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Models and Strategies for Information Management: Convergence of Impacts

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Abstract

The current discussion around models and strategies for information management in the era of digital transition point to two dynamics, which follow the lifestyles, consumer habits and information behaviour of citizens: diversity of services and content, on one side; and convergence not only in media, but also in management modes, on the other. The purpose of this paper is to discuss the use of convergent information management models, strategies and impacts in Library, Archives and other Information Services (LAIS), in academic and practical/professional environments in Portugal.

Three management areas - e-skills, e-consumption and sustainability – are discussed, providing details and a basis for the convergence analysis. Using two dimensions - the operationalization of strategy and the approach to group development of LAIS skills -the usage of convergent information management models and strategies in LAIS is then examined through three cases / examples.

The first model / strategy identified provides an example of assessment and it is widely explained:

(1) Co-creation workshops on *Building a sustainability assessment framework*: this interdisciplinary experience with students of Information and Documentation master courses in the Faculty of Social Sciences and Humanities of Universidade NOVA de Lisboa (FCSH/UNL) (December 2013-February 2014) and students of the Archives Post-graduation course at Universidade Lusófona de Humanidades e Tecnologias (July 2014), led to the (co)definition of a conceptual framework for assessing the sustainability and impacts of LAIS as cultural organizations.

Two other examples of information management models and strategies complemented this approach to convergence:

(2) CIG's Information and Documentation Centre (IDC) integrated the information management model (October 2013): the development of a new management model for the Commission for Citizenship and Gender Equality (CIG)'s LAIS was anchored on the implementation of a modern Library Management System, which boosted the creation/improvement and integration under the conceptual umbrella of a holistic new brand – IDC - of other information areas, like publishing inventory management,

archives and records management, digitalization of CIG's historical archive and digitalization of special collections.

(3) Information Management and Curation Post-graduation and Master courses: creation of a graduate (and Master) degree in Information Management and Curation (FCSH/UNL), proposing a model for studies in which information management assumes a prominent transverse position and developing an integrated model of skills enabling simultaneously managing diversity and the hybrid culture of services convergence needs of the information market (June 2014).

When taking an overarching approach to the study of these models and strategies, attention should be paid to new operating models impacts and needed management skills, focusing on thinking strategies in the cultural and creative industries and considering culture as the fourth pillar of sustainable development. This focus opens new horizons for action by allowing the creation of new performance indicators, unifying the area of culture, aggregating data from libraries, archives, museums and other information services and, thereby, allowing an integrated strategic vision of the results and impacts. In the near future, management of integrated impacts seems to be the next step of the differentiation of quality.

Keywords: archives and other information services, convergence models, impacts, library, sustainability

Introduction

There is a general sense of urgency to study major management transitions in Library, Archive and other Information Services (LAIS). Technological and innovation studies have received increasing attention over the past 10 years, identifying emerging fields and new conceptual developments. In particular, a new field dealing with sustainability transitions and impacts management has made a considerable contribution to the understanding of multidimensional models and dynamics within which digital transition evolves, addressing the role of academic theories and advice regarding governance of information management transition processes. In a field in flux, it is also important to study institutions in arenas of development, as well as the ways they interpret transitions in action, providing a background of information about how different actors can navigate and perform strategic intervention that support sustainable services.

According to this view, organizational maturity and sustainability of results pose new issues related to quality: integrated, balanced, multidimensional, comprehensive and holistic models are frameworks used as tools to reach an excellence stage. Based on recent literature, it seems that it is in the interface between measurement, quality management and impacts that is crucial to ensure the value of performance measures, reconnecting long term and short term perspectives. New measures linked to institutional objectives are needed and must be communicated: long term holistic and coherent measures that assess societal benefit, educational impact and intangible assets, like relational capital, organizational capital and human and intellectual capital, multiliteracy skills, transferable skills, meta contentor user-defined value metrics of electronic resources.

In contrast with previous decades, Excellence is now a new and emerging phenomenon, not only with organizational impacts, but also with strong emphases on several transition moments on the life course of people. This is an interdisciplinary trend that studies the confluence of different variables refocusing on boundaries. One of those boundaries is concerned with convergence culture (Jenkins, 2006) and information environments thinking hybridization as a process of integration and fragmentation, particularly during periods of unusual transition (Ochôa and Pinto, 2015). These periods or cycles require a different understanding of impacts that must consider customer experience of quality and consumer behaviors in informational contexts.

