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Canvassing Greek Academic Librarians' Opinion of Their Organizations' Position on the Library Evolution Continuum.

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Abstract:

Purpose - The study analyzes academic librarian convenience sample's responses to an online survey seeking to identify the current innovation and transformation facts and figures of the Greek academic library in the overarching aim to contribute to the higher education community knowledge base on current trends and challenges along the academic librarianship evolution continuum¹.

Design/methodology/approach - The research involved the distribution of a questionnaire that sought to investigate library staff perspectives and considerations about service provision, innovation adoption, and organizational development-related aspects. It was further complemented with additional contextual information resulting from the inspection of official library webpages.

Findings - The survey results representing 25 Greek higher education Institutions through responses received by administrative and executive staff in 22 central and nine academic branch libraries indicate academic library services with the highest and lowest statistical presence. Partnerships development is acknowledged as a top library transformation motivator while budgetary, infrastructural, and staffing issues are listed at the top of the library transformation inhibitors. There were also indications of insufficient strategic planning. Findings also suggest the need to enhance organizational development processes for sustaining and increasing innovation by transforming the library into a double loop learning organization.

Index Terms — academic libraries; library innovation; professional development; information commons; strategic documentation

I. INTRODUCTION

The global economic recession, globalization challenges, scarcity of resources, and public funding cuts have caused deep changes in academic libraries around the world [1]. The

- repurpose the library space to support collaborative learning,
- redeploy the library staff and

situation of the Greek academic libraries² is not too different from the state of the American higher education (HE) system at the turn of the 21st century and the current South European counterparts. Within this evolving context, Greek academic libraries are being subjected to unparalleled degrees of public scrutiny and accountability, which exert considerable stress on their stability as components of the broader higher education ecosystem.

Besides the set of challenges that the digital revolution has confronted libraries with, it has opened up new opportunities for the libraries to (1) build ubiquitous, dynamic, varied, active, and immersive learning environments, within the coordinates of a pioneering dynamic cognitive ecosystem that shifts the education paradigm from simple content delivery toward engaging and connecting learners through active learning, critical thinking, collaborative exchange, and knowledge creation [2-3]; (2) re-conceptualize their operations in tandem with learning practice; (3) reweave together classrooms and libraries, labs and informal learning spaces; (4) respond and adapt to remain relevant by balancing new initiatives with core service areas such as instruction and collection development [4].

The pressing requirements for new approaches to the design and delivery of new library services, as they are moving away from book warehouses to high tech study halls, information gateways, and learning and teaching partners [5], have engaged libraries in an ambitious quest for useful models and innovations. They have also encouraged the experimentation with a variety of approaches that, drawing on new technologies [6] and in line with key stakeholders' demands and the European Higher Education Area (EHEA) mandates, have led to "...the birth of a new library model that is more firmly grounded in user engagement and participation than ever before..." [7, p.475].

This new library model can be considered a response to the challenges associated with pressures to:

- reposition the role of the user in the contemporary information commons,
- stretch the budget and the organizational structures,
- come up with a new set of services and accommodations that necessitate a strategic paradigm shift that will eventually dim traditional organizational boundaries in such

¹ The term 'continuum' is metaphorically used to express the library progression scale.

² For the purposes of our study, we have grouped the libraries in both universities and Technological Educational Institutes (TEI), under the 'academic libraries' umbrella term.

a way that the word library will be no more capable to adequately cover the entire scope of both virtual and physical academic support services that are offered to patrons today [8].

These challenges have ultimately reoriented the research on academic librarianship and the foci of related interventions placing Information Literacy, E-learning, Social Media, Open Access, Knowledge Management, Altmetrics, Research Support, Scholarly Publishing, MOOCs, Service Quality, and Mobile Apps in Academic Libraries among the top twenty library and information science (LIS) most used topics since 2013 (>56 times) in the Web of Science (Figure 1). The argument of reorientation of LIS research and practice is also supported by a recent Scopus index database keyword analysis. Findings are indicative of a considerable increase in the use of the following keywords in LIS articles: Collaboration, Marketing, Distance Education, and Information Literacy, presenting a 718%, 566%, 453%, and 330% increase respectively between the years 2000-2006 and 2007-2013. They also illustrate the emergence of new keywords, namely Professional Development, Partnerships, Benchmarking, Open Access, Social Media/Networks, E-learning, Library 2.0, and Usage Statistics, as well as the transformation or obsolescence of old keywords such as Cooperation, Personnel Training, and Quality Control.

