) Level of analysis of available data	
Evaluation of level of integration among applications	
Percentage of data managed by applications which are achieved in management control	
Main addresses of management control	
Percentage of data managed in applications which are gathered in the data warehouse	
(3) Process of data integration in the information system	
(a) If data have not been calculated by existing applications:	
–Evaluation of data need/opportunity-super user	
–Evaluation of possibility of integration – administrator	
–Evaluation of ease of allocation – user	
(b) If spheres are not covered by applications:	
–Evaluation of need/opportunity of S.I.-super user	
–Evaluation of the possibility of implementation – administrator	
–Evaluation of integration method – administrator	
(c) If applications are not integrated:	
–Evaluation of integration method – administrator	
–Identification of data to be integrated – super-user	

tables, which analyze the *existing situation*, showing strong points and development possibilities, and the *desired situation*, with possible developments, individuating what is desired, what is necessary and what are the foreseeable impacts of these changes (in function of the desired objectives and targets of sustainability). These tables constitute the first phase of redesigning the information system, aimed at satisfying needs stemming from discrepancies in company performance in regard to its objectives of sustainability.

Granarolo's information system

Overview of the company

Granarolo is one of the major food processing groups operating in Italy. Established in 1959 as a small cooperative society located near Bologna, the company has increasingly grown to become, in the 1980s, a leader in the sector of dairy products, and is today ranks fourth among wholly Italian-owned food processing groups. The group consists of two different sections: a group of milk producers (Granlatte) which operates in the farming sector and gathers the raw material, and a joint stock company (Granarolo S.p.a) which processes and sells the product and plays the role of parent company of the group. Granarolo has 11 production plants located all over the country. The company's policy today aims at controlling the sector and, more generally, enhancing Italian zootechnics. The share of raw milk purchased by Granarolo in compliance with the policies of quality, safety, and supplier control and certification shifted from 55% in 1999 to 67.3% in 2002; Granarolo buys 75% of the total quantity of milk used in Italy. The group's activity is based on three main business branches: milk and cream (72%), yogurt (24%) and industrial gastronomy (4%). In 2002 Granarolo had revenues for over 685 million, and employed approximately 1338 people. Its share of the milk market is 19.4%, second in Italy after Parmalat. Its market share for fresh milk only is 29.1%. Sustainability approach in Granarolo focuses on economic value creation. As president Sita emphasizes, "*ethical value is connected to the way business produces wealth, rather than the way of distributing it*". The social value, therefore, is as significant. It entails a stakeholder-oriented approach, based on dialogue instead of competitiveness and a

