

ADVANCES ON
INFORMATION
PROCESSING AND
MANAGEMENT

CONFERENCE ORGANIZERS INSTITUTES

The International Conference on Integrated Information is supported by the following Institutes:

Emerald Group Publishing Limited
Technological educational Institute of Athens, Greece
University of Peloponnese, Greece
National And Kapodistrian University of Athens, Greece
Mednet Hellas, The Greek Medical Network
2nd AMICUS Workshop

To learn more about I-DAS, including the Book Series, please visit the webpage
<http://www.i-das.org/>

INTEGRATED INFORMATION

International Conference on Integrated Information

Kos, Greece September, 29 – October, 3 2011

EDITORS

Georgios A. Giannakopoulos
Technological Educational Institute of Athens, Greece

Damianos P. Sakas
University of Peloponnese, Greece

All papers have been peer-reviewed



Piraeus, Greece, 2011

Editors

Georgios A. Giannakopoulos

Technological Educational Institute of Athens
Faculty of Management and Economics
Department of Library Science and Information Systems
Address: Aghiou Spyridonos Street, 12210, Egaleo
E-mail: gian@teiath.gr

Damianos P. Sakas

University of Peloponnese
Faculty of Science and Technology
Department of Computer Science and Technology
Address: End of Karaiskaki St., 22100, Tripolis, Greece
E-mail: D.Sakas@uop.gr

The copyrights will be owned by the authors under the Creative Commons Attribution-Non Commercial license (<http://creativecommons.org/licenses/by-nc/3.0/>), which permits unrestricted use, distribution, and reproduction in any non commercial medium, provided the original work is properly cited.

ISSN:

Printed in the Greece, EU

CONTENTS

PREFACE: Proceedings of the International Conference on Integrated Information (IC-INFO 2011)	1
Georgios A. Giannakopoulos, Damianos P. Sakas	
Conference Details	3
Keynote Speaker	5
SYMPOSIUM ON INFORMATION AND KNOWLEDGE MANAGEMENT	6
Prof. Christos Skourlas	
Towards the Preservation and Availability of Historical Books and Manuscripts: A Case Study	8
Eleni Galiotou	
An Extensive Experimental Study on the Cluster-based Reference set Reduction for Speeding-up the k-nn Classifier	12
Stefanos Ougiaroglou, Georgios Evangelidis and Dimitris A. Dervos	
Exploiting the Search Culture Modulated by the Documentation Retrieval Applications	16
Nikitas N. Karanikolas and Christos Skourlas	
Information and Knowledge Organization: The Case of the TEI of Athens	22
Anastasios Tsolakidis, Manolis Chalaris and Ioannis Chalaris	
Providing Access to Students with Disabilities and Learning Difficulties in Higher Education through a Secure Wireless framework	26
Catherine Marinagi and Christos Skourlas	
Improving Query Efficiency in High Dimensional Point Indexes	30
Evangelos Outsios and Georgios Evangelidis	
Text Segmentation Using Named Entity Recognition and co-Reference Resolution in Greek Texts	34
Pavlina Fragkou	
KINISIS, a Graphical XQuery Language	42
Euclid Keramopoulos, Achilleas Pliakas, Konstantinos Tsekos and Ignatios Deligiannis	
Dimensionality Curse, Concentration Phenomenon and the KDB-tree	46
Nikolaos Kouiroukidis and Georgios Evangelidi	

Applying Balanced Scorecard Strategic Management in Higher Education	50
Manolis Chalaris, Anastasios Tsolakidis and Ioannis Chalaris	
A Web Portal Model for NGOs' Knowledge Management	54
Zuhal Tanrikulu	
The Digital Archives System and Application Optimized for the Tradition Knowledge Archives	58
Jeon Hong. Chan, In Deok. Hwang, Jae Hak. Park, Hyeok. Sim, U won. Gwon and Soon Cheol. Park	
A Semi-automatic Emerging Technology Trend Classifier Using SCOPUS and PATSTAT	62
Seonho Kim, Woondong Yeo, Byong-Youl Coh, Waqas Rasheed, Jaewoo Kang	
Presenting a Framework for Knowledge Management within a Web Enabled Living Lab	66
Lizette de Jager and Albertus AK Buitendag and Potjie (JS) van der Walt	
4TH SYMPOSIUM ON BUSINESS AND MANAGEMENT AND DYNAMIC SIMULATION MODELS SUPPORTING MANAGEMENT STRATEGIES	71
Dr. Damianos Sakas	
New Political Communication Practices: No Budget Events Management. The New Challenge	73
Evangelia N. Markaki, Damianios P. Sakas and Theodore Chadjipantelis	
Free Software – Open Source Software. A Powerful Tool for Developing Creativity in the Hands of the Student	78
Nasiopoulos K. Dimitrios, Damianos P. Sakas, Konstantinos Masselos	
Open Source Web Applications. How it Spread Through the Internet and their Contribution to Education.	82
Nasiopoulos K. Dimitrios, Damianos P. Sakas, Konstantinos Masselos	
Culture in Modern Times in the Frame of Luhmann's System Theory	85
Anastasia J. Chournazidis	
Managing Scientific Journals: A Cultural Viewpoint	87
Marina C. Terzi, Damianos P. Sakas, and Ioannis Seimenis	
A Conceptual Framework for Analyzing Knowledge-based Entrepreneurship	92
Nikos S. Kanellos	