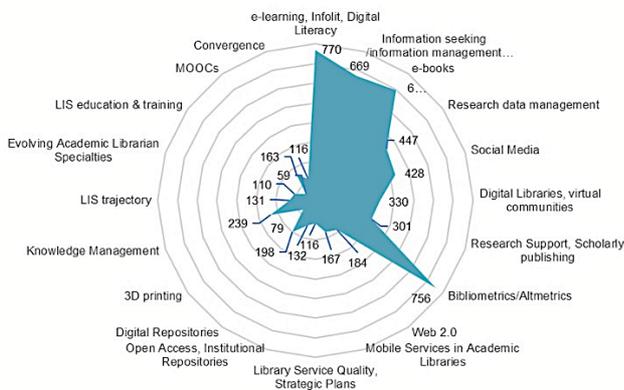


Figure 1. Most used LIS topics in the Web of Science since 2013 (data retrieved in August 2016)

II. AIMS AND OBJECTIVES

The main goal of this study is to contribute to the higher education community conversation about trends and challenges affecting the evolution of the Greek academic librarianship. The remarkable library automation and vertical and horizontal service enrichment developments initiated before the severe economic downturn of the last decade have been severely impacted by reduced total expenditures, and reference desk personnel decrease between 2011 and 2015, as recorded in the statistics of the Quality Assurance Unit for Academic Libraries. Also, according to the higher education public funding observatory Report [9-10], the Greek HE public funding was among the 13 European systems in decline between 2008 and 2015 and among the 13 European systems in danger as

their funding to universities decreased while student numbers grew. Additionally, the National Bank of Greece Education Index [11], an indicator of university independence based on the degree of flexibility in key issues such as student selection, staffing policy, budget autonomy, course content and performance evaluation, has placed Greek higher education in the 35th place. Overall, Greek universities rank at the bottom of international competition in terms of institutional independence, showing inflexibility in key issues such as student selection, staffing policy, budget autonomy— including sources of funding and allocation of expenditure— course content as well as setting objectives and performance evaluation.

In an attempt to better appreciate some of the complexities involved in the adaptation of Greek libraries to the evolving higher education landscape, the researchers decided to record and analyze the current innovation and transformation facts and figures of the academic library in a system thinking approach guided by the following research questions: (1) how the academic library is changing; (2) what the overall academic library innovation pace is; (3) how librarians stay current with latest developments in their field; (4) what the main factors hindering and enabling academic library transformation are.

The study's main objectives were to record academic librarian viewpoints on the degree of their libraries' transformation and pace of innovation and associated challenges. It was also considered essential for the purposes of the research to detect possible correlations between transformation, professional development, innovation, and organizational planning and, finally, to explore whether librarians are adequately adapting to the new generations' high valued attributes of building partnerships, teamwork, staff development, and initiative as identified in a study by Young et al. [12].

III. METHODOLOGY

The design of the research methodology was inspired by previous studies [13-14] that provided an overview of the Spanish university libraries' status and their progress towards the Learning and Research Resource Centre model—also known as Centro de Recursos para el Aprendizaje y la Investigación-CRAI in Spanish, according to Pacios [14] which builds on the learning centers of the United Kingdom and the north American information commons. According to Beagle [15] and the Spanish University Libraries Network [16], this new library model, a milestone on the library evolution continuum on the way to academic commons —is a dynamic student-centered setting that accommodates all the information and IT services necessary to support learning and research in the university [15] [17].

This model goes beyond the access and retrieval function of the traditional reference service to support the full range of activities of information literacy, helping students to access, manage, integrate, evaluate, and create information

and knowledge. Since the year 2000, information commons have expanded their facilities and scope of activities by incorporating tutorial programs, writing centers, and faculty development centers to include a new focus on student learning, while many of them have also taken an additional step in changing their designation to learning commons [18].

