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# SUSTAINABILITY METRICS IN LIBRARY AND INFORMATION SERVICES: A QUALITY MANAGEMENT FRAMEWORK

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## **Abstract**

This paper discusses the role of sustainability metrics in quality management in Library and Information Services (LIS), contributing to the ongoing debate by developing an integrated framework that offers an opportunity to measure sustainability value, influence and meaning of information services, and providing an illustrative example of LIS professionals and students discussion in Portugal. LIS assessment experience can strongly contribute to the debate around culture and development and, therefore, global sustainability. But in order to have its expertise externally recognize, the library and information community needs to integrate the sustainability perspective into the LIS performance evaluation research and practice, using new tools and outlining a meta-management assessment strategy.

**Keywords:** Sustainability, quality management, meta-management, cultural evaluation, performance evaluation, Library and Information Services

## **INTRODUCTION**

Sustainability debate has already arisen among librarians and other information professionals and has been presented in international events (e. g. Karioja, 2013), but it is still an emerging issue. In part, this is because the concept is connected to different approaches and methods, such as scenario planning, system thinking or meta-evaluation and there is not enough knowledge and competences in our professional body.

One reason why it is essential to integrate sustainability transitions with quality management is that many of the decisions that affect sustainability are strategic long-term ones rather than day-to-day planning and control. Therefore, sustainability objectives must be considered alongside other performance objectives when devising library strategy and embedded in quality practices. Sustainability performance involves the integration of several factors and all aspects of performance management should be integrated into a single management system, taking into account the integration and interaction between three dynamics - quality management, globalization and sustainability development - and aggregating information for multi-stakeholders audit. So, any approach to sustainability must have an explicit focus on the capacity to continuously address emerging issues with different level of impacts: local, regional, national, multi-national, international. Any framework must be erected upon the PDCA cycle, providing a tool for the *meta-management approach to sustainability* (Asif et al, 2011).

Moving toward library sustainability may encompass several phases: first, quality management; then, excellence; and finally, organizational sustainability and LIS system sustainability. Context, critical objectives and targets, probability of outcomes, crisis and emergency response, continuity response and recovery, accountability and responsibility are important elements to be incorporated in LIS management procedures.

Library and information services are simultaneously participants and stakeholders in this discussion.

Tracing the development of library assessment methods helps researchers to understand the importance and role of library and information services in cultural industries results and statistics. It also allows a better understanding of performance cycles with specific indicators

and the links to the evolution of quality management theories and models. Results orientation, customer orientation, leadership, process management, people development and involvement, training, partnerships and corporate social responsibility are convergence concepts that maintain its topicality and relevance. Among the emerging themes, the European Foundation for Quality Management (EFQM) has emphasized *creativity* and *innovation, sustainability, organizational agility, risk management* and *promotion of products and services*. The concept of excellence in quality models and the analysis of impacts and value have a clear focus on current transition phases, opening the way to discuss new roles for sustainability.

### **The context of change**

Access, participation and experience are quality dimensions (objective and subjective attributes) with important repercussions for librarians, cultural researchers, creators, users and policy makers. Together with the emerging patterns of cultural consume<sup>1</sup> and the strategies to survival, which the current financial crisis poses<sup>2</sup>, these dimensions characterise current transitions between: cultural indicators and policies; information and knowledge; and personal and societal dialogues.

Indicators and assessment tools must be cross-sectoral and focused on new dynamics (Austen, et al., 2012):

- People centered (culturally and socially), contributing to the emergence of a plural economy, respectful of human resources and closely related to social wealth and welfare; a social resource to develop individual and social capacities of adaptation, resilience, openness, connectedness and dynamism, rethinking individual paths (inclusive, lifelong and intercultural)
- Process oriented and policy-oriented, based on new public policy tools, whereby communities can re-think themselves: as 'testers', with a collective, forward-looking vision of the transformations and uncertainty as the necessary redefinition of the policy implementation models; as 'entrepreneurs' of new forms of action and new forms of governance and evaluation, which take into account the plurality of agents, processes and scales of action.
- Interdisciplinary approaches
- Evidence-based - investigating factors that can strengthen the dialogue between science and society, collecting knowledge from different fields and posing new questions: How to ensure the dynamic of actions? Which roles should be given to civil society networks in the exchange of experiences and the promotion of a public debate? What should be the role of the cultural sector in the redesign of the current frameworks of public policies for culture? Which conditions are needed to reinforce integrated approaches? How and when can libraries integrate this transition moment?

