

# EMCIS

European, Mediterranean & Middle Eastern Conference on  
Information Systems (**EMCIS2017**)  
Coimbra, Portugal 07-08 September, 2017



## PROGRAMME GUIDE

14th European, Mediterranean & Middle Eastern Conference on  
Information Systems 2017

September 07-08 2017  
Coimbra University, Coimbra, Portugal



UNIVERSIDADE DE COIMBRA



[www.emcis.eu](http://www.emcis.eu)





# Welcome

Welcome to Coimbra, Portugal, for the 14th European Mediterranean & Middle Eastern Conference on Information Systems.

This edition is hosted by the University of Coimbra, one of the oldest in the world, dating back to 1290, and organised in association with the University of Lisbon.

We are very excited to have researchers from 32 countries in attendance. One of our goals during the preparation of EMCIS 2017 was to make the conference even more relevant in the current academic context, which is why, for the first time, the proceedings are published by Springer. The acceptance rate was 35% for papers, plus another 15% for short papers.

Preparing an event like this requires lots of support. This is why the co-chairs would like to acknowledge the sponsorship of the University of Coimbra, namely of its Faculty of Science and Technology and of the Department of Informatics Engineering. We would also like to thank the keynote speaker, the track chairs the reviewers, our sponsors and the volunteers for their help.

We hope you enjoy your stay in Coimbra for attending EMCIS!

The Conference Co-Chairs

Paulo Rupino da Cunha and Miguel Mira da Silva



# EMCIS ORGANISATION

## **Conference Foundation Chair:**

Prof. Zahir Irani, Brunel University, UK

## **Conference Co-Chairs:**

Prof. Paulo Rupino Cunha, University of Coimbra, Portugal

Prof. Miguel Mira da Silva, University of Lisbon, Portugal

## **Conference Executive Committee:**

Prof. Vincenzo Morabito, Bocconi University, Italy, (Program Chair)

Prof. Marinos Themistocleous, University of Piraeus, Greece (Program Chair)

Dr. Gianluigi Viscusi, École Polytechnique fédérale de Lausanne (EPFL), Switzerland (Publications Chair)

Dr. Muhammad Kamal, Brunel University, UK (Public Relations Chair)

Mr. Leonidas Katelaris, University of Piraeus, Greece (Website Coordinator)



# Keynote Speaker



José Tribolet is Full Professor of Information Systems at the Department of Computer Science and Engineering (DEI) and at the Department of Engineering and Management (DEG) (Joint Appointment) at the Instituto Superior Técnico (IST), Technical University of Lisbon, Portugal. He is senior researcher at the Information Systems Group at INESC-ID and promoter of the Centre for Organizational Design & Engineering at INESC-INOV. He is the coordinator of POSI-E3, the Professional Post-Graduate course in Information Systems and Enterprise Engineering of IST (3rd Degree Bologna Diploma). He serves presently as Chairman of the Department of Computer Science and Engineering (DEI/IST).

His main academic interests are in the areas of Enterprise Architecture, Enterprise Engineering and Enterprise Governance, with emphasis on IS Architecture, Business Process Engineering, Enterprise Transformation and Change Management. Since 2000 he has completed with success the supervision of nine Ph.D. students in Enterprise Engineering. He presently supervises 3 Ph.D. candidates, all of which are enterprise professionals.

Dr. Tribolet holds a Ph.D. in Electrical Engineering and Computer Science from MIT (1977). He was a member of the research staff of Bell Laboratories, Murray Hill, NJ, from 1977 through 1979. He spent a full sabbatical year (1997-98) at MIT's Sloan School of Management. He was a guest professor at IWI – the Institute for Information Management of the University of St. Gallen, in Switzerland, during the spring term of 2012.

He founded, in 1980, the first nonstate owned research institute in Portugal, INESC – Institute for Systems and Computer Engineering. INESC is today a holding of six research institutes nationwide, three of them having become formal Associated Laboratories of the Portuguese Science System. Dr. Tribolet is the President of INESC. He has been Chairman of the Department of Electrical and Computer Engineering and Chairman and Vice-President for Post- Graduate Studies of the Department of Computer Science and Engineering of IST. He is a founding member of the Portuguese Engineering Academy and a founder of the Informatics Engineering College of the Portuguese Engineers Professional Association.



# Keynote Speech

## ORGANIZATIONAL IDENTITY AND SELF-AWARENESS

## CREATING CONVERGENCE BETWEEN ENTERPRISE ENGINEERING AND ORGANIZATIONAL DESIGN

By José M. Tribolet

The theme of “convergence” or “integration” between artefacts that most people would call organizational (e.g. mission statements, organizational charts or operating procedures) and artefacts which derive from information technology (e.g. information architectures, process models or management control software) is central to the discipline of information systems, both in its organizational studies flavours, as well as in its computer science flavours.