For the purposes of the study, we designed a mixed-methods instrument to specifically address the Greek higher education context, comprising 16 topic-specific items and nine socio-demographic questions. Before distributing the self-administered and anonymous questionnaire to the target population, namely academic library administrators³ as identified in publicly available online resources, the questionnaire was forwarded to four LIS experts in June 2016 for initial feedback on the face and content validity. This first stage offered an initial check of the survey in terms of readability, clarity, comprehension and adequacy to the research objectives

Through the questionnaire's four basic constructs (Table 1), participants were asked to: (1) rate the importance of the collection of in-library use systematic data; (2) identify the level of transformation and innovation pace of their organization; (3) indicate their perceptions of barriers that the academic library faces today; (4) indicate the mode and frequency of continuing professional development (CPD); (5) briefly comment on newly introduced services in the open-ended survey item.

Survey instrument constructs

Construct A. Response Continuum: Library transformation			
No.	Questionnaire item	Item ID	Type
1.	Library transformation stage	Q.8	Likert
2.	Library transformation included in the university's strategic goals	Q.9	dichotomous
3.	Library transformation hindering factors	Q.10	Multiple-choice
4.	Library transformation conducive factors	Q.11	Multiple-choice
5.	Technological/organizational change implementation level	Q.17	matrix
Construct B. Response Continuum: Library innovation			
No.	Questionnaire item	Item ID	Type
1.	Innovation adoption culture	Q.21	matrix
2.	The necessity of other FOS processes integration in library practice	Q.12	Likert
3.	Newly introduced service innovation description	Q.23	Open-ended
Construct C. Response Continuum: Current and future service enhancement			
No.	Questionnaire item	Item ID	Type
1.	Officially/unofficially expressed service enhancement intention	Q.16	matrix
2.	Available library services	Q.18	Multiple-choice

³ For the purposes of this paper, the term 'administrator' is used solely as an in-text umbrella term to describe decision-makers, that is non-executive staff.

3.	Equipment / installations available	Q.19	Multiple-choice
4.	User training activities	Q.20	Multiple-choice
Construct D. Response Continuum: Organizational Development: Planning, funding, training			
No	Questionnaire item	Item ID	Type
1.	Organizational planning type	Q.14	Multiple-choice
2.	Importance of systematic in-library use data collection	Q.13	Likert
3.	Professional knowledge update actions/training frequency	Q.15	matrix
4.	Technological, organizational innovation service funding sources	Q.22	matrix
Additional Comments			

Table 1. Survey items⁴

The survey was distributed to the librarians' institutional and personal email accounts, as listed on Greek academic library webpages. With the intention of improving response rates and judging from similar surveys, five follow-up reminders were sent to the survey recipients, the cover page was kept as brief as possible and the socio-demographic questions were reformulated so as not to collect any personal identification questions or contact information.

Despite the libraries' reduced summertime activity, outdated or obsolete library staff contact information, short-handed user services, and ongoing space renovation and consolidation works, participation to the self-selection survey can be considered adequate for this first explorative study. By September 15th, 2016, we had received at least one librarian response from either the central or departmental libraries of 25 out of the 37 higher education institutions, namely universities and technological educational institutes (TEI). During the survey period (July-September 2016) it was judged necessary to go through a series of different communication approaches, including regular follow-up reminders and telephone invitations to central libraries. Where faced with central library non-response cases, we extended our participation call to branch libraries as our best alternative. During our brief telephone conversations with the local directors or executive staff responsible of library operations in the absence of high rank administrators, it was made evident that branch libraries adhere to the same regulatory and operational frameworks as the central units and therefore can adequately provide reliable information on trends and challenges also affecting their central administrative units.

In parallel, we engaged in a university library website review in search of evidence for Learning Resource and Research Center (LRRC) model's integration. This review did not necessarily attempt to cross-validate the survey findings,

⁴ The survey items have been summarized for the economy of publication space. The questionnaire is nevertheless available upon request.

but rather to capture different dimensions of the examined phenomena, thus increasing our level of topic-specific knowledge and strengthening our standpoint at the time of data analysis.

IV. FINDINGS

The mixed-methods survey instrument (Table 1) was developed with the overarching intention of exploring academic librarian viewpoints on a series of interconnected variables associated with library transformation, innovation culture, and services, organizational planning and development. It received responses from 22 central and nine public university branch libraries, representing 25 Greek HE institutions. Inspection for missing data and duplicity of the total of 38 responses received returned 31 valid responses. In the case of duplicate records, the researchers opted for keeping responses from the head of the library over the responses from the executive staff.