Customer value in experience (customer's perception of value over the entire course of the customer experience) is a concept that must receive more attention when studying informational resource dynamics. The notion of the customer journey is important to evaluate the quality of resources as user perception may vary as the journey is made, preceding the service and contining after it in a set of interactions and experiences at different levels (rational, emotional, sensorial, physical and ethical). Can convergence of information resources encompass the total experience? The literature about service quality makes the point that this response may be multifaceted:

comparing performance on product/service quality dimensions against expectations is one of the answers, the other one being, quality as a value perception, both arising due to multiple contextual factors.

The customer experience qualitycategories (Lemke et al., 2011) identifies 17 experiences related to information, business and entertainment needs, grouped in six areas: communication encounter; service encounter (product quality, service quality, network quality); usage encounter (relationship with other customers; social impact); experience context (hedonism, involvement, product complexity, relationality), value-in-use (utilitarian, hedonic, relational, cost/sacrifice); and relationship outcomes (commitment, purchase, retention, word of mouth). LAIS' users want to access e-resources (bibliographical resources, full-text e-resources and portals/aggregator products) from home, the office or anywhere they need information and expect quality in their experiences.

A fundamental contribution of the quality movement to the study of impacts was to recognize the dynamics of satisfaction linked to the quality of information products, services, user experiences and its effects in life and in a global community of stakeholders. Whenever an information service collection is presented as a product or a service, it employs, either explicitly or implicitly, a service model and a value creation model. The significance of Excellence demonstrates how value is created and delivered to customers. As a consequence, many information services have responded to market competition primarily by emphasizing the value of products (resources), the value of processes (digitalization, portals, digital libraries or digital archives, licensing, and legal issues) and the value of the impact on society. These movements can be classified as convergent. However, the aspects of diversity (consumer's usages, perceptions and needs; personalization of information behavior) are less discussed and the relationship between these dynamics must be managed (Ochôa and Pinto, 2015).

Various aspects of the information resources life cycle and management (policies, discovery, trial, selection, acquisition, ownership and licensing, access, usage, data curation and preservation, guidelines and best practices) are linked to information environment variables: information life cycle (creation, distribution, seeking, utilization); competences life cycle (assess, plan, acquire, validate); knowledge management life cycle (creation, securing, distribution, retrieval) and performance management life cycle (ad hoc, basic, emerging, managed, excellence).

Performance management related to e-resources expenditures expressed in cost and usage entities is another important aspect in the global market place, assuring long-term access to e-resources and practices of iterative development between users, producers and stakeholders. Access and usage are essential for e-resources investment, being relevant to the development of e-skills for e-consumption processes and e-value propositions, facilitation and co-creation services. The result of these dynamics will be Excellence explicitly portraying impacts.

The focus then turned to understanding the emergent dynamics: e-skills, e-consumption and sustainability in a convergence value transfer.

E-Flows and Convergence

E-Skills

In order to take advantage of these policies and engage in fortuitous explorations, individuals must develop e-skills to deal with EQF – the European Qualifications Framework (2008), another instrument of convergent actions in education and training fields or the European e-Competence Framework (e-CF) The EQF is a common European reference framework which links countries' qualification systems together, acting as a translation device to make qualifications more readable and understandable across different countries in Europe. It has two principal aims: to promote a citizen's mobility between countries and to facilitate their lifelong learning. It uses learning outcomes as a common reference point in eight levels of proficiency.

In the context of education and employability, it is interesting to see the importance that the notion of an ICT proficient workforce has gained in the EU agenda. The 8 competencies are: Communication in the mother tongue; Communication in foreign languages; Mathematical competence and basic competences in science and technology; Digital competence; Learning to learn; Social and civic competences; Sense of initiative and entrepreneurship; and Cultural awareness and expression (European Commission, 2007). To move from the technical use of ICT to the development of e-literacies/e-skills is a manifest challenge that has to be faced. This trend reflects a shift in focus from the tool to the content, from computer user to e-competent user. This means that the technology is not as relevant as the knowledge and the information that can be accessed, understood, created and communicated. Relatedly, the Key Competences for Lifelong Learning and European Framework (2007) identifies digital competence as one of the key competences described in the programme Education and Training 2010.