### **Contribution to the on-going debate**

We advocate that LIS assessment experience can strongly contribute to the debate around culture and development and, therefore, global sustainability. But in order to have its expertise externally recognize, the library and information community needs to integrate the sustainability perspective into the LIS performance evaluation research and practice. It was our intention to create an interdisciplinary experience with students of LIS courses at Nova University of Lisbon.

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<sup>1</sup> Sacco (2011, pp. 5) clarifies this dynamic: "the interesting aspect of active participation is that individuals are not simply exposed to cultural experiences, but take a dive into the roles that generate them, they have to learn to play with the 'source code' that is behind the generation of cultural meaning. Systemic effects of cultural access can be generated by eight areas: innovation, welfare, sustainability, social cohesion, new entrepreneurship models, lifelong learning, soft power, local identity".

<sup>2</sup> 2008 is the turning point for changes in European society, with libraries experiencing cuts in funding. Opportunities, like joint procurement, innovation through collaboration, shared cataloguing and new business models are transforming indicators and results of quality management. Trends like demographic rollover, generational cognitive styles, hyperlinked world, cost pressure, visualization information, open government, data availability, new interfaces for users, new governance and public sector system, broader horizons, better use of time, informed dialogue, more use of data, greater versatility and strategic interventions are contextual influences that power public management reforms, business and creativity in professions.

In order to do so, a three-stage co-creation workshop on *Building a sustainability assessment framework* was set up:

Stage 1: Review of international and national policies and scholarly work and presentation of a brief interpretation of cultural sustainability criteria.

Step 2: Mapping the sustainability and quality management areas based on the identification of a set of key-concepts and evaluation dimensions that could be applied to the LIS context.

Step 3: The selected key-concepts and dimensions were organized and placed into a framework.

The reflection and work carried out during the co-creation workshop (December 2013-February 2014) provided the raw materials that, after further development by the authors, led to the writing of this paper.

## 1. MAIN THEMES DISCUSSED: CULTURE AND SUSTAINABILITY

The inclusion of culture within sustainability<sup>3</sup> dialogues (Fig. 1) is emergent and rooted in international movements (UNESCO's Decade for Education for Sustainable Development - 2005-2014; Agenda 21 for Culture - Council of Europe). According to Duxbury and Jeannotte (2010, p.2), "sustainability, as defined at the UN Conference on Human Environment in Stockholm (1972) and in the report of the World Commission on Environment and Development, *Our Common Future* (1987), focuses on physical ecology, and environmental concerns continue to be the cornerstone of sustainable development. As the concept has matured, however, increasing emphasis has been placed on interconnections with social and economic dimensions of development, and space has opened up for debate and further reflection". These authors also refer that the inclusion of culture in policy and planning contexts has occurred in three phases: 1) 2000-02 – initial initiatives to differentiate culture from social; 2) 2004-2006 – initiatives closely or directly informed by the earlier developments, primarily focusing on local development; 3) 2008-2009 - expanded actors and a new wave of attention to advancing the place of culture within sustainability, especially at national and transnational levels.

The modern era of assessing development progress began in the late 1940s when economic indicators were firstly developed to guide economic decision-making. Social indicators were developed in 1960s, a *social indicators movement* that raised important conceptual/methodological questions (quantification, prediction, causality, validity, availability and reliability of data, spatial aggregation, interpretation and relationship with values). At the same time, the *environmental movement* expanded towards specific legislation, assessment, monitoring and evaluation at local, national and international levels. Until 1980s, indicators were grouped according to the main categories of economic, social and environmental indicators, being developed and applied separately.