Most respondents, nineteen library directors and deputy directors, ten librarians, and two library technicians, had more than nine years of experience in their current job posts and were within the 40–50 age range.

Twenty-eight out of the 31 participants reported some type of service change underway with technological change implementation rates outnumbering the organizational ones. As to the nature of these new developments, they revolve around the implementation of radio frequency identification systems (RFID), institutional repository development, participation in collaborative integrated library catalog initiatives, modern authentication systems, digitization, self-archiving, and self-check station services. Most frequently offered services were electronic journals, group study spaces, and information literacy courses while involvement in massive online open courses (MOOCs), blogging and e-learning courses, creation of audiovisual and language labs, and evaluation of research outcomes were found to be the least statistically significant. Furthermore, all the respondents acknowledged the process of systematically recording in-library use data from important to very important. When library administrators were also asked to rate the importance of enriching library services with products and processes originating in other fields of science (Q.12), 26 out of the 31 respondents considered it to be from somewhat important to extremely important.

According to participants' responses to questionnaire item Q.16, unofficial positive stance towards the upgrade of existing services is at least three times higher than the official standpoint. As to their reaction to the question about library transformation conducive factors (Q.11), respondents acknowledged technological progress and the development of partnerships as the first and second main factors respectively. When asked to indicate their library's organizational planning culture (Q.14), respondents reported a moderate predominance of tactical planning over strategic planning processes, with only four cases

recognizing the co-existence of both. On the other hand, librarians (Figure 2) indicated the lack of trained human resources, the lack of profession-specific knowledge update and the lack of institutional support as top library transformation inhibitors.

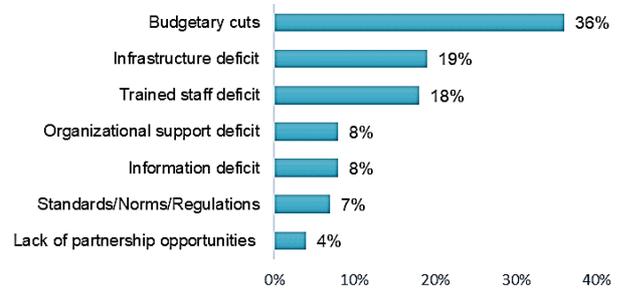


Figure 2. Library transformation hindering factors (Q.10)

Only 16% of the respondents recognized their organizations as fully evolved to have reached the fourth and final stage of full compliance with the LRRC model (Figure 3 - Q.8). As to the type of academic library innovation, 18 librarians reported a technological innovation profile between late adopter and laggard. On the contrary, organizational innovation adoption was leaning towards the innovator and early adopter type (Q.21).

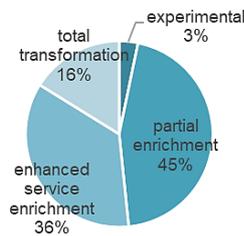


Figure 3. LRRC types distribution of participating libraries to the study (Q.8)

Finally, findings on participation frequency in continuing professional development activities (Q.15) reveal that seminars, conferences, and training attendance increases as the library advances to higher transformation levels.

Bayesian correlation pairs analyses between 'congress attendance frequency' and 'technological change implementation' (BF11.025) revealed a significant positive correlation. Conversely, 'organizational change' appears to have no significant correlation with 'conference attendance' or any other professional development interventions. Overall, no other noteworthy correlations were detected between other survey items.

Cronbach's alpha reliability value of 0.767 for questions Q.8, Q.13, Q.14, and Q.21 verified that these survey items were sufficiently intercorrelated. Nevertheless, researchers agreed on the necessity of modifying at a later stage dichotomous and matrix questions to Likert items, with the intention of increasing the number of variables in each subscale prior to disseminating the survey in a larger study. They were also convinced of the utility of co-developing

reliable rubrics for the questions in collaboration with the local library community to accelerate the instrument's future operationalization.

As to the library webpage search that followed the analysis of the survey findings with the intention to complement the research, it corroborated the research results on the degree of library transformation at the 25 participating institutions in about seventy-five percent (75%) of the self-reported cases. As to the rest of the participating libraries, three cases of the self-reported highly LRRC model-compliant ones were observed to project a moderate to low innovative institutional website profile, while an equal number of less LRRC model-oriented libraries were advertising a highly innovative agenda. The review of the library online documentation also revealed the scarcity of explicit reference to the LRRC model implementation and the lack of updates on library progress and future course of action (Figure 4).