During the last decade we\* have been actively working to progressively narrow of the gap between these two disciplinary areas of organization studies and computer science, both understood in the broadest possible sense, so that such artefacts can be viewed, interpreted and used by all involved in an objective and integrated way, with the aim to provide better means to design, operate and transform organizations.

We believe that the concepts of Organizational Identity and Organizational Self Awareness play a key role in bridging the gap between these two disciplinary areas, which still mainly work back to back, without a credible and rigorous framework adequate for sustained integration of their immense knowledge basis.

In this talk we will attempt to explain the reasons behind our belief, and hope to motivate the research communities of both disciplinary areas to work together towards such integration goal.

\*This talk is based on work done by the speaker in collaboration with Rodrigo Magalhães and Marielba Silva.



# EMCIS Conference Programme

Thursday 7<sup>th</sup> September, 2017

08:00 - 08:30	Bus pickup from hotels to Conference venue		
08:30 - 17:00	Registration		
09:00 - 09:10	Welcome		
09:10 - 10:00	Keynote Speech - Prof. Dr. José M. Tribolet (Anfiteatro JGS)		
10:00 - 10:30	COFFEE BREAK		
10:30 - 12:30	<p><b>(Room C5.1)</b>  <b>TRACK: Healthcare Information Systems</b>  <b>SESSION CHAIR: Marinos Themistocleous</b></p>	<p><b>(Room C5.2)</b>  <b>TRACK: Management and Organisational Issues in Information Systems</b>  <b>SESSION CHAIR: Gianluigi Viscusi</b></p>	<p><b>(Room C5.3)</b>  <b>TRACK: Digital Services, Social Media and Digital Collaboration</b>  <b>SESSION CHAIR: Licínio Gomes Roque</b></p>
	<p><b>“Digital transformation in the pharmaceutical compounds supply chain: design of a service ecosystem with e-labeling”</b></p> <p><i>Alexandra Ângelo, João Barata Paulo Rupino Da Cunha and Vasco Almeida</i></p>	<p><b>“A Practice-Based Methodology to Enlighten Strategic Alignment Research”</b></p> <p><i>James Holohan and Joe Mcdonagh</i></p>	<p><b>“MOOCS Potential for Democratizing Education: An analysis from the perspective of access to technology”</b></p> <p><i>Valéria F Moura, Cesar A Souza, José D Oliveira Neto and Adriana B N Viana</i></p>
	<p><b>“Acquiring the Ontological Representation of Healthcare Data through Metamodeling Techniques”</b></p> <p><i>Athanasios Kiourtis Argyro Mavrogiorgou, Dimosthenis Kyriazis and Marinos Themistocleous</i></p>	<p><b>“Focus Area Maturity Models: A Comparative Review”</b></p> <p><i>Felix Sanchez-Puchol and Joan A. Pastor-Collado</i></p>	<p><b>“Relationship between self-disclosure and cyberbullying on SNSs”</b></p> <p><i>Jooyeon Won and Dongback Seo</i></p>
	<p><b>“Digital Wellness Services and Sustainable Wellness Routines”</b></p> <p><i>Christer Carlsson and Pirkko Walden</i></p>	<p><b>“Aligning Business Models with Requirements Models”</b></p> <p><i>Eric Souza, Ana Moreira and Joao Araujo</i></p>	<p><b>“IT-enabled Digital Service Design Principles - Lessons Learned from Digital Cities”</b></p> <p><i>Petr Štěpánek, Mouzhi Ge and Leonard Wallezky</i></p>
	<p><b>“Ontology based Possibilistic Reasoning For Breast Cancer Aided Diagnosis”</b></p> <p><i>Yosra Ben Salem, Rihab Idoudi, Karim Saheb Ettaba, Kamel Hamrouni and Basel Solainman</i></p>	<p><b>“A Balanced Scorecard Approach for Evaluating the Utility of a Data Warehousing System”</b></p> <p><i>Itilde Martins and Orlando Belo</i></p>	<p><b>“Software Product Line to express variability in E-Learning Process”</b></p> <p><i>Azouzi Sameh, Ayachi Sonia and Brahmi Zaki</i></p>



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Thursday 7<sup>th</sup> September, 2017