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<sup>3</sup> *Sustainability* and *sustainable* mean to create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations. The use of sustainability indicators and corresponding metrics is essential for an integrated systems approach to address challenges: anticipate and assess conditions/ historical trends; provide early warning information to prevent adverse outcomes; benchmark against other systems; communicate ideas; support decision-making; formulate strategies and establish improvement goals; track progress. Improvement can be categorized as *Strong Sustainability* (when at least one metric improves, the other metrics do not decline) and *Weak Sustainability* (Aggregate Metric to targeted values in a process development). Sustainability transitions will be a social, political and cultural process. The inclusion of information should be viewed as a tool to help foster sustainability transitions. Nolin (2010) considered three constitutive parts of information for sustainable development: *development of sustainable information technology*; *development of sustainable information conservation*; and *development of sustainable information sharing*. Sustainable information refers to resources that either facilitates integration and participation according to the three constitutive parts of sustainable development and/or contributes to the strengthening of the process in which society is transformed according to the ideals of sustainable development.

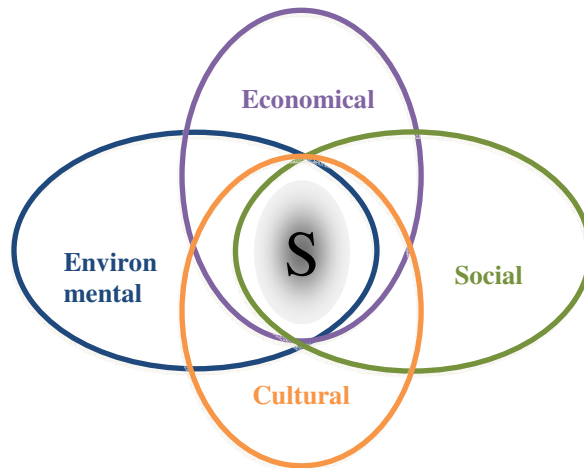


Fig. 1 – Culture: the fourth pillar of sustainability

The 1990s introduced integrative conceptual models to measure sustainable development. This *sustainability movement* put an emphasis on the sub-national level and on the variety of purposes and contexts in which they were created and used.

The *community indicators movement* (influenced by Agenda 21) encouraged a participative and bottom-up development of sustainability indicators, involving trial and error, learning by doing and a particular attention to citizens' needs and circumstances, considering the available resources. Measures must be culturally and universally appropriate, assigning significance to the rich variety of indicator sets. Different stages of sustainable development policies require different information tools, concealing diversity and standardization of concepts and methods.

OECD has been focusing its attention on the development of several sets of indicators to specific policy questions: resource indicators, outcome indicators, individual aspects of sustainability, policy analysis and frameworks to measure sustainability (like the Pressure-State-Impact-Response, providing a way of conceptualise the chains of cause and effect between human activities/environment/resources, or the framework Driving force-Pressure-State-Impact-Response –DPSIR, used at European level).

The United Nations has been playing a crucial role in stimulating important assessment initiatives, such as UNDSO or the regular publication of national indicators. Currently, this organization is mobilised around two important processes in a convergence timeline: post-Millennium Development Goals and Sustainable Development Goals in the *Post 2015 Development Agenda*.

As a joint initiative, the United Nations, OECD and Eurostat created the Working Group on Statistics for Sustainable Development (WGSSD) whose mission is the development of a new framework for providing greater international harmonisation of sustainability indicators.

The European Commission, the Eurostat and the European Environmental Agency have been developing efforts to define Environmental indicators, Environmental Pressure Indices, Urban Audit Indicators, Structural Indicators and other themes and sub-themes linked to European Union priorities, exchanging best practices to all Member States. In 2007, the report of EU Sustainable Development Strategy concluded that few countries used aggregate indices<sup>4</sup>.

<sup>4</sup> Two broad categories of frameworks are used: 1) *Conceptual frameworks* (integrated, with core indicators/combined sets of indicators): economic frameworks, pressure-state-response frameworks, capital frameworks, frameworks of human well-being/ecosystem well-being, theme based frameworks; 2) *Statistical frameworks* (systematic, long-term use, availability and quality of basic sets to derive indicators, act together with conceptual frameworks): capital-accounting based frameworks, centred on the three pillar of sustainability.

Soft System Analysis or the Bellagio principles (1996) are important guidelines for selection, design, interpretation and disclosure of indicators. System dynamic models can provide more detailed information on the structure and behaviour of complex dynamic systems and can enable the more informed selection

Evidence-based management and quality management stimulated the proliferation of performance indicators and the search for new methodologies and approaches (*technical* – expert-oriented, *participative* – citizen-oriented and *governance* – managerial-oriented), allowing the anticipation of future conditions and trends.