Figure 4. Findings of the official university library online documentation's inspection

V. DISCUSSION

The Bologna Declaration⁵ marked the beginning of deep changes for the European university libraries, as they took a turn towards the adoption of new or enhanced services to respond to the new challenges. During that time (1994-2013) and in parallel with the initiatives of other European counterparts supporting their transformation process through a series of strategic plans inspired by the UK, USA, and Australian experiences, the Greek academic libraries had been capitalizing on both national and European Union funding [19]. These plans and investments supported numerous developments on an infrastructural, staff development, and interlibrary collaboration level, as reflected on their webpages, with the support and guidance of the National Documentation Center, and the Hellenic Academic Libraries Link. These substantial developments, however, run the risk of becoming compromised due to the budgetary cuts and expenditure decreases of the last decade.

The emergence of new librarian profiles, precipitated by socioeconomic and technological advances, has redefined

the position of the library at the higher education pedagogic debate table, inspiring at the same time a pluralistic vision and a culture of wider convergence within the institutions. While librarians around the globe are streamlining their transformation through key drivers such as trend-watching, competitive intelligence and technologic vigilance, the Greek academic librarians are struggling to make the best of their decimated available resources against a series of deficiencies.

Responses to the open-ended questions emphasized this situation. For instance, one respondent took the opportunity to comment inter alia on the: "Shortage in staff and financial debility [that] make library initiative ineffective; the same goes for planning, implementation and evaluation issues. How can one deal with variables in the absence of constants? ..." The comment of another respondent focused on the impact of the economic crisis emphasizing that due to the "library complex role, the state ought to reconsider staff allocation" and funding:

"Economic crisis [that] compromises all the work done in terms of new services and inter-university collaboration. The lack of the necessary trained personnel and shortage in staff will eventually degrade certain services in the future as it is difficult for existing workforce due to excessive workload to participate in seminars, training, and conferences, etc. and doesn't, therefore, stay current with latest advancements in the LIS field. [...] Library is not in the position to offer portable equipment and more generally speaking new information management devices neither can it provide digital content (e.g. e-books via KALLIPOS⁶ system) due to copyright and funding issues."

Overall, participants reported that major changes revolved around the implementation of radio frequency identification systems, institutional repository development, participation in collaborative integrated library catalog initiatives, modern authentication systems, digitization, self-archiving, and self-check station services. Regarding the average number of services offered, at least a hundred percent (100%) increase in the number of services between the library experimental and the total transformation levels was observed. Another noteworthy finding was that, as academic libraries progress towards the LRRC model total integration level, they are gradually slowing down progress related to infrastructure and gradually increasing their focus on user training. Overall, electronic journals, group study spaces, and information literacy courses were found to be the services with the highest statistical presence. On the other hand, involvement in massive online open courses (MOOCs), blogging and e-learning courses, creation of audiovisual/language labs, and evaluation of research

⁵ Bologna Declaration is a commitment freely taken by each of the 29 signatory countries to reform its own higher education system or systems in order to create overall convergence at European level. More information on https://www.eurashe.eu/library/bologna_1999_bologna-declaration-pdf/

⁶ The project Kallipos is the first comprehensive effort to introduce electronic, interactive multimedia textbooks in Greek higher education. More information is available online at <https://www.kallipos.gr/en/>

outcomes are roles that few libraries seem to have assumed very actively.

A positive aspect is that librarians are beginning to consider the recording of in-library use data, a development just as important as the introduction of tools, knowledge, and techniques from other disciplines in the academic library routines. This could be an indication of an attitudinal change and a growth mindset towards adopting a new type of organizational culture involving knowledge management and innovative capitalization of the institution's intellectual capital. In an era that necessitates a "common space to strengthen academic community and foster new developments in teaching and research within the institution" [20], convergence, multi-disciplinarity, and powerful user-centric infrastructure, Greek libraries still seem resistant to actively embark on a more dynamic participation in less traditional interventions such as e-learning and social media, and the challenging conversation focusing the transition from information to learning commons.