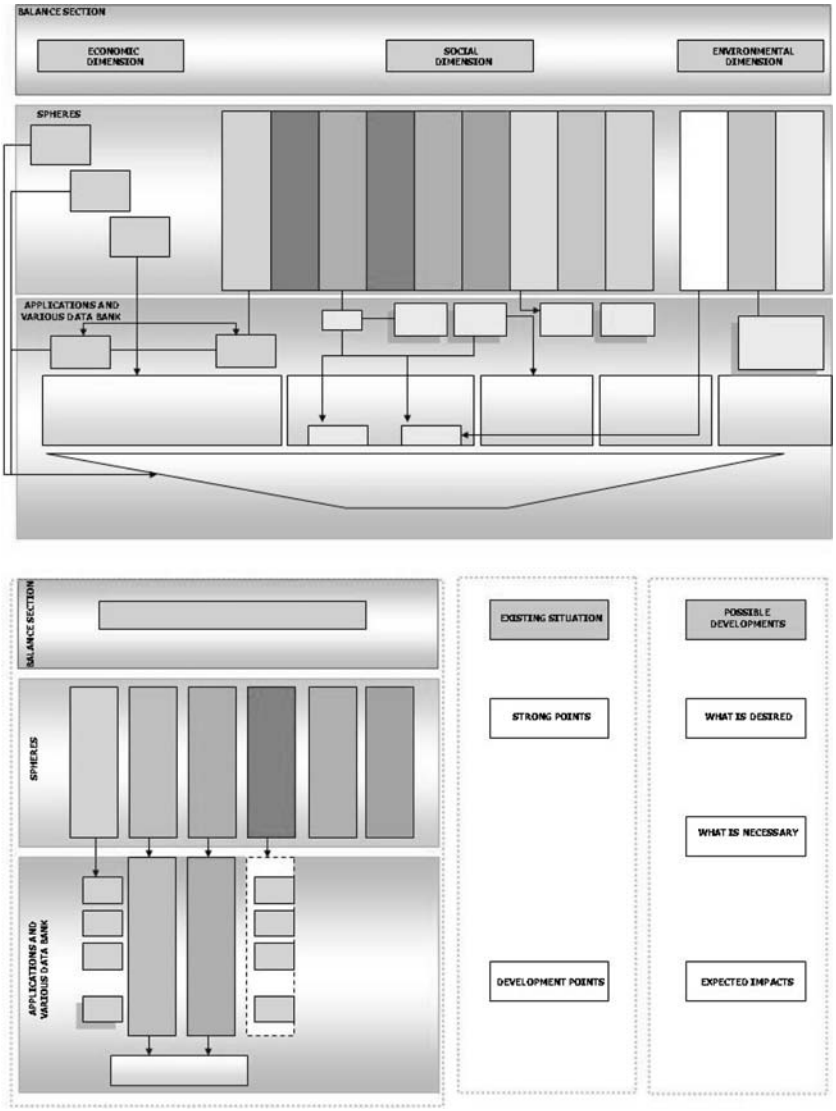

Chart 2.

"*greater responsibility for each actor of productive row on the conditions allowing value creation*". Social responsibility is not just an attribute for business, or something referred to humanitarian, social and charitable donations: social responsibility for Granarolo involves a "together-win approach" open and transparent to all relevant stakeholders.

In order to achieve sustainability growth Granarolo has adopted several tools:

- SA8000 certification, certification of trace ability row and of controlled food and agricultural row, certification in quality management and environmental management systems;
- sustainability report;
- ethical code.

The information system is analyzed with regard to the three dimensions of sustainability: economic, social and environmental. The manager of administration, finance, control and information systems, the CED manager, the manager for the environment, the manager of the sustainability budget and the manager for management control were interviewed.

Granarolo's information systems are all fully integrated. The flow of information is directed towards a system of applications, which forms a first level of collection for administrative accounting.

This level includes the *GIX* system, which gathers the data coming from assets and the active and passive cycles, as well as data, related to commissions and others. This level also includes the *OSRA* management system for the personnel administration and *budget*, *JTF* that manages the section related to the warehouse, *DIAPASON* for general accounting, assets and treasury systems and other applications. At a second level an analytical accounting system operates gathering the data processed at the previous level: this is *CEZANNE BUSINESS* which ''reads'' the data concerning costs and profits and reallocates the general costs according to the modes defined in the various corporate functions and included in the program itself, in order to originate information about profitability and investments. The third level is *data warehouse*, a synthesis database that is fed by various subsystems with business data (concerning sales and terms of payment) with accounting data (payment flows, invoices, etc.). Data warehouse supplies the reports Chart 3.

Economic dimension

Economic data mainly come from the active cycle, the passive cycle and from the personnel management system.

CEZANNE is supplied by all normal processes: among the economic variables only those concerning property are not managed by CEZANNE which has all the information that goes into accounting. Also specific estimates are entered *(e.g. budget and cost ascertainment)* required by operations or by other functions that consider the calculation necessary. It is possible to defined further specific queries according to needs. CEZANNE works on data already processed (for example commissions). From CEZANNE it is possible to get all the economic data concerning the three dimension of sustainability, that is, data about economic *performance* and expenditures related to social and environmental areas, by allocating expenses to the different cost centers (e.g. expenses for donations,