The concept of digital skills was introduced by Van Dijk (1999) as a succession of three types of skills: *operational skills* (the capacities to work with hardware and software); *information skills* (skills to information management cycles that can be formal or substantial) and *strategic skills* (capacities to use computer and network sources as means for particular goals and for the general goal of improving one's position in society). In Europe, the only data studied is about operational skills, crossing three social demographics data: age (considered the most important), educational level and gender. Recently, Van Dijk (2012) refined the concept into six types of digital skills, considering *medium related skills* (operational skills and formal skills) and *content-related skills* (information skills, communication skills, content-creation skills and strategic skills).

Concepts as e-awareness, technological literacy, informational literacy, digital literacy and media literacy are components of e-skills, linked to life-

long learning, digital citizenship, formal and informal environments, assess, connect and critically use the information in different formats depending on the context, create, adapt and share information and knowledge in multiple formats. Therefore, e-skill is a meta-competence evolving with the new technologies and the labor market.

The identification of emerging skills is enhancing and amplifying the combination of human capital and digital technologies as a solution to the needs on value creation through innovation and e-talent applied to each link in the e-resources value chain. In the case of digitization, there was a general trend towards developing projects to investigate best practices and how to share solutions with other stakeholders in a joint effort to formulate agreements upon standards and recommendations for technical formats and work practices. This opportunity of sharing information creates *convergence flows* in skills domains.

E-Consumption

Contemporary changes in the realm of consumption highlight some of the ongoing transitions occurring in the consumption of personal digital devices and in the use of digital cultural content. Special attention is being given to three tendencies in self-consumption and how knowledge and practices are involved in these uses: 1) active manipulation of commodities by consumers, culturally and materially integrated in several contexts of consumption; 2) engagement in device modification, acquiring competences and knowledge to manipulate data using web tools (Beer and Burrows, 2010); 3) increasing significance in consumer culture of forms of symbolic manipulation and criticism by consumers, mobilizing ideas, values and identities around this practice**.**

Another research line with important contributes to this discussion is on marketing evolution and convergence, analysing production, consumption and prosumption forms in the age of the digital prosumer[1] (Ritzer and Jurgenson, 2010). New prosumers are proactive and are different from early adopters by attitudes through information and social media, representing one of the pillars of innovation and one of the agents of consumption culture [2] (Langer, 2007).

Conceptual tools that aim to comprehend digital consumer practices are yet to emerge, studying new consumer subjectivities, cultures and new markets, audience development and evaluation and impact assessment (Tanner and Deegan, 2012). Two theoretical perspectives are identified: consumption

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[1]*Prosumer* is a concept introduced by Alvin Toffler (1980) in his book *The third wave*, combining co-production of products, meanings and identities. Given the recent explosion of user-generated content online, prosumption involves both production and consumption, rather than focusing on either one (production) or the other (consumption).

[2] The history of the digitalization of consumer culture (online shopping wave, participatory consumption wave and virtual consumption wave) shows how information society interacts with consumer society (sites, processes, subjects and objects of consumption) in what Lehdonvirta (2012) calls *digitalization of consumption*, where the subjects of consumption are the consumers themselves, their practices and beliefs.

as social signification (structural approach focused on the use of tools for communicating and constructing social bonds and distinctions) and consumption as a hedonistic project (hedonistic approach explaining where preferences come from). Technologies (Web2.0; social media, open source software) and design techniques (blogs, RSS feeds, tags, social networking, web networking and mobile communication technologies) have permitted individual consumers to self-organise and to have a more active role, participating in the experience, appropriating the goods to new uses and combining and altering the goods to create entirely new experiences (Lehdonvirta, 2012).

The value is based on information contents, structuring social relationships and creating virtual communities. Information goods are linked to virtual goods, a new marketing concept, suggesting that consumers use virtual goods seek fulfillment to needs, to communicate and construct social distinctions, and identity positions.

Experience and the concept of *quality in total service experience* remain nuclear on studying consumption experiences, perceived value and satisfaction outcomes, evaluation and service performance. We all remember the importance of the "moments of truth". Nowadays, the notion of appropriation has been introduced to clarify the mark of psychological action within the context of experience, which transforms and personalizes it. Therefore, immersion and transformation are privileged outcomes of consuming experience and important managers of discovery, access and delivery in information services.