In an expert-oriented approach, the effectiveness and quality is measured by experts and the process of indicator development should incorporate:

**Intended Purpose + Desired Audience + Appropriate Design  
+ Relevant Consultation/Participation**

In the citizen-oriented approach, particular contexts and collaborative processes enable learning opportunities for different stakeholders, understanding people's values, needs, concerns and expectations and contributing to behavioural change and support to collective desired actions.

A *movement of convergence* is on going, requiring the establishment of relationships to achieve a better governance model, with different implications for different target groups and different indicator uses:

- **Instrumental use**<sup>5</sup> – a direct link/linear relationship between indicators and decision outcomes (action and problem solving).
- **Conceptual use** – indicators that change user's understanding of a problem/ situation.
- **Tactical use** – indicators used as tactic.
- **Symbolic use** – indicators gathered to give ritualistic assurances so that decision-makers maintain appropriate attitudes when making decisions.
- **Political use** – the content of indicators support a pre-determined position of a user, persuading others to a particular view of the problem/solution

## 2. MAPPING CULTURAL DYNAMICS ASSESSMENT

On stage 2, students and teachers discussed culture and sustainability measures as it is pursued in several dimensions and by different sectors:

- *Comparison of frameworks of cultural domains/statistics* with a focus on creative industries (UNESCO, UNCTAD, NACE, Eurostat, ESSnet Culture, OECD, WIPO)<sup>6</sup>,

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of indicators. An analysis of the system to determine which indicators capture aspects that significantly contribute to movement toward or away from sustainability may provide additional insight on indicator selection. There are four major categories of indicators that are applicable to these systems: a) *Adverse Outcome* to indicate destruction of value due to impacts upon individuals, communities, business enterprises, or the natural environment; b) *Resource Flow* to indicate pressures associated with the rate of consumption of resources; c) *System Condition* to indicate state of the systems (individuals, communities, business enterprises, or the natural environment); d) *Value Creation* to indicate creation of value (both economic and well being) through enrichment of individuals, communities, business enterprises, or the natural environment (Eason, 2012). The set of indicators should be: *relevant* to the interests of the intended audiences; *meaningful* to the intended audiences in terms of clarity, comprehensibility and transparency; *objective* in terms of measurement techniques and verifiability; *effective* for supporting benchmarking and monitoring over time, as well as decision-making about how to improve performance; *comprehensive* in providing an overall evaluation of progress with respect to sustainability goals; *consistent* across different sites or communities, using appropriate normalization; *practical* in allowing cost-effective, non-burdensome implementation and building on existing data collection where possible. Other attributes are: *actionable*, so that practical steps can be taken to address contributing factors; *transferable* and *scalable*; *intergenerational*, reflecting fair distribution of costs and benefits among different generations; and *durable*, so that they have long-term relevance (Eason, 2012).

<sup>5</sup> According to Pires (2011), when it concerns instrumental use, policy-oriented indicator systems are more appropriate; when the content of indicators has clear linkages to government procedures, programmes, plans or targets, indicators may provide a proof of evidence; when they are linked to chains of action or with a specific policy or management decision, indicators may induce objective action. Community based approaches are more likely to promote conceptual, tactical or symbolic uses.

<sup>6</sup> Developed by *COST – European Cooperation in Science and Technology* (2013) that aims to conceptualise culture and mobilize it in the context of sustainable development through three phases: *networking and mapping*, *mapping and analysing* and *analysing and summarizing*. COST is designing new frameworks for assessing cultural sustainability, exploring new assessment methodologies.

considering data collection, contextualization, data aggregation and data reporting and analysis.