SESSION ON INFORMATION HISTORY: PERSPECTIVES, METHODS AND CURRENT TOPICS	96
Prof. Laszlo Karvalics	
Emerging Research Fields in Information History	98
Laszlo Z. Karvalics	
Information Management through Elementary Data Clusters: New Observations on Pridianum-Type Roman Statistical Documents	102
Gergő Gellérfi	
Information and Secrecy on the Silk Road. Methods of Encryption of Legal Documents in Inner Asia (3th-4th century)	106
Szabolcs Felföldi	
The Role of Information and Disinformation in the Establishment of the Mongolian Empire: A Re-examination of the 13th century Mongolian History from the Viewpoint of Information History	110
Márton Gergő Vér	
Early Warning Systems and the Hospitallers in the Eastern Mediterranean	114
Zsolt Hunyadi	
Information Management as Establishment Dutch Navigational Knowledge on Japan, 1608-1641	118
Gabor Szommer	
Files Everywhere - Register and Training of Men for Military and Civil Purpose in Prussia in the early 18th century	123
Marton Holczer	
SYMPOSIUM ON INTEGRATED INFORMATION: THEORY, POLICIES, TOOLS	126
Prof. Georgios Giannakopoulos	
Approaching Information as an Integrated Field: Educating Information Professionals	128
Georgios Giannakopoulos, Daphne Kyriaki Manesi and Stryidon Zervos	
Special Libraries as Knowledge Management Centers	132
Eva Semertzaki	
Digital Libraries' Developers and their Suitability: A Case Study	136
Maria Monopoli	

A Preliminary Study for the Creation of a Greek Citation index in the Humanities and the Social Sciences (GCI – H&SS)	140
Daphne Kyriaki-Manessi and Evi Sachini	
Archiving as an Information Science. Evidence from a Survey Carried out on a Sample of Greek Students	144
Georgios Giannakopoulos and Ioannis Koumantakis	
Transition Process of E-records Management and Archiving System in Universities: Ankara University	147
S. Özlem Bayram and Fahrettin Ozdemirci	
Government Information: Access and Greece's Efforts for Access	150
Aikaterini Yiannoukakou	
School Archives and their Potentials in Teaching: Aspects of Greek Reality	156
Sonia Geladaki and Panagiota Papadimitriou	
Research on School Libraries in Greece and Suggestions on its Further Development	160
Georgios D. Bikos	
Building Digital Collections for Archeological Sites: Metadata Requirements and CIDOC CRM Extension	164
Georgios S. Gkrous and Mara Nikolaidou	
Museological Claims to Autonomous Knowledge: Rethinking the Conceptual Mode of Display and its Claims to Knowledge	169
Assimina Kaniari and Georgios Giannakopoulos	
Use of Library Loan Records for Book Recommendation	172
Keita Tsuji, Erika Kuroo, Sho Sato, Ui Ikeuchi, Atsushi Ikeuchi, Fuyuki Yoshikane and Hiroshi Itsumura	
Developing a National Database on Librarianship and Information Science. The Case of E-VIVA, the Hellenic Fulltext Database	176
Filippos Ch. Tsimpoglou, Vasiliki V. Koukounidou and Eleni K. Sakka	
Integrated Access to Cultural Heritage Information Pieces in Iran Astan-Quds Razavi's Organization of Libraries, Museums and Documents Center: A Theory of Unionization Disparate Information Assets over Imam Reza's Zarih	181
Ms. Mitra Zarei and Ms. Maliheh Farrokhnia	
Attitudes of University Librarians and Information Scientists towards the Draft Code of	185

Library Ethics to Present a Model for Final Library Ethical Codes	
Mahsoomeh Latifi, Fatemeh Zandian and Hasan Siamian	
SESSION ON OPEN ACCESS REPOSITORIES: SELF-ARCHIVING, METADATA, CONTENT POLICIES, USAGE	188
Dr. Alexandros Koulouris	
Geographical Collections in Greek Academic Libraries: Current Situation and Perspectives	189
Ifigenia Vardakosta and Sarantos Kapidakis	
Information Seeking Behavior: Factors that Affect the Behavior of Greek Astronomers	194
Hara Brindesi and Sarantos Kapidakis	
Aggregating Metadata for Europeana: The Greek Paradigm	198
Alexandros Koulouris, Vangelis Banos and Emmanouel Garoufallou	
Integrating a Repository with Research Output and Publications: The Case of the National Technical University of Athens	202
Dionysis Kokkinos	
Implementation of Workflows as Finite State Machines in a National Doctoral Dissertations Archive	205
Nikos Houssos, Dimitris Zavaliadis, Kostas Stamatis and Panagiotis Stathopoulos	
Practices of “Local” Repositories of Legally Protected Immovable Monuments. A Global Scheme for ‘Designation – Significance’ Information	209
Michail Agathos and Sarantos Kapidakis	
Integration of Metadata in BWMETA-2.0.0 Format	213
Katarzyna Zamlynska, Jakub Jurkiewicz and Lukasz Bolikowski	
SESSION ON EVIDENCE-BASED INFORMATION IN CLINICAL PRACTICE	216
Dr. Evangelia Lappa	
Applicability of Data Mining Algorithms on Clinical Datasets	218
Wilfred, Bonney	
Changing Roles of Health Librarians with Open Access Repositories	221
Christine Urquhar and Assimina Vlachaki	
From Medical Records to Health Knowledge Management Systems: The Coding to Health Sector	225
Evangelia C. Lappa and Georgios A. Giannakopoulos	