According to participants' responses to questionnaire item Q.16, unofficial positive stance towards the upgrade of existing services is at least three times higher the official standpoint. This could be partially attributed, to the fact that library administrators and higher ranked library staff are more aware of the full range of implications linked to the reconceptualization of services, products, and processes within the institutional settings from an organizational, financial, operational, and strategic alignment point of view. As a result, library directors are more skeptic about disruptive innovations as they are fully cognizant of the existing constraints that arise from the condition of the bureaucracy-embedded state university. These constraints are further complicated by contracts, faculty norms, and traditions from which the research library inherits many of its characteristics as part of a larger organization [21], with significant external controls and authority residing outside its walls, as well as their obligation to act within these institutional authorities articulated frameworks.

As to the question (Q.11) about library transformation conducive factors, respondents acknowledged technological progress and the development of partnerships as the first and second main factors respectively. When library administrators were asked to rate the importance of enriching library services with products and processes originating in other fields of science (Q.12), 26 out of the 31 respondents considered them to be from somewhat important to extremely important. These observations signpost a significant turn in what used to be considered a priority in the traditional library functions. They reflect the changing librarian mindset from the more traditional collection development to technology advances and partnerships' enhancement. The results also reveal a noteworthy low percentage associated with the impact of social demand on academic library transformation which possibly denotes a moderate disconnection not just

between the library and broader institutional strategic goals but also between the inner world of the academia and regional or national reforms [22].

When asked to indicate their library's organizational planning culture (Q.14), respondents reported a predominance of tactical planning over strategic planning processes, with only four cases recognizing the co-existence of both. These answers could explain why the organizational and technological innovations are faced with an institutional 'FAST' and 'FASTER' two-speed approach as the tactical planning makes the organization fast-track library IT changes, while the rest of the management structures and processes continue operating at the old pace. This situation eventually leads to an operational disconnection further leading to complexity, lack of coordination and quality issues, not to mention low organizational performance as explained in the organizational lag study by Damanpour and Evan in 1984 [23]. Overall, the responses reveal too much planning and not enough strategic thinking and action, which suggests that existing structures are built for a slower pace of change and the library program is not linked to institutional priorities.

In line with the previous observations, responses (Q.10) related to factors hindering the deep and pervasive library transformation from information to learning commons [18], spotlight a series of issues associated with communication and knowledge transfer, organizational support and employee development (Figure 2). More specifically, besides budgetary and infrastructural aspects, respondents indicated the lack of trained human resources, profession-specific knowledge update and institutional support to be among the major reasons for the slow-paced adaptation to the LRRC model. Their choices indicate the importance attributed to staying current with recent academic librarianship developments by attending CPD activities—seminars, conferences, training sessions, etc.—as one way to prevent what McLuhan very eloquently described as "trying to do today's job with yesterday's tools and yesterday's concepts" [24, p. 110].

Only a few librarians recognized their organizations as fully evolved to have reached the fourth LRRC stage (Figure 3 - Q.8), according to the American Council of Education typology [15]. As for the type of academic library innovation, most librarians reported a late adopter/laggard profile of technological innovation. On the contrary, the predominant organizational innovation adoption type was more on the innovator/early adopter side (Q.21). Several conflicting responses between staff members of the same organization in relation to their library's transformation and innovation pace reflect the rather diversified mix of academic and professional backgrounds, communication styles, and personal values of the library staff and may be also considered an indication of the ambiguity that surrounds the existing library typology. Furthermore, findings support the argument that there is not a single academic library LRRC model and that libraries, in their attempt to promptly

address local challenges, are not judging necessary the adoption of the LRRC title and its full range of services.

As for service innovation, 28 out of the 31 participants reported some type of service change underway. The fact that the technological change implementation rates outnumber the organizational ones may be attributed to the fact that organizational change is a more complicated and time-consuming process that involves the reconceptualization of both institutional policies and organizational culture. As for the predominance of evaluation and redesign cases where organizational change is concerned, authors believe this is an issue that could and should very well become the object of further research (Q.17).

The creation of learning environments to promote active learning, critical thinking, and knowledge creation is among top higher education challenges as illustrated in the Educause Teaching and Learning Challenges 2009 Project [3]. This endeavor, apart from the creative imagination to ask the right questions, the courage to pursue real and risky changes, discipline, and critical thinking [2], requires proactively setting up a continuing education project portfolio that would constitute librarians' first line of defense against obsolescence [25].