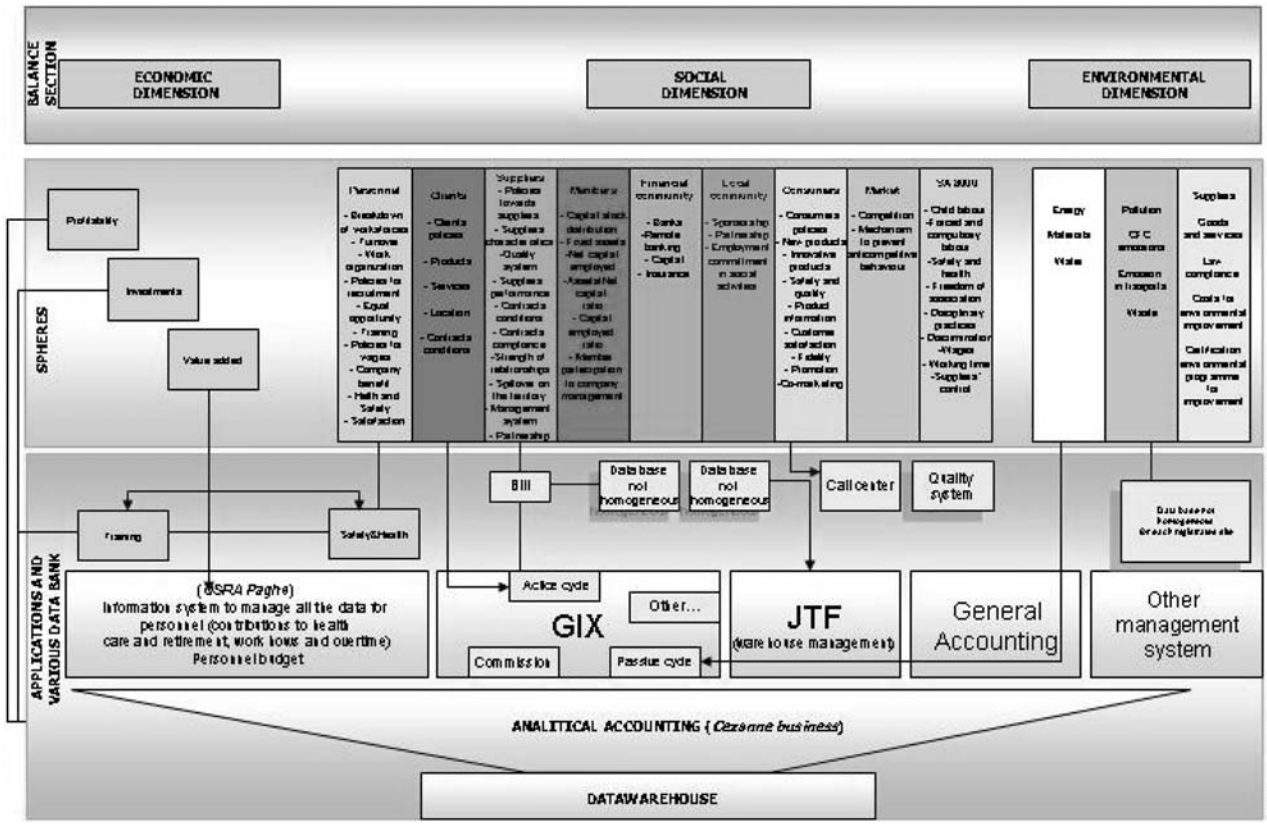

Chart 3.

environmental expenses for the purification plant, etc.). The detail of these expenses is more or less accurate according to the data and the way it is input. At present in the Granarolo group, activity costs are not collected and therefore the activity based costing dimension present on CEZANNE is not supplied. Subsequently, the aggregate expenditure is not traced on the system and splitting costs between different activities is not possible: for example it is not possible (automatically) to trace costs for staff engaged in training, but only to get an indicator of the total of hours per year for training and the expenses incurred for purchasing goods and services for training (advice, subscription, reimbursement, etc.). In this way an important component of the social dimension of sustainability (the commitment to improve employees' skills) is underestimated. Besides the initial bundling of data, CEZANNE is used to obtain estimates on the variables which are not directly observable (i.e. by putting down some more general economic values to specific cost centers or products through the so-called ''reversal'' of values).