With the technologically enabled broad movement of individuals into productive activities, it is worthwhile to study the strategies, methods and technologies of co-creation in an integrated manner. Digital information and the collective processes of sharing data, information and knowledge vastly contribute to the growth of activities.

The relevance of information services performance measurement, on one hand, and the growing interest in sustainability of information resources and services, on the other hand, show the amount of interest aroused by the design of evaluation frameworks that attempt to demonstrate convergence evidences. Thus, this paper's main focus is to discuss the use of convergent information management models and strategies in LAIS, in academic and practical/professional environments in Portugal, using two dimensions in the three cases presented: *the operationalization of strategy;* and the *approach to the group development of LAIS skills.*

Models, Strategies and Sustainability

Cocreation Workshops on Building a Sustainable Assessment Framework

For researchers in the field of Information Science, the year 2015 has highlighted the importance of studying the dynamics and impacts of strategic alignment in terms of proposals for the governance of the pillars of sustainable

development, opening new perspectives of analysis in the areas of convergence. Of these, three dynamics, the ones worth mentioning are:

- The alignment of strategies anchored on the concept of Information Multiliteracy (UNESCO, 2012) with the positioning of various stakeholders in the information-documentation Agenda post 2015 (IFLA, 2014), strengthening the role of information management and information services.
- The strategic alignment with the cultural sector and the role of its evidences in assessing the impacts of cultural organizations.
- The debate about strategies on the importance of measurement and impact assessment, with particular relevance in the area of libraries. This transition phase has been dubbed an *existential debate* "about what libraries are and what they might and shouldn't be during times of fundamental change in forms of information and communication"(Town and Stein, 2014, p. 335).

After years of debate (UNESCO, 2014a; 2014b; Schindler, 2012; United Nations, 2007; Boulanger, 2008), Cultural Sustainability Indicators (CSI) are becoming increasingly relevant as they provide several opportunities for policy and decision making processes. As highlighted by IFLA in the Lyon Declaration (2014), information is useful in complementing sustainability approaches by including all driving forces associated with the Post 2015 Agenda. CSI can provide complementary information for the formulation of the information services policy frameworks, namely impacts assessment. Finally, CSI can be used to monitor and design strategies on sustainable information at the national, regional and local levels.

Experiences of integration of sustainability management into Library and Information Science courses require different approaches, as Turner (2014) and Nolin (2010) pointed out when talking about some uncertainty about the nature of sustainability. After questioning if it is a management trend, a guiding framework, a philosophy or a set of principles, Turner (2014) concludes that "however abstract the nature of sustainability, one task of managing information organizations includes keeping pace with new ways of articulating challenges and opportunities. Integrating the concept into a management course in a way that highlights parallels between managing sustainability and managing information organizations can encourage critical thinking".

Nolin (2010) considers that integrating sustainability is essential to Information Science, since this connects education programs to global challenges and to the recognition that sustainable development can be translated into an imperative of social and ethical issues[1].

Aiming to participate in this debate and present contributions to the research of these issues in Portugal, an *interdisciplinary workshop on impact*

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[1] Nolin (2010) argues the fruitfulness of seeing sustainable development as part of information ethics and that our field would be more successful in educating professionals for sustainable development, if we taught them sustainable information as a set of essential ethical values.

assessment skills development in the Master of Information and Documentation –Faculty of Social Sciences and Humanities of Universidade NOVA de Lisboa (FSCH/UNL) was developed (January-June 2014). The activities were developed in 3 phases: 1) Review of national and international policies and literature on the subject; 2) Mapping of sustainability areas by identifying the key concepts and assessment dimensions of impacts applicable to the Information Science context; 3) Building a framework for evaluation, based on the proposal (then, still in testing phase) of UNESCO for Culture for Development Indicators – CDIS (UNESCO, 2011), the approach presented by Anheier (2007) and a holistic view of value proposition applied to the field of Information Science.