- *Comparison of employment, classification of economic activities and occupations.*
- *Theoretical issues based on three roles of culture (Hangzhou International Congress, 2013) - Transversal, Self-standing and Fundamental*<sup>7</sup>.
- *Inventory of distinct approaches to culture, development and sustainability in various R&D (definitions, interactions, perceptions, understandings, contexts, expectations); the concept and question of evidence (normative views, understandings, imperatives, agendas, impacts, policy cycles, ideology, advocacy, education).*
- *Mapping the existing models of culture in sustainability concepts and models.*
- *Academic discourse on cultural sustainability (what are the implications of the economical uses of 'creative', 'creativity', 'innovation' and 'entrepreneurialism' in cultural discourses, academies, courses and reports).*
- *Ethical values in sustainability discourses.*
- *Value dimensions (intrinsic, instrumental, conceptual, use<sup>8</sup>) for individuals, communities, country and multi-stakeholder process.*
- *Cultural links with sustainability and policy areas: economy, education, heritage, communication, governance and institutions, social participation, gender equality (UNESCO) or European Cultural Agenda.*
- *Transdisciplinary phenomenon<sup>9</sup> involving societal practice (societal problems, societal discourses, results, strategies, concepts, measures), co-creation of solution-oriented transferable knowledge and scientific practice.*
- *Change and agency, planning, policy and problems of sustainability assessment and management process (nature, value and agendas behind evidence-based, the possibility of a shared cultural change value system amongst cultural stakeholders, communication with society).*
- *Monitoring cultural indicators<sup>10</sup>, a crosscutting issue that needs adequate measurements of output, outcome and impact and a comprehensive knowledge of development, involving participation of different sectors and different stakeholders.*

The lack and shortage of comparable data is widely recognised. Evidence aligns cultural policy with other policy sectors, framing it as a sector responsible and accountable. A new category of

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<sup>7</sup> *Transversal* – culture incorporated within the goals of the three pillars of sustainable development. Its role is intermediate between the various dimensions of sustainability; *Self-standing* – culture as the fourth pillar of sustainability, reflected in policies and assessment instruments; *Fundamental* – representing a cultural turn and a new paradigm of fundamental values in society. **Culture is a core issue for perceiving and managing a transition towards sustainability.**

<sup>8</sup> According to Holden (2006), politicians and policy-makers are primarily concerned with instrumental outcomes. Professionals are primarily concerned with intrinsic value. The public is primarily concerned with intrinsic and with institutional value. The activity of cultural professionals is measured much more than the public response to it. *Investigating the intrinsic is a priority.* There should be more articulation of issues of quality. 'Cultural value' identifies fundamental problems: *governance reform*, which should seek a better understanding of institutional value, of cultural engagement and learning, and of professional innovation; *investment in leadership*, which can help professionals understand their role in creating cultural value; *value measurement and articulation*, which is increasingly recognising the multiplicity of values that culture creates, and beginning to show how much the public does in fact value culture; *the government's well-being and respect agendas*, which recognise that many social problems are small-cultural problems; *issues of national, regional, local and personal identity*, where the construction, reflection and expression of identity are recognised as cultural phenomena. Holden and Baltà (2012) explain that the concept can be used by some to denote quality and excellence.

<sup>9</sup> A reflexive, integrative, method-driven scientific principle aiming at the solution/ transition of societal problems and related scientific problems of differentiating/integrating knowledge from various scientific and societal bodies of knowledge (Lang et al., 2012).

<sup>10</sup> The development of cultural indicators requires coordination/cooperation among a wide range of experts coming from sociology, economy, development, urbanism, tourism, education, environment, anthropology, gender equality: cultural indicators lie at the nexus between production of data on cultural phenomena, and the analysis of those phenomena, between the supply of cultural data and the demand for meaningful analysis, evaluation and policymaking (Kuka, 2012).

support for 'policy support groupings' was created for working on exchange, comparison and consolidation of existing quantitative data and evaluation methods<sup>11</sup>, linked to the priorities of the European Agenda for Culture. The options for programmes are convergent and no more by different cultural sub-sectors, since Culture 2000, a programme that adopted an interdisciplinary approach. The evaluation made confirms the benefits of this kind of convergence due to the developments in the cultural sector, but also due to the impact of digitisation, in which boundaries between sectors are becoming more fluid and cross-sector experimentation is common. In Europe 2020 Strategy, culture can play a fundamental role (Innovation Union, Digital Agenda, skills for new jobs, intercultural competences and transversal skills, cohesion policy, creative/intercultural cities/regions and branding Europe as *the place to create*, promoting balanced cultural exchanges and cooperation with the rest of the world.

Being important to maintain cohesion and democracy values in Europe, cultural policies are striking to develop strong evidence based policy and new quality indicators. One strategy is related to the building of evaluation indicators on public policies of culture and the construction of an index of cultural participation of European citizens to promote a stronger cultural and creative presence of Europe on the world scene and an attractive European image bridging excellence in the field of heritage and creativity.