12:30 - 13:30		LUNCH BREAK			
13:30 - 15:00	<b>(Room C5.1)</b> TRACK: Information Systems Security and Information Privacy Protection SESSION CHAIR: Aggeliki Tsohou	<b>(Room C5.2)</b> TRACK: Management and Organisational Issues in Information Systems SESSION CHAIR: Gianluigi Viscussi	<b>(Room C5.3)</b> TRACK: Digital Services, Social Media and Digital Collaboration SESSION CHAIR: Licínio Gomes Roque		
	“A New FDD-based Method for Distributed Firewall Misconfigurations Resolution” <i>Amina Saâdaoui, Nihel Ben Youssef and Adel Bouhoula</i>	“Business Process Management Systems in Support of Corporate Governance: Applying Orlikowski’s Theoretical Lens” <i>Henk Pretorius, Alta Van der Merwe and Knut Hinkelmann</i>	“Enterprise Social Networks Goals and Success Measurement: Evidence from a Multinational Organization” <i>Bruno Faria and Rui Dinis Sousa</i>		
	“The Security of Internet of Things: Current State and Future Directions” <i>Laila Dahabiyeh</i>	“Crowd and Experts’ Knowledge: Connection and Value through the Notion of Prism” <i>Riccardo Bonazzi, Gianluigi Viscusi and Valérie Barbey</i>	“Go Vendla Go! Creating a Digital Coach for the Young Elderly” <i>Christer Carlsson, Anna Sell, Camilla Walden, Pirkko Walden, Siw Lundqvist and Leif Marcusson</i>		
	“A Security Approach for Data Migration in Cloud Computing Based on Human Genetics” <i>Hamza Hammami, Hanen Brahmi, Imen Brahmi and Sadok Ben Yahia</i>	“Towards Managing Key Performance Indicators for Measuring Business Process Performance” <i>Emna Ammar and Sonia Ayachi Ghannouchi</i>	“Social Networks and Web Pages Used by Regional Municipalities in the Czech Republic” <i>Libuše Svobodová</i>		
15:00 - 15:30		COFFEE BREAK			
15:30 - 17:00	<b>(Room C5.1)</b> TRACK: Information Systems Security and Information Privacy Protection SESSION CHAIR: Aggeliki Tsohou	<b>(Room C5.2)</b> TRACK: Management and Organisational Issues in Information Systems SESSION CHAIR: Gianluigi Viscussi	<b>(Room C5.3)</b> TRACK: Cloud Computing SESSION CHAIR: Paulo Melo		
	“The Privacy Paradox in the Context of online Health Data Disclosure by Users” <i>Chrysanthi Kosyfaki, Nelina Angelova, Aggeliki Tsohou and Emmanouil Magkos</i>	“View Integration of Business Process Models” <i>João Colaço and Pedro Sousa</i>	“Cloud Database Appliance: An Innovative Approach” <i>Fabio Coelho</i>		





# EMCIS Conference Programme

Thursday 7<sup>th</sup> September, 2017

	<p><b>“Using Homomorphic Encryption to Compute Privacy Preserving Data Mining in a Cloud Computing Environment”</b>  <i>Hamza Hammami, Hanen Brahmi, Imen Brahmi and Sadok Ben Yahia</i></p>	<p><b>“A BPMN Extension for Integrating Knowledge Dimension in Sensitive Business Process Models”</b>  <i>Mariam Ben Hassen, Mohamed Turki and Faïez Gargouri</i></p>	<p><b>“A Framework for Cloud Selection based on Business Process Profile”</b>  <i>Mouna Rekik, Khouloud Boukadi and Hanene Ben-Abdallah</i></p>
		<p><b>“Latent Factor Model Applied To Recommender System: Realization Steps and Algorithm”</b>  <i>Jallouli Maryam, Lajmi Sonia and Amous Ikram</i></p>	
<p><b>17:00 - 17:30</b></p>	<p><b>Bus transfer from conference venue to hotels</b></p>		
<p><b>19:00 - 19:30</b></p>	<p><b>Bus pickup from hotels to Gala night venue</b></p>		
<p><b>19:30 - 22:30</b></p>	<p><b>GALA DINNER</b></p>		