The Survey of Skill, Attitude and Use of Computer and Internet among Faculty Members	229
Hasan Siamian, Azita Bala Ghafari, Kobra Aligolbandi, Mohammad Vahedi and Gholam Ali Golafshani Jooybari	
Trends in Scholarly Communication among Biomedical Scientists in Greece	232
Assimina Vlachaki and Christine Urquhart	
SESSION ON ELECTRONIC PUBLISHING: A DEVELOPING LANDSCAPE	236
Dr. Dimitris Kouis	
E-Journal and Open Access Journal Publishing in the Humanities: Preliminary Results from a Survey among Byzantine Studies Scholars	238
Victoria Tsoukala and Evi Sachini	
Preliminary Results on a Printed VS Electronic Text Books Assessment Through Questionnaire	242
Dimitrios A. Kouis and Kanella Pouli	
An Interpretation of Aristotelian Logic According to George Boole	246
Markos N. Dendrinis	
SESSION ON INFORMATION CONTENT PRESERVATION AS OUTCOME OF CONSERVATION OF CULTURAL HERITAGE: ETHICS, METHODOLOGY AND TOOLS	251
Prof. George Panagiaris and Dr. Spiros Zervos	
Intrinsic Data Obfuscation as the Result of Book and Paper Conservation Interventions	254
Spiros Zervos, Alexandros Koulouris and Georgios Giannakopoulos	
Mass Deacidification: Preserving More than Written Information	258
Michael Ramin, Evelyn Eisenhauer and Markus Reist	
Information Literacy of Library Users: A Case Study of Mazandaran Public Library Users, Iran	260
Hussein Mahdizadeh and Hasan Siamian	
The Narratives of Paper in The Archives of the New Independent Greek State (Mid 19th c.)	264
Ourania Kanakari and Maria Giannikou	
From Macro to Micro and from Micro to Nano: The Evolution of the Information Content Preservation of Biological Wet Specimen Collections	268
Nikolaos Maniatis and Georgios Panagiaris	

Digital images: A valuable scholar's tool or misleading material?	272
Patricia Engel	
Attitudes of University Librarians and Information Scientists Towards the Draft Code of Library Ethics to Present a Model for Final Library Ethical Codes	277
Mahsoomeh Latifi, Fatemeh Zandianand and Hasan Siamian	
Investigation of the Degradation Mechanisms of Organic Materials: From Accelerated Ageing to Chemometric Studies	280
Ekaterini Malea, Effie Papageorgiou and Georgios Panagiaris	
SESSION ON DIVERGENCE AND CONVERGENCE: INFORMATION WORK IN DIGITAL CULTURAL MEMORY INSTITUTIONS	285
Dr. Susan Myburgh	
Extending Convergence and Divergence in Cultural Memory Institutions: The Old Slave Lodge in the New South Africa	287
Archie L Dick	
The Transfer of Knowledge from Large Organizations to Small: Experiences from a Research Project on Digitization in Wales	289
Clare Wood-Fisher, Richard Gough, Sarah Higgins, Menna Morgan, Amy Staniforth and Lucy Tedd	
The Usage of Reference Management Software (Rms) in an Academic Environment : A Survey at Tallinn University	293
Enrico Francese	
Varialog : How to Locate Words in a French Renaissance Virtual Library	297
Marie-Hélène Lay	
The Urge to Merge: A Theoretical Approach	301
Susan Myburgh	
SYMPOSIUM ON ADVANCES INFORMATION FOR STRATEGIC MANAGEMENT	304
Professor Nikolaos Konstantopoulos	
Empowerment in the Tax Office of Greece	306
Antonios E. Giokas and Nikolaos P. Antonakas	
Building Absorptive Capacity Through Internal Corporate Venturing	310
Ioannis M. Sotiriou and Alexandros I. Alexandrakis	

The Monitoring Information System (M.I.S.) - An information and Management System for Projects Co-financed Under the National Strategic Reference Framework (NSRF) and the Community support framework (CSF)	314
Catherina G. Siampou, Eleni G. Fassou and Athanassios P. Panagiotopoulos	
Corruption in Tax Administration: The Entrepreneurs View Point	318
Nikolaos P. Antonakas, Antonios E. Giokas and Nikolaos Konstantopoulos	
Conflicts between the IT Manager and the Software House after the Strategic Choice of Outsourcing of the Information Processes in Maritime Companies.	322
Anthi Z. Vaxevanou, Nikolaos Konstantopoulos, Damianos P. Sakas	
Contemporary Forms of Ordering Between the Supply Department and Ship Chandler Companies in the Shipping Industry	325
Anthi Z. Vaxevanou, Nikolaos Konstantopoulos, Damianos P. Sakas	
Strategies Implemented and Sources Used for the Acquisition of Information on Foreign Markets	329
Myropi Garri, Nikolaos Konstantopoulos and Michail G. Bekiaris	
The Effect of High Performance Working Systems on Informative Technology in Enterprises after Organisation Changes such as Mergers & Acquisitions	333
Nikolaos Konstantopoulos and Yiannis Triantafyllopoulos	
Personnel's Absorptive Capacity as a Guiding Concept for Effective Performance in Informative Technology	337
Nikolaos Konstantopoulos and Yiannis Triantafyllopoulos	
SESSION ON CONTEMPORARY ISSUES IN MANAGEMENT: ORGANISATIONAL BEHAVIOUR, INFORMATION TECHNOLOG, EDUCATION & HOSPITAL LEADERSHIP	341
Dr. Panagiotis Trivellas	
Investigating the Importance of Sustainable Development for Hotel SMES	343
Panagiotis Reklitis and Anestis Fotiadis	
Strategic Alignment of ERP, CRM and E-business: A Value Creation	347
Catherine C. Marinagi and Christos K. Akrivos	
The Impact of Occupational Stress on Performance in Health Care	351
Panagiotis Trivellas Panagiotis Reklitis and Charalambos Platis	