The specific context of the Digital Agenda for Europe recognised that digitisation is transforming the value chains of the sector (creation, production and distribution of cultural content), through to the development of new business models, marketing and retail strategies and new modalities of consumption of cultural product (presumption).

### 3. LIBRARIES TRANSITION MANAGEMENT TO SUSTAINABILITY: A FRAMEWORK

On the last stage of the co-creation workshop, the key dimensions of the relationship between LIS and sustainable development that will foster a suite of performance indicators and measures were discussed. As any indicator system requires a conceptual framework to guide its purpose, the selection of indicators and the kind of information needed (Anheier, 2007), so the participants decided to create a conceptual framework based on UNESCO Indicator Suite on Culture for Development and Anheier's approach (2007), which covers the main characteristics of sustainability. The incorporation of a holistic view of the value proposition (Butters, 2004) was also considered important. Ideally, the framework should capture the multitude and complexity of interactions.

The *LIS Sustainability Assessment Framework*:

- Evaluates the management structure identifying and addressing the social, environmental, social, economic and cultural dimensions that impact the library: Economy, Education, Heritage, Communication, Governance, Social Participation and Cohesion, and Gender Equality;

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<sup>11</sup> The European Commission intends to make full use in prospective evaluations (impact assessments) of available retrospective evaluation results and the subsequent evaluation of the performance of the actions adopted, completing the evaluation and assessment cycle. The drivers for change are a need for a culture of evaluation and improving quality. Evaluation design should be based on the five key evaluation criteria - *effectiveness, efficiency, relevance, coherence, added value* - and require evidence based policy making. The European statistical development of culture began in 1995 with the first resolution on the promotion of statistics concerning culture and economic growth. 2005 marks the measurement of the economic impact of the cultural sector and its potential impact in the framework of the Lisbon Strategy. In 2008-2010, the Work Plan for Culture created the Open Method of Coordination (OMC) to advance statistical harmonisation and the European Working Group on Cultural Statistics – European Statistical System Network on Culture (Essnet-culture) with a mandate of methodological nature. This group presented a new definition: cultural activities are understood as any activity based on cultural values and/or artistic expressions. They include market or non-market oriented activities, with or without a commercial meaning and carried out by any kind of organisation (individuals, businesses, groups, institutions, amateurs or professionals) in ten cultural domains: heritage, archives, **libraries**, books and press, visual arts, performing arts, audiovisual & multimedia, architecture, advertising, and arts crafts, based on the economic functions of creation, production & publishing, dissemination & trade, preservation, education and management and regulation.