The *DATAWAREHOUSE* is linked to almost all information systems. It is a database, which collects synthesis information and is used for monitoring client/product relationships, and for reporting. The statistics on profit, which it contains, refer to the profit and loss account of products and the profit and loss account of clients/channels. All data are taken from the information systems to which the DATAWAREHOUSE is linked. With reference to the information about clients, DATAWAREHOUSE contains everything concerning profitability. With reference to the product, the system has two loading systems:

1. *profits*, *commissions*, *cost of goods sold*. To each one of these data entering modes corresponds a subsystem: for example, concerning the commissions, the calculation subsystem gives a value to the cost of product starting from a basic list (standard costs) adjusted to assess the difference between basic list and the actual cost;
2. all the other information, which does not come from profit, comes from estimates obtained starting from the systems supplied by CEZANNE (passive cycle, staff, accounting, etc.). The *driver* for these estimates is often sales (e.g. the cost of advertising is transferred to a given center of responsibility according to the sales of that center of responsibility, with a percentage established by the *marketing* and management control manager), but also quantity (e.g. the cost of logistics). In a similar way, information about goods sold is constructed according to the client through formulas and parameters established by the marketing manager.

All management of non-invoiced items (bonuses and promotions) to clients is managed by the *software* **GDO2000** that calculates these values according to contracts and the volume of sales of the client.

Social dimension

Economic data concerning the social dimension are traceable in the various information subsystems, and concerning the synthesis data, by CEZANNE.

Staff. There is a single information system concerning personnel (OSRA PAGHE) with all the data required by law (contribution, welfare, tax, work hours, overtime, etc.). The system is needed for staff accounting and is supplied by clocks (punching). OSRA is also used to prepare the staff *budget*. All cost data from OSRA are sent to analytical accounting (CEZANNE). Staff personal details are on OSRA but they have a separate procedure, managed by the staff manager. As far as safety is concerned, the information system is on paper, based on the register of industrial accidents. For training activities, control is carried out with a paper system, which collects all evidence (for example the attendance certificates to courses or training hours for each employee). To date quality data about the staff and, more in general about the organization of human resources, data about careers development, about training, etc. are lacking. The information system, however, is capable of collecting these new elements. Similarly to the way it manages the staff *budget* in terms of quantity, the system could manage the staff-training *budget*. Data on selection and recruiting systems are lacking.

Suppliers. Data on suppliers is very comprehensive. The personal details of suppliers are included in the *passive cycle*; there are fields concerning quantity

information and quality information (to date still lacking, although a first attempt to enter information concerning SA8000 has been made). The passive cycle is inside the GIX and is supplied by documents accompanying the goods (packing lists and/or invoices). The documents concerning the products, contrary to what happens for those concerning professional performances, also handle warehouse accounting (control of store supply) besides the inspection and control system, that is, of the management section concerning payment of invoices. Control of suppliers can be carried out precisely on the passive cycle; it is here that other information can be collected, by entering new fields into the passive cycle as was done with the SA8000 system.

Clients. The data on clients are contained in the control system of the *active cycle*. In the active cycle, quality information about clients may be entered: e.g. the *credit line* is a sort of *rating* of the client which makes it possible (if appropriate) to stop delivery of products if, for example, there are problems with payments not yet made or for other reasons. The information about clients reaches the first level of Granarolo's information system (Diapason and GIX administration accounting) and from there it is then processed and sent to analytical accounting (CEZANNE), which uses it as data on profit or on days of payment. The packing list system is noteworthy: Granarolo operates 90% with so-called ''attempted sales''; each local supplier of Granarolo products has a terminal through which it checks and communicates on the product it delivers, its store supply and the returns. The packing lists, loaded on the laptop computer and unloaded from it every day onto GIX, make it possible to activate the active cycle (Granarolo's invoicing) and the system of commissions, calculated monthly according to different variables (sales, proceeds, terms of payment, returns).

Shareholders. Data on shareholders (which are three only) are not structured, but qualitative.

Financial community. The number of operators is limited (a few scores). There are two kinds of operations: ordinary and extraordinary. An ordinary relationship with financial operators means, for example, credit terms or terms of payment; these operations are managed by Granarolo's treasury by using the DIAPASON accounting software and summarizing the reports on an Excel spreadsheet obtaining, as a result, the supply of financial charges and proceeds on the CEZANNE system and the effects of these operations on the source-allocation ratio. Non-ordinary relations include most complex operations (financing, leasing, securization, swap options); these operations are regularly and continuously monitored. With reference to the financial community, what they monitor (with a policy) is the type, modes and timeliness of the information provided to the outside. Granarolo today can provide the same information that listed companies provide.