The Impact of Emotional Intelligence on Job Outcomes and Turnover Intention in Health Care	356
Panagiotis Trivellas Vassilis Gerogiannis and Sofia Svarna	
SYMPOSIUM ON BUSINESS MANAGEMENT AND COMMUNICATION STRATEGIES SUPPORTING DECISION MAKING PROCESS IN TOURISM SECTOR	360
Dr. Panagiota Dionysopoulou	
The Human Factor as a Mediator to the Total Quality in the Tourism Companies. The impact of Employees' Motivation to Quality Improvements	362
Christos K. Akrivos and Panagiotis Reklitis	
Tourist Destination Marketing and Management Using Advanced ICTS Technologies	365
Anastasia Argyropoulou, Panagiota Dionyssopoulou, Georgios Miaoulis	
G.N.T.O. (Greek National Tourism Organization) Communication Strategy in Advertising Campaigns 1991-2006	370
George Stafylakis and Panagiota Dionyssopoulou	
GENERAL PAPERS	375
The role of Environmental Education within the Framework of the Environmental Policy of a Regional Municipality	376
Vassiliki Delitheou and Dimitra Thanasia	
Issues of Social Cohesion: A case study from the Greek Urban Scenery	380
Evgenia Tousi	
Merging Activity and Employee Performance: The Greek Banking System	384
Panagiotis Liargovas and Spyridon Repousis	
Sustainable Development and Corporate Social Responsibility in Higher Education: Some Evidence from Greece	387
Anastasios Sepetis and Fotios Rizos	
Exploring the Effects of Organizational Culture on Collaborative vs. Competitive Knowledge Sharing Behaviors	395
Hanan Abdulla Mohammed Al Mehairi and Norhayati Zakaria	

Preface: Proceedings of the International Conference on Integrated Information (IC-ININFO 2011)

GEORGIOS A. GIANNAKOPOULOS

Department of Library Science and Information Systems, Technological Educational Institute of Athens, Aghiou Spyridonos, Egaleo, 12210, Greece

DAMIANOS P. SAKAS

Department of Computer and Technology Science, University of Peloponnese, Praxitelous 89-91, Piraeus, 18532, Greece

Aims and Scope of the Conference

The International Conference on Integrated Information 2011 took place in Kos Island, Greece, between September, 29 and October, 3, 2011. IC-ININFO is an international interdisciplinary conference covering research and development in the field of information management and integration.

The conference aims at creating a forum for further discussion for an Integrated Information Field incorporating a series of issues and/or related organizations that manage information in their everyday operations. Therefore, the call for papers is addressed to scholars and/ or professionals of the fields of Library and Archives Science (including digital libraries and electronic archives), Museum and Gallery Studies, Information Science, Documentation, Information Management, Records Management, Knowledge Management, Data management and Copyright experts the latter with an emphasis on Electronic Publications. Furthermore, papers focusing on issues of Cultural Heritage Management and Conservation Management are also be welcomed along with papers regarding the Management of Nonprofit Organizations such as libraries, archives and museums.

One of the primary objectives of the IC-ININFO will be the investigation of information-based managerial change in organizations. Driven by the fast-paced advances in the Information field, this change is characterized in terms of its impact on organizations that manage information in their everyday operations.

Grouping emerging technologies in the Information field together in a close examination of practices, problems and trends, IC-ININFO and its emphases on integration and management will present the state of the art in the field. Addressed jointly to the academic and practitioner, it will provide a forum for a number of perspectives based on either theoretical analyses or empirical case studies that will foster dialogue and exchange of ideas.

Topics of general Interest

Library Science, Archives Science, Museum and Gallery Studies, Information Science, Documentation, Digital Libraries, Electronic Archives, Information Management, Records / Document Management, Knowledge Management, Data Management, Copyright, Electronic Publications, Cultural Heritage Management, Conservation Management, Management of Nonprofit Organizations, History of Information, History of Collections, Health Information

Symposia

The Conference offered a number of sessions under its patronage, providing a concise overview of the most current issues and hands-on experience in information-related fields.

- Symposium on Integrated information: Theory, Policies, Tools
- 4th Symposium on Business and Management and Dynamic Simulation Models supporting management strategies

- Session on Open Access Repositories: Self-archiving, Metadata, Content policies, Usage
- Session on Evidence-Based Information in Clinical Practice
- Session on Business Management and Communication Strategies supporting Decision Making Process in Tourism Sector
- Session on Electronic Publishing: A Developing Landscape
- Session on Information and Knowledge Management
- Session on Information Content Preservation as Outcome of Conservation of Cultural Heritage: Ethics, Methodology and Tools
- Session on Advances Information for Strategic Management
- Session on Information History: Perspectives, Methods and Current Topics
- Session on Divergence and Convergence: Information Work in Digital Cultural Memory Institutions
- Session on Contemporary issues in Management: Organisational Behaviour, Information Technology, Education & Hospital leadership.