This reflection and its results were later developed with another group of LAIS students (archival studies) at Universidade Lusófona de Humanidades e Tecnologias and presented internationally (Ochôa and Pinto, 2014), integrating a line of research that values the evaluation of cultural sector dynamics (Carnwath and Brown, 2014) as another form of convergence in a sustainability assessment framework (Table 1). The usefulness of the presented model for information management can be highlighted, as it can contribute to rooting out and managing the set of impact evidences of cultural indicators and literacy indicators (UNESCO, 2014a; 2014b; Torres Calvo, 2014; Perez Tornero, 2014). This focus opens new horizons for action by allowing the creation of new performance indicators unifying the area of culture, aggregating data from libraries, archives, museums and other information services and, thereby, allowing an integrated strategic vision of the results and impacts.

CIG's Information and Documentation Centre Integrated Model

Another form of *impacts strategy operationalization* can be seen in the case of CIG - the Commission for Citizenship and Gender Equality -, which is an official department of the Presidency of the Council of Ministers and constitutes the Government's mechanism for the promotion of citizenship and gender equality in Portugal.

Since its early days, one of CIG's leading strategies has relied upon making information available to the public, not only by publishing and distributing books, journals, leaflets, posters and other materials, but also by creating, managing and cherishing a specialized library on gender equality and citizenship issues. In October 2013, the pressure of e-skills and e-consumption dynamics, combined with a disintegrated model of service delivery in the information, publishing and communication areas and an obsolescence library management system, instigated CIG's Information and Documentation Centre (IDC) to outline a new management model.

The implementation of a modern Library Management System boosted the creation/improvement and integration under the conceptual umbrella of a holistic new brand – IDC - of other information areas, like publishing inventory management, archives and records management, digitalization of

CIG's historical archive, digitalization of special collections and user interface(s).

In this case, it is also distinctive the use of the strategic groups concept for strategic information management targeting, in the expectation that changes in such areas will have social impact and, thereby, will contribute to finish access inequality between the citizen and Information services.

Table 1. *Sustainability Assessment Framework*

			Change		Evidences			Indicators	
		Dimensions	**Objects**	*Infered*	*Solicited'*	*Observed*	**UNESCO (CDIS)**	**(Multi)Literacy**	
SUSTAINABILITY	**Economy**		Society	Statistics and other national and international data			% contribution of formal and private cultural activities to GDP % persons engaged in cultural occupations within the total employed population % household final consumption expenditure on cultural activities, goods and services set against total households consumption expenditures	Index of Media Literacy Context - *Media Industry* [Large enterprises related to media education and ICT; Industry associations related to media education and ICT] *	
	Education		Society	Statistics and other national and international data	Inquiry	Tests		Index of Media Literacy Context - *Media education* [Teachers training in media literacy; Teachers training in digital literacy; Framework for assessing media literacy] * Index of Use Abilities –*Computer and internet skills* [Computer skills; Internet skills] * Index of Use Abilities - *Balanced and active use of media* [Internet use; Mobile phone subscriptions] * Index of Use Abilities - *Advanced Internet use*[Buying by internet; Reading newspapers online; Internet banking] * Index of Critical Understanding index [Literacy (PIAAC); Reading (PISA)] *	
				Statistics and other national and international data			Index average years of schooling of the population between 17 and 22 years, adjusted to reflect inequalities % of instructional hours dedicated to promoting multilingualism in relation to the total number of instructional hours devoted to languages (levels 7- 8) % of instructional hours dedicated to arts education in relation to the total number of instructional hours of training (levels 7-8) Index of coherency and coverage of technical and vocational education and tertiary education in the field of culture		
	Heritage		Society	Checklist		Checklist	Index of development of a multidimensional framework for heritage sustainability		

…/…

Adap. from: UNESCO, 2014a, 2014b; Perez-Tornero, 2014*; Technical Advisory Group, 2014**