Local community. Expenditure for donations and promotions are traceable within the passive cycle.

Consumers. There are no information flows on end consumers. There is only a database containing personal details of consumers regarding the use of *consumer promotion* (gift coupon collections).

Environmental dimension

Economic data concerning the environmental dimension are traceable from the passive cycle, as are data on costs for some resources such as energy and water. For all the other data concerning the environmental dimension (consumption of resources, impact on the environment, control of suppliers) there are no integrated systems, but rather localized information for each factory, information which is managed by decentralized systems (e.g. for registered sites) but whose data are not integrated and combined for the whole company. This causes a lack of homogeneity of data and an overall view of the environmental dimension. Data are not computerized because they are linked to the management system of each factory and not to an information system. Also, data are not homogeneous since they depend on who takes care of their collection.

Granarolo KPIs

The number of indicators that Granarolo has chosen to report on sustainability is quite wide. A sample of

TABLE II

Economic and financial indicators (value in Euro)	
Sales proceeds	685,546,567
Operating gross margin	73,534,487
Operating result	26,736,660
Result before taxation	19,970,138
Profit or loss	8,129,803
Operating cash flow	52,487,898
Financial net debt	175,404,688
Technologic investments	20,563,862
Turnover per employee	512,367
Fresh milk market share	30.5%
Environmental indicators	
Water consumption (liter/l produced milk)	3.3
Power consumption (n° kWH/1000 l produced milk)	112.3
Methane consumption (n° cubic meters/l produced milk)	25.7
Fuel oil consumption (kg/1000 l produced milk)	0.7
Products obtained in plants powered by methane	86%
N° plants with environmental certification (on total %)	45.5%
Efficiency in distribution (l milk transported/l oil)	181
Environmental efficiency of distribution (% vehicles with FREON 134)	27.5%
Social indicators	
Personnel's variations (n° new intake)	35
Personal growth (level passages/personnel total – %)	13.4%
Training (n° pers. in training courses/tot. pers. – %)	77%
Rate of membership of trade union organisations	62%
Relation between minimum and maximum wage	+10.7%
Partnership with suppliers (premium Euro/Hl for biological milk supply)	9.30
Fairness towards suppliers – average time for invoices payment (% on presentation)	25.3%
Suppliers involved in SA8000 application	230
Global customer satisfaction index	79.4%
Product customer satisfaction index	86.9%
Trace ability and control over the supply chain (liters of certified milk)	2,000,000
Farms involved in certification of trace ability	297
Product analysis made for certification of trace ability	70,000
Products quality control (n° analysis made)	2,816,905
Complaints receipted (% 2000–2002)	14%
Dialogue with consumers (n° contacts, free phone and e-mail)	18,200
Monthly average visit to corporate web site	11,792
Customer service efficiency (average time for the delivery of gifts)	29
Profit per share (Euro)	0.13
Return on equity	6.1%
Investments in promotional campaigns for social quality	1,136,250
Investments in social activities/profit	14%
Employee donations with double from Granarolo (Euro)	25,092

TABLE II. (*Continued*)

Granarolo 2003 Sustainability Balance.

them it is contained in the front page of Granarolo sustainability balance and represents its set of key performance indicators. This list represents an "*intermediate step to select strategic indicators that can be included in a Responsive Business Scorecard*" as it has been developed in the ECSF approach (Van der Woerd, 2003). This selection can be resumed from its MIS and it covers the three dimensions of sustainability (Table II).