The wide range of aspects that the sessions covered, highlighted future trends in the Information Science.

Paper Peer Review

More than 300 papers had been submitted for consideration in IC-ININFO 2011. From them, 91 were selected for presentation, after peer review in a double blind review process. The accepted papers were presented at IC-ININFO 2011.

Thanks

We would like to thank all members that participated in any way in the IC-ININFO 2011 Conference and especially:

- The famous publishing house Emerald for its communication sponsorship.
- The co-organizing Universities and Institutes for their support and development of a high-quality Conference scientific level and profile.
- The members of the Scientific Committee that honored the Conference with their presence and provided a significant contribution to the review of papers as well as for their indications for the improvement of the Conference.
- All members of the Organizing Committee for their help, support and spirit participation before, during and after the Conference.
- The Session Organizers for their willing to organize sessions of high importance and for their editorial work, contributing in the development of valued services to the Conference.
- PhDC Marina Terzi for her excellent editorial work, contributing in the production of the Conference proceedings.

CONFERENCE DETAILS

Chairs

Georgios A. Giannakopoulos, Technological Educational Institute of Athens, Greece
Damianos P. Sakas, University of Peloponnese, Greece

Co-Chairs

Daphne Kyriaki – Manesi, Technological Educational Institute of Athens, Greece
Dimitrios Vlachos, University of Peloponnese, Greece

Scientific Committee

Amanda Spink, Queensland University of Technology
Andreas Bagias, European Court
Andreas Rauber, Vienna University of Technology
Astrid van Wesenbeeck, SPARC Europe
Christine Urquhart, Aberystwyth University
Christos Schizas, University of Cyprus
Christos Skourlas, Technological Educational Institute of Athens
Claire Farago, University of Colorado at Boulder
Claus-Peter Klas, FernUniversität in Hagen
Costas Vassilakis, University of Peloponnese,
Dimitris Dervos, Technological Educational Institute of Thessaloniki
Eelco Ferwerda, OAPEN
Elena Garcia Barriocanal, University of Alcalá
Emmanuel Garoufallou, Technological Educational Institute of Thessaloniki
Filippos Tsimpoglou, University of Cyprus
Fillia Makedon, University of Texas at Arlington
George Korres, University of Newcastle
Georgios Evangelidis, University of Macedonia
Georgios Panagiaris, Technological Educational Institute of Athens
Johan Oomen, Netherlands Institute for Sound and Vision
José Aldana, University of Malaga
Konstantinos Masselos, University of Peloponnese
Luciana Duranti, The University of British Columbia
Markos N. Dendrinis, Technological Institute of Athens
Milena Dobрева, University of Strathclyde
Prodromos Tsiavos, London School of Economics and Political Science
Sándor Darányi, University of Borås
Sarantos Kapidakis, Ionian University
Sirje Virkus, Tallinn University
Spiros Zervos, Technological Educational Institute of Athens
Susan Myburgh, University of South Australia
Theodoros Pitsios, University of Athens, Faculty of Medicine

Organizing Committee

Alexandros Koulouris (Chair), Technological Educational Institute of Athens
Christos Christopoulos, SCEV Scientific Events Ltd
Marina Terzi, University of the Aegean, Greece
Evangelia Markaki, Aristotle University of Thessaloniki

Assimina Kaniari, Athens School of Fine Arts
Evangelia Lappa, General Hospital Attikis K.A.T.
Dimitris Kouis, Greek Ministry of Education, Lifelong Learning and Religious Affairs
Dionysis Kokkinos, National Technical University of Athens

KEYNOTE SPEAKER



Professor Amanda Spink

Professor Amanda Spink has published over 340 scholarly journal articles, refereed conference papers and book chapters, and 6 books. Many of her journal articles are published in the Journal of the American Society for Information Science and Technology, Information Processing and Management, and the Journal of Documentation. She is Editor of the Emerald journal Aslib Proceedings. Amanda's research has been published at many conferences including ASIST, IEEE ITCC, CAIS, Internet Computing, ACM SIGIR, and ISIC Conferences. Her recent books include Information Behavior: An Evolutionary Instinct and Web Search: Multidisciplinary Perspectives, both published by Springer. Amanda's research focuses on theoretical and empirical studies of information behavior, including the evolutionary and developmental foundations. The National Science Foundation, the American Library Association, Andrew R. Mellon Foundation, Amazon.com, Vivisimo. Com, Infospace.com, NEC, IBM, Excite.com, AlltheWeb.com, AltaVista.com, FAST, and Lockheed Martin have sponsored her research. In 2008 Professor Spink had the second highest H-index citation score in her field from 1998 to 2008 [Norris, M. (2008)]. Ranking Fellow Scholars and their H-Index: Preliminary Survey Results. Loughborough University, Dept of Information Science Report].