Survey results indicate that there is still room for Greek academic libraries' improvement in terms of their responsiveness to the learning organization principles that make librarian continuing professional development an integral part of its policies, structure, and culture. These principles are essential to foster employee engagement and double-loop learning through a series of initiatives that go beyond the monitorization of the environment to the questioning of the impact of learning and change on the organization [26-27]. Overall, it seems that the underlying culture within Greek academic libraries inhibits their ability to promptly address international trends, developments, and effectively manage innovation. As argued by Myburgh [28] and Weiner [29], such a situation can be further exacerbated by the strong mimetic forces that originating in official curricula, professional networks, and hiring processes create a sphere of common organizational structures and practices that minimize the influx of new knowledge and consequently reduce the academic library innovation rates.

The findings on participation frequency in continuing professional development activities (Q.15) reveal that seminars, conferences, and training attendance increases as the library advances to higher transformation levels. This increase, which may be attributed to the pressing need for ex-post in-depth familiarization with changing paradigms to successfully cope with newly introduced services, suggests that most CPD activities follow, rather than precede, changes. It also highlights a significant organizational

development gap which can and should be addressed appropriately from the early stages to minimize the risk of failing the stakeholders' expectations.

More specifically, our findings support the prevalence in Greek academic libraries of developing or applying tools without preparing the organizational culture beforehand as our research revealed that the frequency of CPD activities increases only as libraries progress to the next transformation stages. This situation is further aggravated by the absence of structures that support the systematic diffusion of developments that would eventually help librarians to maintain their skills-based timeliness and enhance their adaptability to change within a holistic reconceptualization framework. The importance and necessity of these skills have been repeatedly emphasized by LIS experts [30-31], [25]. As to interrelations between the variables of continuing professional development and organizational and technological change, our Bayesian correlation pairs analyses⁷ revealed a significant positive correlation between 'congress attendance frequency' and 'technological change implementation' (BF11.025). Conversely, 'organizational change' appears to have no significant correlation with 'conference attendance' or any other professional development interventions. Overall, no other noteworthy correlations were detected between other survey items.

While the survey did not ask for details on the 'other' professional development activities' questionnaire option, this aspect ought to be further investigated in future research. Nevertheless, if taking into consideration Online Computer Library Center's (OCLC) 'A snapshot of Priorities & Perspectives' Report [32], this dimension might very well include but not necessarily be limited to social media, internet, in-person discussions with colleagues at the workplace, listservs, and scholarly publications.

Library webpage search, conducted in parallel to the survey, corroborated the survey findings on the degree of transformation of Greek academic libraries in about seventy-five percent (75%) of the self-reported cases. An inconsistency, however, was detected in relation to investigated libraries' innovation profiles. More specifically, one-third of the self-reported highly LRRC model compliant libraries were observed to project a moderate to low innovative institutional website profile, while a similar percentage of the least LRRC model-oriented libraries were nevertheless showcasing a highly innovative agenda. This disagreement could be attributed to the self-reporting approach adopted for the study that relies on the participants' own experience, beliefs and attitudes. If taking a closer look to the individual lenses that may have affected to a certain degree the responses and subsequently the validity of conclusions that have been drawn, we could also suggest the necessity to further explore the library website

⁷ Analyses conducted using JASP Team. JASP (Version 0.9) Computer software. <<https://jasp-stats.org/>>

update policies and procedures, including the investigation of whether and how it involves library staff input at any stage. One should also take into consideration the fact that there exists no LRRC universal model and that the lack of standardization of the information commons' enhanced functions, as they are developed to basically respond to local needs, in combination to the respondents' own definitions of innovation and progress, may have skewed their responses and could become object of future research.

The online publication of academic library strategic documentation can be considered an integral part of the library's identity. According to Kuchi [33, p.153], communicating a clear message that library users can understand helps the organization to better handle changes in a turbulent environment, as well as to reduce confusion and "...ensure the stakeholders continued participation, trust, and confidence with the library's programs and activities". The review of the official library online documentation of the 25 survey participating institutions showed that, apart from the explicit reference to the parent institution's goals and a moderate library mission sophistication, when available, it barely makes explicit reference to LRRC implementation. Neither does it detail library progress achieved and its future course of action (Figure 4).