# EMCIS Conference Programme

Friday 8<sup>th</sup> September, 2017

08:00 - 08:30	Bus pickup from hotels to Conference venue		
08:30 - 13:00	Registration		
09:00 - 10:00	Workshop on "Computer Security, Vulnerability Exploits and Ethical Hacking", Luis Ribeiro and Francisco Loureiro(Room C.5.4)		
10:00 - 10:30	COFFEE BREAK		
10:30 - 12:30	<p><b>(Room C5.1)</b>  <b>TRACK: Big Data and Semantic Web</b>  <b>SESSION CHAIR: Lasse Berntzen</b></p>	<p><b>(Room C5.2)</b>  <b>TRACK: Management and Organisational Issues in Information Systems Track</b>  <b>SESSION CHAIR: Gonçalo Cadete</b></p>	<p><b>(Room C5.3)</b>  <b>TRACK: e-Government</b>  <b>SESSION CHAIR: Cristina Chuva</b></p>
	<p><b>"Wildfire Prevention in the Era of Big Data"</b>  <i>Nikos Athanasis, Marinos Themistocleous and Kostas Kalabokidis</i></p>	<p><b>"Automation Process for Co-Evolution of Enterprise Architecture Meta-models and Models"</b>  <i>Nuno Silva, Tiago Rechau, Miguel Mira Da Silva and Pedro Sousa</i></p>	<p><b>"Impact of eGovernment on Citizen Satisfaction: A Case of Federal Government Agencies in Pakistan"</b>  <i>Muhammad Akmal Javaid and Muhammad Irfanullah Arfeen</i></p>
	<p><b>"Efficient Big Data Modelling and Organization for Hadoop Hive-based Data Warehouses"</b>  <i>Eduarda Costa, Carlos Costa and Maribel Santos</i></p>	<p><b>"Technological Readiness of the Czech Republic and the use of Technology"</b>  <i>Libuše Svobodová and Martina Hedvičáková</i></p>	<p><b>"Is e-Government Serving Companies or Vice-Versa?"</b>  <i>Anton Manfreda</i></p>
	<p><b>"Predicting Customer Churn: Customer Behavior forecasting for Subscription-based Organizations"</b>  <i>Leonidas Katelaris and Marinos Themistocleous</i></p>	<p><b>"Collaborative Filtering for Producing Recommendations in the Retail Sector"</b>  <i>Dimitrios Pouloupoulos and Dimos Kyriazis</i></p>	<p><b>"Public Participation and Regulatory Public Policies: An Assessment from the Perspective of Cultural Theory"</b>  <i>Flavio Saab, Gustavo C. Garcia, Jonathan S. Pereira and Paulo Bermejo</i></p>
	<p><b>"Managing Modular Ontology Evolution under Big Data Integration"</b>  <i>Hanen Abbes and Faiez Gargouri</i></p>		<p><b>"Public Transparency in the Brazilian Context: An Integrative Review"</b>  <i>Pedro de Barros Leal Pinheiro Marino, Grazielle Isabele Cristina Silva Sucupira, Wender Rodrigues de Siqueira and Paulo Bermejo</i></p>



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Friday 8<sup>th</sup> September, 2017

12:30 - 13:30	<b>LUNCH BREAK</b>		
13:30 - 15:00	<b>(Room C5.1)</b> <b>TRACK: Big Data and Semantic Web</b> <b>SESSION CHAIR: Lasse Berntzen</b>	<b>(Room C5.2)</b> <b>TRACK: IT Governance</b> <b>SESSION CHAIR: Catarina Ferreira da Silva</b>	<b>(Room C5.3)</b> <b>TRACK: e-Government</b> <b>SESSION CHAIR: Nikos Athanasis</b>
	<b>"A Comparative Study in Data Mining: Clustering and Classification Capabilities"</b>  <i>Argyro Mavrogiorgou, Athanasios Kiourtis, Dimosthenis Kyriazis and Marinos Themistocleous</i>	<b>"IT Value Management Capability Enabled with COBIT 5 Framework"</b>  <i>Cristiano Pereira, Carlos Ferreira and Luis Amaral</i>	<b>"e-Government and e-Inclusion. The Role of the Public Libraries"</b>  <i>Mariusz Luterek</i>
	<b>"A Context Aware Notification Architecture Based on Distributed Focused Crawling in the Big Data Era"</b>  <i>Mehmet Ali Akyol, Mert Onuralp Gökalp, Kerem Kayabay, P. Erhan Eren and Altan Koçyiğit</i>	<b>"Assessing IT Governance Processes using a COBIT5 Model"</b>  <i>Gonçalo Rodrigues Cadete and Miguel Mira Da Silva</i>	<b>"Innovative and Strategic Solutions to Foster the Public Server Valorization Policy"</b>  <i>Denise Lucena Balbino</i>
	<b>"A Tool for Managing the Co-Evolution of EnterpriseArchitecture Meta-Model and Models"</b>  <i>Tiago Rechau, Nuno Silva, Miguel Mira Da Silva and Pedro Sousa</i>	<b>"The Influence of Shadow IT Systems on Enterprise Architecture Management Concerns"</b>  <i>Melanie Huber, Stephan Zimmermann, Christopher Rentrop and Carsten Felden</i>	<b>"Positive Emotion and Social Capital affect Knowledge Sharing: Case of the Public Sector of the Kingdom of Bahrain"</b>  <i>Isa Alshaikh, Anjum Razzaque and Mahmood Alalawi</i>
15:00 - 15:30	<b>COFFEE BREAK</b>		
15:30 - 17:00	<b>(Room C5.1)</b> <b>TRACK: Big Data and Semantic Web</b> <b>SESSION CHAIR: Lasse Berntzen</b>	<b>(Room C5.2)</b> <b>TRACK: IT Governance</b> <b>SESSION CHAIR: Catarina Ferreira da Silva</b>	<b>(Room C5.3)</b> <b>Panel: How to Succeed on your Ph.D</b>
	<b>"Big Data from a Business Perspective"</b>  <i>Lasse Berntzen and Milena Krumova</i>	<b>"Towards Conceptual Meta-modeling of ITIL and COBIT 5"</b>  <i>InêsPercheiro, Rafael Almeida, Pedro Pinto and Miguel Mira Da Silva</i>	<b>Discussion with:</b>  <b>Paulo Rupino da Cunha, Miguel Mira da Silva and Marinos Themistocleous</b>