Strategies Implemented and Sources Used for the Acquisition of Information on Foreign Markets

Myropi Garri[†], Nikolaos Konstantopoulos[‡] and Michail G. Bekiaris^{†‡}

[†] University of the Aegean. Department of Business Administration, 82100, Chios, Greece.
m.garri(at)aegean.gr

[‡] University of the Aegean. Department of Business Administration, 82100, Chios, Greece.
nkonsta(at)aegean.gr

^{†‡} University of the Aegean. Department of Business Administration, 82100, Chios, Greece.
m.bekiaris(at)aegean.gr

Abstract: *This paper observes on the sources of information used or not used by Greek internationalized manufacturing companies, in order to trace foreign market opportunities and insights into functions of foreign marketplaces, and the subsequent relevant strategies followed by these companies, as well as the special features that characterize and discern them.*

Factor analysis recognises two groups of information sources regarding foreign markets, named “institutional sources” and “inter-organizational and market co-operations’ sources”.

Cluster analysis classifies companies into two groups, the “aggressive information acquisition strategy adopting” and the “passive information acquisition strategy adopting”.

Discriminant analysis and logistic regression revealed in most cases weak discriminating effects, with some interesting exceptions, that mainly have to do with internationalization intensity and the existence and implementation of outward looking strategies and commitment to the internationalization vision.

Keywords: *Foreign market information, Strategy*

I. INTRODUCTION

Many studies on the relationship existing between organizational characteristics, business strategy and information management often ignore the initial step of the procedure, the data acquisition. Hence, before the information processing, managers must search for and obtain the required data, a step that is considered to be the most important in the information management chain.

The importance of assigning export information needs to the firm’s internationalization success is frequently emphasized in the relevant literature (Leonidou and Adams-Florou, 1999; Liesch and Knight, 1999). Moorman (1995) further underlines that information acquisition will guide to enhanced internationalization performance as it facilitates decision makers to better recognize marketing opportunities/threats for the improvement of their positioning in the international marketplace. Moorman (1995, p. 320) defined, information acquisition as “the processes involved in bringing information about the external environment

into the boundary of the organization” (qtd in Yeoh, 2003).

Although the vital role of information acquisition that leads to the creation of organizational advantage has been recognized in the strategic management ground, there is limited research investigating the effect of firm specific foreign knowledge on its export performance (Morgan & Katsikeas, 1998). The little quantity of studies that did examine the performance effect of foreign information acquisition, however, reported important positive effect of such knowledge acquisition on export satisfaction (Wang & Olsen, 2002), new export product advantage, and market performance in host countries (Li & Cavusgil, 2000).

On the other hand, the restricted availability of information on locating overseas markets and conducting business abroad has frequently been quoted in the internationalization literature as a serious barrier to create sound internationalization business strategies (Leonidou, 1997). Following this spirit, a relatively recent survey among European businesses showed that 80% of the participants regard information acquisition as a strategic asset. At the same time, 78% of them think that their organizations are missing out on business opportunities by failing to utilize their knowledge base successfully (KPMG, 2003) (Raub & Von Wittich, 2004).

Common sense states that export market knowledge and export sales intensity are combined. But, how can a firm build up its foreign market knowledge? Does the social capital play a crucial role?

Information, and its acquisition and exploitation, has been recognised by organizational researchers as the key resource to create sustainable competitive advantages (Nahapiet & Ghoshal, 1998; Tsai & Ghoshal, 1998; Yli-Renko, Autio, & Sapienza, 2001) (qtd in Larsson, Bengtsson, Henriksson, & Sparks, 1998). Mostly companies learn in two ways: through their own experiences or through the experiences of other organizations. Learning from own experiences includes experimenting and interpreting earlier outcomes. Learning from others means the transfer of information and knowledge embedded in products or processes or the transfer of knowledge in a more pure form (Hakansson *et al.*, 1999).

Insufficient export information has often been regarded as resulting in greater psychological distance from overseas markets, inadequate design and implementation of foreign business plans, and limitations in taking optimal export management decisions (Leonidou, 1997). To this end, the goal of this study is to recognise the sources of information acquisition used or not used by Greek manufacturing companies in order to support their internationalization activity. In addition, we endeavour to identify the strategies followed by these companies, referring to the export markets' information acquirement. Finally, we attempt to find out the existence or absence of characteristics diversifying companies, according to the information acquisition strategy the use or not use, so as to expand their business activity to foreign markets.

II. METHODS

The survey instrument used for this study was developed through a comprehensive review of the internationalization literature and 10 personal interviews obtained from export directors, employed by 10 Greek manufacturing companies, representing various business sectors.

It takes the form of a structured questionnaire. The questionnaire survey lasted from May to November 2010.

For our research we used data collected from internationalized companies from all over Greece. A multi-industry sampling design was used, to broaden the generalize ability of the findings. Sample sectors include food products, mineral and ores products, chemical and allied products, rubber and plastic products, machinery, electrical, textile and mill products, medicines etc. These industry sectors represent a major volume of the Greek export activity. We excluded all companies belonging to the services sector.

We used a mail survey methodology for data collection, along with personal visits to the targeted firms. The key informant in our study is the "export sales manager/ director".

We received 157 usable responses. An effective response rate of 20.93% was attained.

Many issues were addressed in the questionnaire, but the responses used in the present study resulted from questions that asked the respondents to indicate the sources of information they use or don't use in order to support their internationalized activity.

The factor and cluster analysis technique is used, as well as discriminant analysis, correlations and regression. For the factor analysis of the questionnaire data, principal components method was performed.