VI. CONCLUSIONS AND FUTURE LINES OF RESEARCH

Libraries under the EHEA requirements and thanks to the latest technological and pedagogical developments are seeing their role, impact, and visibility upgraded on their way to becoming a crucial university quality indicator. Although investigations have recently been focusing on how changes affect library operations, including space accommodations, service development, quality assurance models' implementation, partnerships and librarian competencies for the new educational scenarios [34-41], the researchers were not able to identify any specific study exploring the Greek academic library evolution towards the LRRC model.

Therefore, in the face of increased circulation against the decreased funding and subsequently staff shortage and resource reduction caused by one of the worst economic crises in the Greek history—according to the statistics of the Greek Quality Assurance Unit of Academic Libraries' (MODIPAV) between 2011 and 2015—the authors decided to embark on a study of the country's library transformation by directly surveying library administrators in order to generate an up-to-date snapshot of the Greek public academic libraries' ecosystem. The aim of this mixed-methods first exploratory study was twofold: (1) it envisioned adding current information to the local and international academic library community's knowledge base around Greek public university libraries' position on the evolution continuum, which has not to the day been thoroughly investigated; (2) it aimed to pilot a new survey instrument that, building on past international research, intends bringing to light academic librarians' perceptions

around library transformation, innovation culture, organizational planning, and development. At an overarching meta-level, this study has attempted to identify the factors that weigh upon the library transformation phenomenon as well as to investigate in the international literature the reasons impacting the development of the Greek LRRCs.

Though restricted budgets have considerably slowed down inter alia digitization projects and put a hold to digital academic journal library subscriptions, they do not seem, however, to have affected the librarians' willingness and determination to move the academic library forward. Their responses demonstrated a strong positive stance towards the adoption of multidisciplinary approaches in library operations, and the systematization of library use data collection processes. Nevertheless, regardless of how positive the library administration may seem toward changing paradigms, responses associated with library staff continuing professional development suggest a gap in the organizational development mechanism and are indicative of several issues related to strategic planning and the effects of disjoint incrementalism. These responses are expected to contribute to the discussion around: (1) the urgent need to re-conceptualize the new information professional training and development to adequately address tech-diffused scenarios and workflow changes, as according to Marcum and George [6] "the most critical part of technology is not the tool but the human skill that uses it to accomplish a task"; (2) the re-alignment of library operations to strategic planning; (3) the importance of updating institutional web pages so as to accurately reflect the identity, direction, and accomplishments of the library in a way to support sustainability, stability, and long-enduring benefits.

The analysis of the results also highlights the necessity to take actions to close the Greek academic library strategic knowledge gap and align strategy to knowledge [42], establish or enhance the critical processes essential to developing and mobilizing intangible resources on all potential dimensions. It finally suggests the enhancement of organizational development structures in a way to best support the transformation of the library into a double loop learning organization encouraging knowledge acquisition and diffusion among the members of the organization and closely affiliated stakeholders. Detected correlations and differences of opinion between library colleagues, namely administrative and executive staff, mirror the problematic nature of a system that lacks the frequency and intensity of interactions (collaboration, communication and coordination) between members of the organization necessary to foster a shared understanding of their definition of progress and development and is seen by the authors as one more opportunity to conduct further investigations. Finally, as the growing complexity and dynamics of the field call for an increased specialization and collaboration that should be better addressed with a holistic approach, it would be interesting to further investigate in a

future study the degree to which the target population considers innovation, CPD, and the change of organizational culture as critical components of the same broader ecosystem.

The merit of this study resides not so much in the number of responses collected but in the current information it would add to the local community's knowledge and understanding of the trends, shared challenges, and interrelations in the area of public academic library transformation, innovation, planning and staff professional development. However, readers should not extrapolate findings of the nonrandom sample to any population other than the individuals expressing their points of view as it could lead to drawing far-reaching conclusions on the context and its constituents. Despite the study limitations, as most of the participants were personally invited to share their opinion, this study is expected to make a valuable addition to the conversation about the reconceptualization of organizational development in Greece and other similar academic library contexts until conducting a larger study that would provide a greater diversity of viewpoints on the investigated topics.

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