# EMCIS Conference Programme

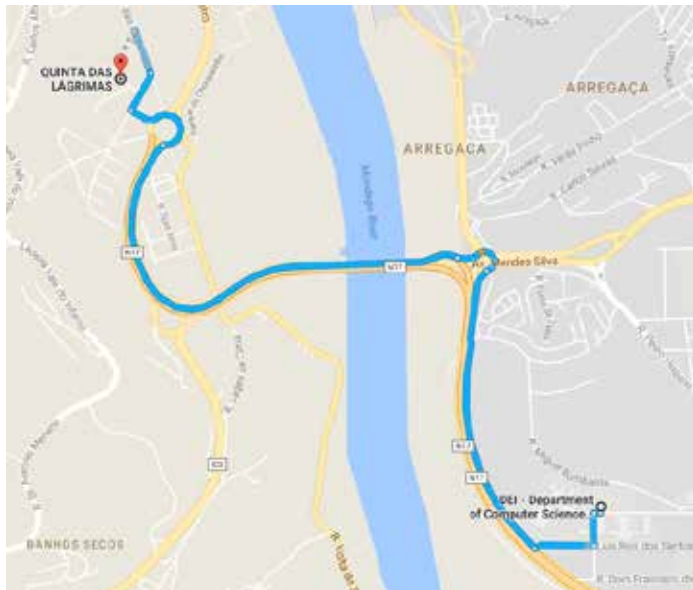
Friday 8<sup>th</sup> September, 2017

<p><b>“An User Interest Ontology Based on Trusted Friends Preferences for Personalized Recommendation”</b></p> <p><i>Mohamed Frikha, Mohamed Mhiri, and Faiez Gargouri</i></p>	<p><b>“Mapping of Enterprise Governance of IT Practices Metamodels”</b></p> <p><i>Renato Lourinho, Rafael Almeida, Pedro Pinto, Miguel Mira Da Silva and Béatrix Barafort</i></p>	<p><b>Discussion with:</b></p> <p><b>Paulo Rupino da Cunha, Miguel Mira da Silva and Marinos Themistocleous</b></p>
<p><b>“ETL Based Framework for NoSQL Warehousing”</b></p> <p><i>Rania Yanguï, Ahlem Nabli and Faiez Gargouri</i></p>	<p><b>“Perception of Enterprise Risk Management in Brazilian Higher Education Institutions”</b></p> <p><i>Gustavo Alves, Waldemar Neto, Marçal Junior, Paulo Bermejo, Tomás Sant' Ana and Eduardo Salgado</i></p>	
<p><b>17:00 - 17:30 Bus transfer from conference venue to Old Campus</b></p>		
<p><b>17:30 - 19:30 Guided tour to old campus (UNESCO World Heritage Site)</b></p>		
<p><b>END OF THE CONFERENCE</b></p>		



# Directions to the Gala Venue

Directions from Conference Venue to Gala Venue



**Quinta das Lágrimas**

**Address:** Rua António Augusto Gonçalves,  
3041-901 Santa Clara, Coimbra, Portugal

**Phone:** +351 239 802 380

**22:30 -23:00 Bus transfer from Gala Venue to Hotels**





## Conference place - Coimbra University



**Wi-Fi Access**

**SSID: EMCIS2017**

**Password: !3mc152017!**



**Departamento de Engenharia Informática  
Faculdade de Ciências e Tecnologia  
Universidade de Coimbra**

**Pólo II - Pinhal de Marrocos  
3030-290 Coimbra**





## Conference place - Coimbra University