Critical areas and areas of improvement

In general there is little information on the production stage, on which, considering the need to

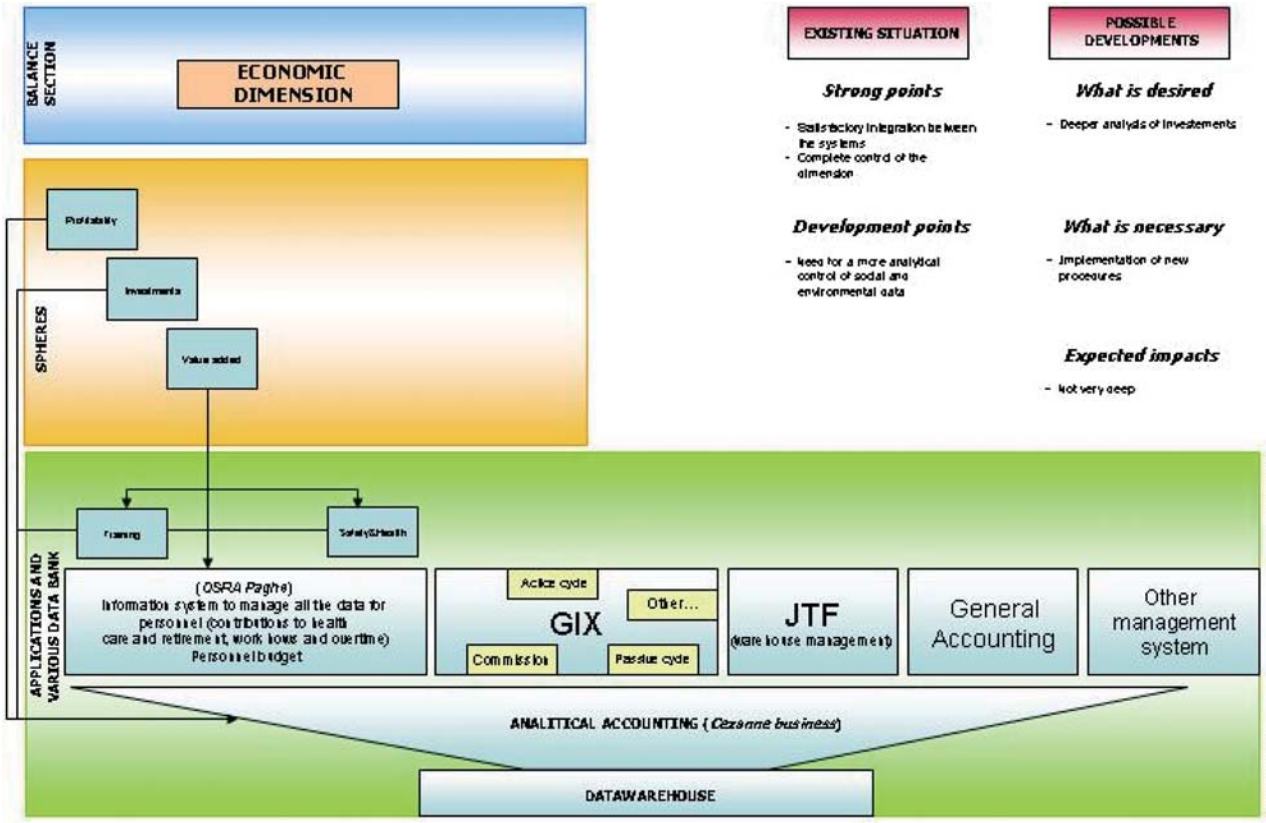

Chart 4.

ensure trace ability of products, it will be necessary to act.

Economic dimension. Data on the economic dimension are all computerized and may be adapted to new sustainability goals based on management's direction, which, by supplying analytical accounting, may give rise to new queries. The system is integrated. The most evident need concerns the analysis of investments and, in general, the procedure should be revised; these adjustments should have a low impact on Granarolo's information system. (Chart 4)

Social dimension. Analysis of the information system with respect to the social dimension suggests various areas of improvement. With regard to the staff, it is necessary to systematize data concerning accidents and safety as well as data about staff training. With regard to suppliers, it is necessary to build a database of contracts into which quality variables are entered, such as those to obtain certifications, for example. Supplier control can be carried out precisely on the passive cycle. Here other information may also be collected by entering new fields in the passive cycle as was done with the SA8000 system. Also, more generally, procedures to collect data concerning stakeholders are needed. The impact on the information system is considerable, although Granarolo's strong point is the configuration of the systems related to the passive cycle and the active cycle (Chart 5).