III. RESULTS

A. Factors under examination

According to the above and in order to explore the sources of information used by Greek internationalized manufacturing companies in order to support their business activity across borders, we examine the

following variables we obtained through the comprehensive review of the internationalization's information literature and the 10 personal interviews.

Embassies - Commercial Attaches, which function/ are located to foreign markets and offer information about the market that they are located in.

Commercial/ Industrial Enterprises of the Host Country, that may offer significant information to other companies interested to operate in the market, about the function of the market, the competition, potential co-operators, etc.

Institutional Organizations of the Host Country. In most cases we refer to public organizations. Their institutional role includes the diffusion of information about the local (host) market.

Consultants - Research Associates. Private companies or individuals, occupied with the offering of advice and information about business issues, including the foreign business activity.

The Hellenic Foreign Trade Board (HEPO). Public Organization founded in order to support exporters/ internationalized companies.

Company's Executives Seeking Information in Foreign Markets. Business executives specialized in information obtainment, regarding business opportunities in foreign markets. They visit the "candidates" for internationalization foreign markets.

Trade Shows, in Greece or abroad, where companies participate and find information and potential co-operators for their foreign activity.

Company's Representatives Abroad. A person that represents the company to a foreign market and, among others, sends information about the function of the market back to the company.

A Greek company operating in the host country. A Greek company -cooperator already functioning in a foreign market, offers information about this market to other companies in Greece.

An executive of a Greek company operating in the host country. Someone in the company may be familiar with an executive (potential source of information for the company) of a Greek company located or functioning in a foreign market.

B. Factor Analysis

As measured in communalities table, provided by SPSS, we observe no low-valued communalities corresponding to any factor. Consequently, all variables are related more or less with some factor. Eigenvalues, varimax rotation and the scree plot verified the creation of two groups of factors. Overall, both factors "explain" the 60.124% of the variance, which is satisfactory percentage, since it exceeds 50%.

The first factor includes 5 variables correlated to each other: Embassies- Commercial Attaches, Commercial/ Industrial Enterprises of the Host Country, Institutional Factors of the Host Country, Consultants - Research Associates and the Hellenic Foreign Trade

Board (HEPO). We name that factor “institutional information sources”.

The second group of correlated variables created, includes the following 5 variables: Company’s Executives Seeking Information in Foreign Markets, Trade Shows, Company’s Representatives Abroad, Greek company operating in the host country and an executive of a Greek company operating in the host country. We name this factor “inter-organizational and market co-operations information sources”.

The reliability coefficient Cronbach alpha regarding the “institutional information sources” group of factors is 0,788. It’s value is considered to be very high (>0,7). Hence the reliability of the scale is quite high. In the fifth column of the Item-Total Statistics table, given by SPSS, we note that all 5 factors should be included, as the Cronbach's Alpha if Item Deleted value for each variable is lower than the value of the group’s Cronbach Alpha.

The reliability coefficient Cronbach alpha for the “interorganizational and market co-operations information sources” group of factors is 0,580, not pretty high (<0,7). In the fifth column of the Item-Total Statistics table, given by SPSS, we note that all 5 factors should be included, as the Cronbach's Alpha if Item Deleted value for each variable is lower than the value of the group’s Cronbach Alpha.

C. Cluster Analysis

To identify the groups where the companies of the sample can be classified, according to the sources of information they used in order to identify opportunities to expand their business operations abroad, we use cluster analysis. Two groups of companies were created.

Of the 156 valid observations, 74 have joined the first group of companies and 82 the second.

The “Compare Means” table produced by SPSS, for the “Institutional Information Sources” factor, provides information about the mean of each variable belonging to this group of variables per cluster. Combining this information we can determine the status of the two clusters.

As shown, companies belonging to the first cluster of companies (tot.74, 47,44%) have higher observations’ means for every variable, compared to the total mean. Similarly, firms belonging to the second cluster (tot.82, 52,56%) show lower observations’ means for every variable, compared to the total mean. The first cluster’s means range at almost the same value for all variables (max:3,58 – min: 2,39), while the second cluster’s means range from 2,10-1,35.

We may assume that the first cluster of companies has obtained information for their internationalization activity mainly from “institutional information sources”, while the second cluster of companies has not.

The “Compare Means” table produced by the SPSS, for the “Inter-organizational and Market Co-Operations Information Sources” factor provides information about the mean of each variable belonging to this group of

variables per cluster. Combining this information we can determine the status of the two clusters.

As shown, companies belonging to the first cluster of companies (total 70, 44,30%) have higher observations’ means for every variable, compared to the total mean. Similarly, firms belonging to the second cluster (total 82, 55,70%) show lower observations’ means for every variable, compared to the total mean. The first cluster’s means range at almost the same value for all variables (max:3,99 – min: 3,23), while the second cluster’s means range from 3,15-1,61.

Resuming, we observe that there is a group of companies that obtain information in order to their internationalization activity from “institutional information sources”, and an other group that does not and also there is a group of companies that acquire information so as to support their internationalization activity from “Inter-organizational Factors and Market co-operations”, while another group of companies does not. That means that there is a group of companies that follows an aggressive information acquisition strategy, because they do not rely on government or institutional information sources in order to gain knowledge on opportunities and the way of function of foreign markets. On the contrary, the commit resources, human and financial, they form network relationships and co-operations abroad, they use their own experiences and their co-operators experiences in order to learn. Of course, that doesn’t mean that they don’t use institutional sources of information at the same time, but their own data and information mining activities consist the main informational source.