IMPACTS CONVERGENCE						
Change			**Evidences**		**Indicators**	
Dimensions	**Objects**	*Infered*	*Solicited'*	*Observed*	**UNESCO (CDIS)**	**(Multi)Literacy**
Comunication	Society	National statistics	Inquiry		% individuals using the Internet	Index of Media Availability [Mobile phones per inhabitants; Broadband penetration rate; Colour TV] * Index of Communicative Abilities - *Social relations* [Posted messages to chat rooms] * Index of Communicative Abilities - *Content Creation* [Uploading self-created content; Posting messages to chat sites; creating a web page] *
			Questionnaire (*Freedom of the press survey*)		Index of print, broadcast and internet-based media freedom	
		National statistics			Ratio of annual broadcasting time of domestic television fiction programs out of total annual broadcasting time of television fiction programs onfree-to-air TV channels	
Governance	Society	Checklist		Checklist	Index of development of the standard-setting framework for the protection and promotion of culture, cultural rights and cultural diversity Index the development of the policy and institutional framework for the protection and promotion of culture, cultural rights and cultural diversity Index of the promotion of the participation of cultural professionals and minorities in the formulation and implementation of cultural policies, measures and programs that concern them	Index of Media Literacy Context - *Media literacy policy* [Laws; Legislative updates; ICT plan; Media plan; Public media agencies] *
		Statistics and national directory			Distribution of selected cultural infrastructure relative to the distribution of the country's population in administrative divisions immediately below state level	
Social Participation	Society	Statistics and other national and international data	Inquiry		% the population who have participated at least once in a going-out cultural activity, in the last 12 months % the population who have participated at least once in an identity-building cultural activity in the last 12 months Degree of tolerance within a society towards people from different cultural backgrounds Degree of interpersonal trust Median score of perceived freedom of self-determination	Index of Media Literacy Context - *Civil society* [Media education associations; Film festivals; Media education initiatives; Media literacy prizes] * Index of Communicative Abilities - *Participation* [Interaction with public authorities
Gender Equality	Society	Statistics and other national and international data			Index of gaps between women and men in political, education and labour domains and in gender-equity legislative frameworks (objective outputs)	
			Inquiry		Degree of positive assessment of gender equality (subjective outputs)	% individuals who have acquired the skills and values necessary for global citizenship and sustainable development (at 14 years) **

SUSTAINABILITY

Information Management and Curation Course

The role and impact of new skills in the digital market need a better understanding, namely by identifying the various practices and spectrum of skill sets that comprise convergence management. Information Management and Curation Post-graduation and Master Courses in FCSH/UNL, propose a model for studies in which information management assumes a prominent transverse position, developing an integrated model of skills, which simultaneously enables managing the diversity and hybrid culture of services' convergence needs within the information market.

LAIS to be competitive and sustainable on a long- term basis are depending on the capacity to integrate, manage and build information resources and digital curation[4]. Universities are depending on the examination of possible career path demands and options for professionals working in digital curation activities and convergence informational models, and their economic and social importance over time; the identification and assessment of existing and future models for education and training in various domains and their impacts are also indispensable.

Conclusions

In an era of digital transition, where emerging trends anchored on e-skills, e-consumption and sustainability dynamics equate with pervading themes of quality, excellence and impact assessment, studying convergence in information management models and strategies can provide valuable contribution to the advance of Information Science.

The convergence models and strategies that were brought to light by the examination of the three cases are examples of different (organizational and academic) responses to current lifestyles, consumer habits and information behaviour of citizens.

The study of these models and strategies also shows that attention should be paid to new operating models impacts and needed management skills, focusing on thinking strategies in the cultural and creative industries and viewing culture as the fourth pillar of sustainability.This focus opens new horizons for action by allowing the creation of new performance indicators, unifying the area of culture, aggregating data from libraries, archives, museums and other information services and, thereby, allowing an integrated strategic

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[4] Digital Curation is defined by the *Digital Curation study* (2015), as the active management and enhancement of digital information for current and future use. Active management implies that curation requires planning and action. Enhancement implies that curation adds value to digital information. Current and future use implies that curation is not limited to immediate use or current information. This study also question what knowledge and which skills are relevant to digital curation across domains, and which are specific to domains, types of data, uses, and users? Which aspects of digital curation are amenable to automation and which require human judgment and effort? Is digital curation a career? – a job? – or a task for everyone engaged with digital information?

vision of the results and impacts. In the near future, the management of integrated impacts seems to be the next step of differentiation of quality.

An important area for further theorizing pertains to the development of an analysis of different impacts of convergence models in e-skills and e-consumption. Another research field appears in sustainability education in LAIS courses, demonstrating its heterogeneous benefits for information services and other cultural organizations. In fact, sustainability is gradually being translated into a convergence paradigm with the potential of transforming quality management frameworks.

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