Environmental dimension. This is perhaps the dimension that is most incomplete owing to the lack of an information system for environmental issues shared by all sites. Although the information is available, it is managed by systems that are not integrated and that depend on the single management systems of the different production sites. So the registered sites are managed in a completely different way from those

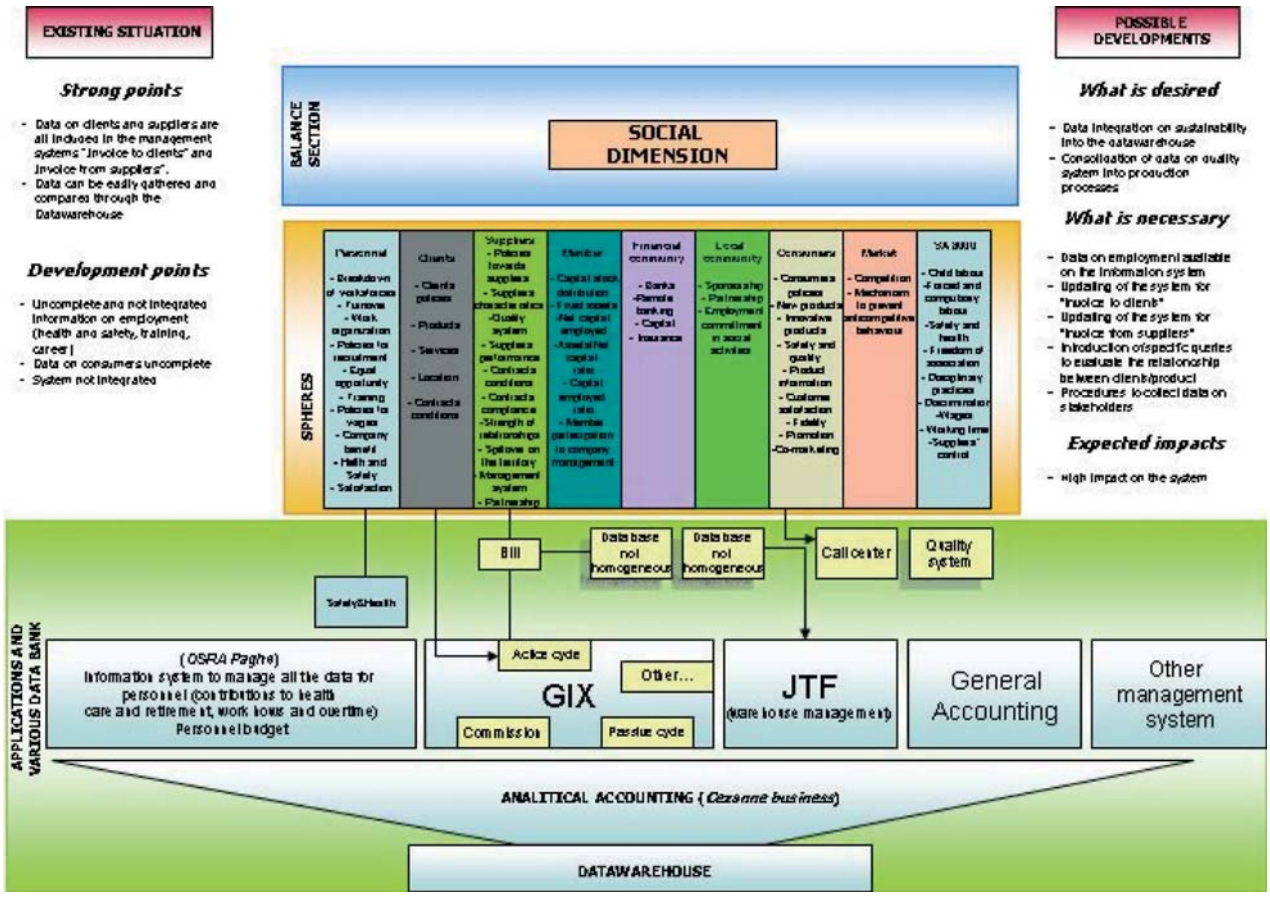

Chart 5.