On the other hand, there is a group of companies that rely on institutional sources to acquire information on foreign markets. This fact shows the following of a passive strategy on data and information acquirement. They just receive information collected by others, they are not getting involved in the information production, and they do not form their own perception on the market.

We may assume that the first group of companies has developed an outward looking development strategy and are dedicated to the idea of internationalization, while the second group of companies consists of hesitant internationalizers.

D. Discriminant Analysis & Logistic Regression

Our next step is to investigate on the special characteristics that diversify companies belonging to different clusters in order to verify or reject the above assumption. We use discriminant analysis to predict the cluster that each company will be classified, according to the specific characteristics it holds and then logistic regression in order to specify the important variables among the ones that the discriminant gave to us and to determine their effect (positive or negative).

We conduct discriminant analysis using the two clusters of groups of companies that occurred by cluster analysis per factor and a wide range of characteristics

related to the company structure and the management strategies applied or not applied by the companies of the sample. Then logistic regression follows.

For the first factor named “institutional information sources”, we observed that our sample splits into two clusters of companies, one using the “institutional information sources” in order to obtain information so as to support its internationalization activity and one not. The characteristics diversifying the companies using and the companies not using these sources of information, are, according to the discriminant analysis and logistic regression we conducted, the number of employees occupied in the special department of study/support of internationalization activities of the company (negative relationship), the existence of a written internationalization plan (positive relationship) and the existence of a branch in the foreign market (negative relationship). This means that the more employees occupied in this special department of the company, the weaker the probability that the company obtains information for its internationalization activity from “institutional factors”. The same thing is valid for the existence of a company’s branch in the foreign market. On the contrary, when a written internationalization plan has been formed, there is higher possibility that “institutional factors” have supplied information to the company.

As far as the second factor named “inter-organizational and market co-operations information sources” is concerned, the sample also splits into two clusters of companies, the one using this kind of information source and the other not using it. The characteristics diversifying the two clusters of companies were the existence of a production unit in Crete (positive relationship) and the existence of a co-operator in the foreign market that the company has directly or indirectly paid in order to promote its products (positive relationship).

The above results verify in general the assumption that companies that have an outward looking development strategy (it’s proved by the creation of a special department to support their internationalization activities, with many employees), that are internationally oriented (have a foreign branch), they follow a aggressive foreign involvement strategy (they pay a co-operator and they form networks (easier for a company located borders to find another local company functioning abroad to co-operate), follow aggressive information obtainment strategies as well, committing resources towards this strategic goal. In addition, the existence of an internationalization plan, may lead to the recording and the utilization of all kinds of information sources available, including those deriving from state or institutional sources.

IV. CONCLUSION

This paper presents the results of an empirical research among 158 Greek internationalized manufacturing companies, investigating on the information sources

used or not used by these companies so as to identify foreign market opportunities and to support the expansion of their business activity abroad.

The results showed that there is a wide range of information sources, factionalized as “institutional information sources” and “inter-organizational and market co-operation information sources”, used by the companies of the sample, according to the information obtainment strategy they follow, an aggressive or a passive one.

The analysis of the information strategy development in relation to certain organizational characteristics and other business strategies they apply, revealed in most cases weak discriminating effects, with the some interesting exceptions, that mainly are related with internationalization intensity and the existence and implementation of outward looking strategies and commitment to the internationalization vision.

REFERENCES

- [Casillas, J., C., Acedo, F., J. & Barbero, J. L. “Learning, un-learning and internationalisation: Evidence from the pre-export phase”. *International Journal of Information Management*, **30**: 162–173 \(2010\).](#)
- [Hakansson, H., Havila, V. & Pedersen, A.-C. “Learning in Networks”. *Industrial Marketing Management*, **28**: 443–452 \(1999\).](#)
- [Leonidou, L. “Finding the Right Information Mix for the Export Manager”. *Long Range Planning*, **30** \(4\): 572 – 584 \(1997\).](#)
- [Li, P.P. “Toward a learning-based view of internationalization: The accelerated trajectories of crossborder learning for latecomers”, *Journal of International Management*, **16** \(1\), 43-59 \(2010\).](#)
- [Ling-ye, L. “An examination of the foreign market knowledge of exporting firms based in the People’s Republic of China: Its determinants and effect on export intensity”. *Industrial Marketing Management*, **33**:561– 572 \(2004\).](#)
- [Marra, M. “Knowledge partnerships for development: what challenges for evaluation? Evaluation and Program Planning”, **27**:151–160 \(2004\)](#)
- [Moller, K. & Svahn S. “Crossing East-West boundaries: Knowledge sharing in intercultural business networks”. *Industrial Marketing Management*, **33** \(3\): 219– 228 \(2004\)](#)
- [Raub, S. & Von Wittich, D. “Implementing Knowledge Management: Three Strategies for Effective CKOs”. *European Management Journal*, **22** \(6\): 714–724 \(2004\).](#)
- [Yeoh, P.-L. “A conceptual framework of antecedents of information search in exporting. Importance of ability and motivation”. *International Marketing Review*, **22** \(2\): 165-198 \(2003\).](#)