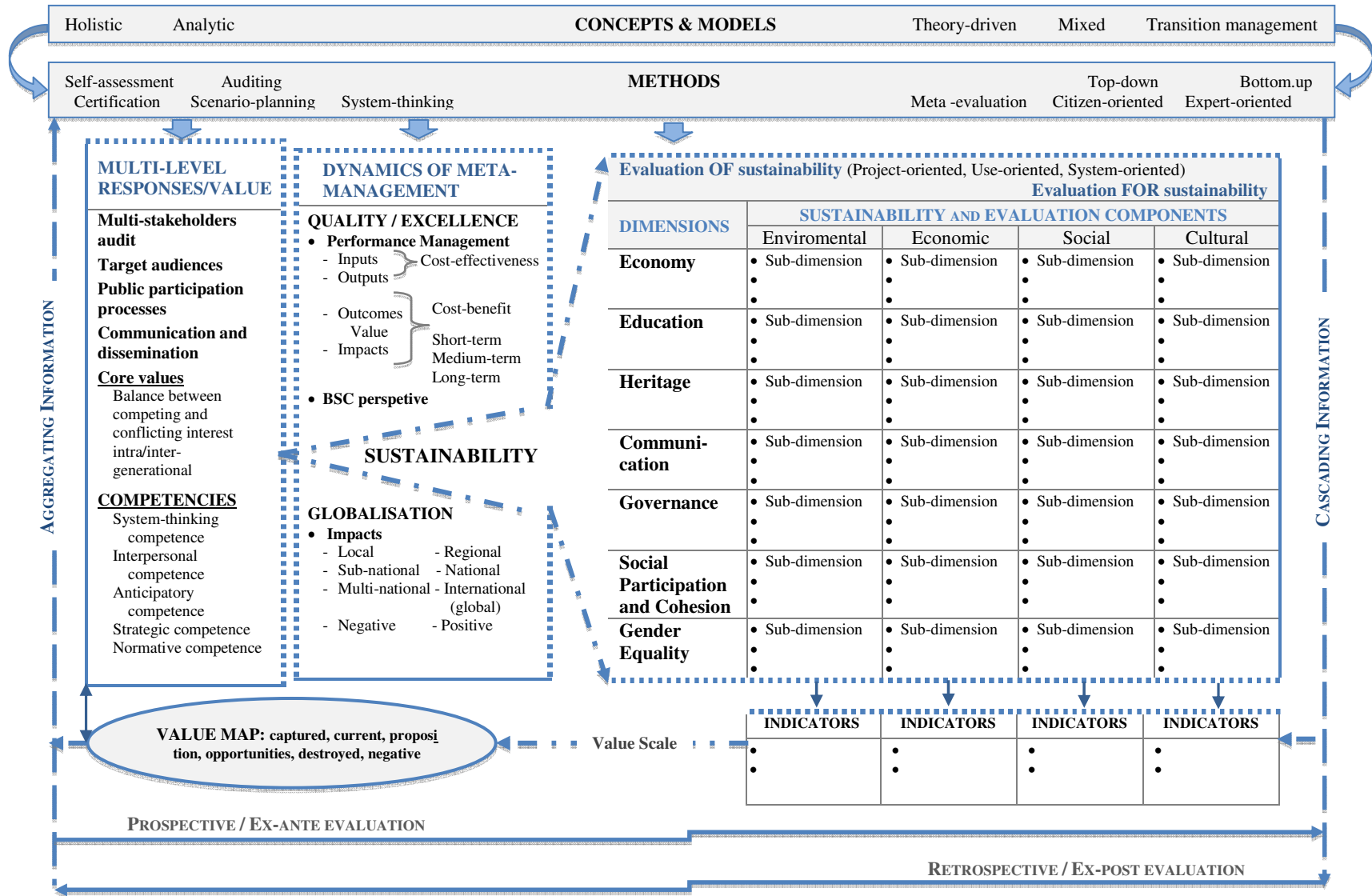


Fig. 2 – LIS Sustainability Framework

- Evaluates how these issues have been integrated into the library's strategy, providing Evaluation OF sustainability (level, state, maintenance) and Evaluation FOR sustainability (contribution to sustainable development in the long term);
- Provides a systematic process to take into account the dynamics of quality management and globalization (meta-management), determining its key performance and risk indicators, reviewing and reporting with a forward-looking and holistic perspective, developing new competencies: system-thinking competence, interpersonal competence, anticipatory competence, strategic competence, normative competence;
- Responds to the information needs of multi-stakeholders by providing sufficient information and communication;
- Delivers high-level information to be discussed through public participation processes about the existing resources in a manner that allows stakeholders to assess the library ability to create and sustain value over the short-, medium- and long-term;
- Provides an evaluation of library's anticipated activities and future performance objectives, informed by its assessment of recent performance and understanding of societal trends and stakeholder expectations;
- Acknowledges the importance of measuring sustainability value and of communicating its results graphically using a Value Map based on a system-perspective and stakeholders interests: *captured, current, proposition, opportunities, destroyed and negative* value;
- Reports how it can improve its positive material impacts and how it can eradicate or ameliorate its negative material impacts, covering all aspects of sustainability, for effective audit, improvement, progress monitoring and reporting, using a value scale. Different organizations are likely to need different indicator sets and different targets, depending on the nature of their mission and the context in which they operate. Consequently, developing and selecting indicators and metrics will have necessary associations with standard for libraries throughout their products and services life cycles.

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This first version of the *LIS Sustainability Assessment Framework* still needs to be enhanced, namely by selecting a suite of performance indicators from each (sub-)dimension for what they can elucidate on LIS sustainability and including them in the Framework. Building and testing a LIS sustainability value map will be another important step in the refinement of the Framework. Another workshop will be held in July 2014.

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