that are not registered; compliance grids, for example, are present only in certified plants and they differ from plant to plant. Another element of weakness is the method of data surveying, which often depends not on a standard rule, but on the personal interpretation of the person who collects them. There are no data on suppliers' environmental performance. Also for registered sites, for which there are more fact-finding elements, a few weak points are observed; for example an indicator of the inconvenience that the factories cause to local communities is lacking, although the complaints from people living near the factories have been collected, or the fact that resource consumption is accounted for by looking at bills and not at metered consumption. A possible solution is the construction of an environment on the intranet, on which environmental data could merge, after standardizing the collection procedure. The adjustment would be of medium difficulty for the company (Chart 6).

Conclusions

The approach to evaluate the MIS of Granarolo has proved its consistency and its usefulness to appoint developments area. Granarolo can be considered a best practice as it reports on the three dimensions of CS even if there is still a lack of information and integration on environment and social issues. The model gives us the chance to evaluate the gap between desired requirements of a MIS and current data available and the need for common procedures to collect data. Sustainability balance as the result of an accountability process seems useful not only for reporting to stakeholders on Granarolo performances, but also as a management tool that keeps together detailed data and indicators and a set of KPIs that represents a first step toward a Responsive Business Scorecard which controls the coherence between Granarolo CS strategies and results.

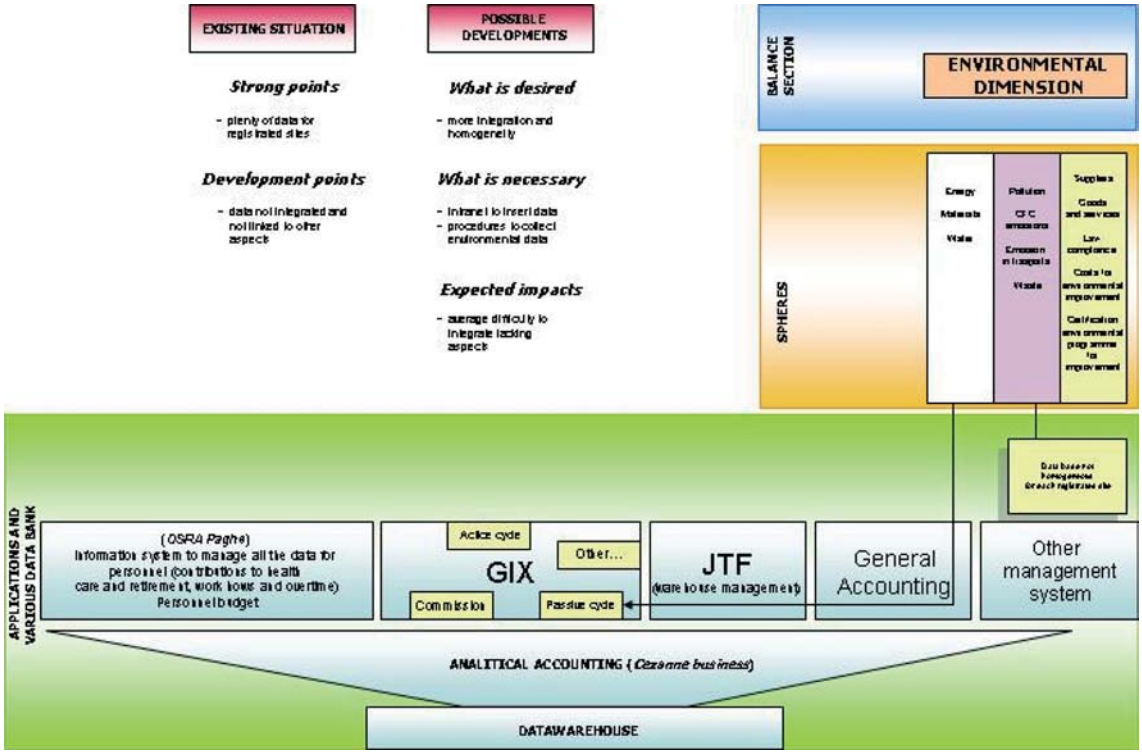

Chart 6.

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