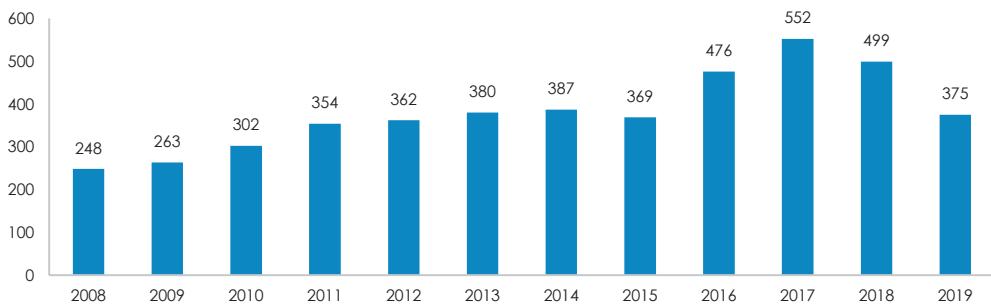


CERIS – Civil Engineering Research and Innovation for Sustainability – is an FCT-registered research unit operating in the Civil Engineering area. It is hosted by the Department of Civil Engineering, Architecture and Georesources (DECivil) of Instituto Superior Técnico, University of Lisbon (ULisboa).

The quality and impact of research activities of CERIS in 2015-19 are attested by the individual awards and rankings of ULisboa in the Civil Engineering area (in which CERIS is the only ULisboa research unit), namely 8th in Europe (Shanghai university ranking 2019) and 1st in Portugal.

People

CERIS research staff includes PhD members, PhD collaborators and non-PhD collaborators. In 2015-19 the number of integrated members remained constant (92), as set by FCT regulations. Non-PhD collaborators include PhD students enrolled at IST-CERIS and on non-PhD researchers with CERIS scholarships provided through research and consultancy projects. In 2018 a research unit in the field of Territory, Urbanism and Architecture (CITUA) was created in the University of Lisbon, drawing some CERIS researchers. The reduction of staff in 2019 is mostly justified by a decrease in PhD students and non-permanent staff supported by research grants.

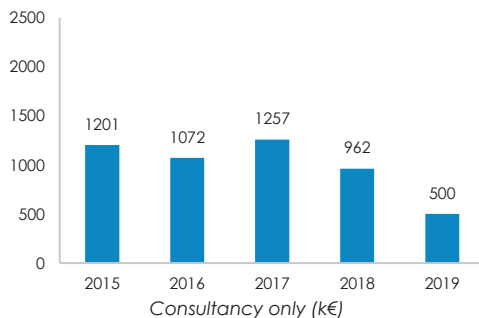
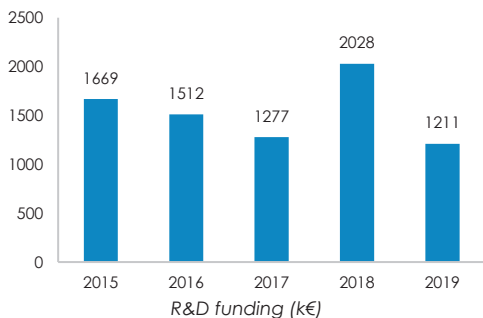


Members, PhD collaborators and non-PhD collaborators

Funding

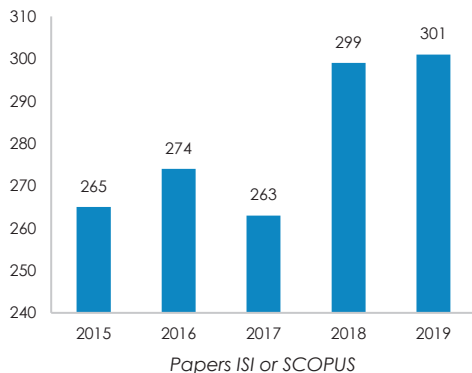
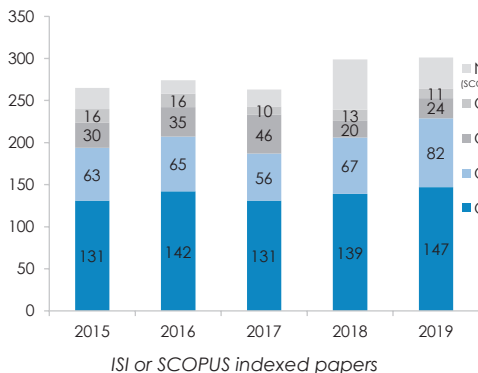
CERIS members were active in research projects, raising a total of ~7.7 M€ (excluding base funding and scholarships awarded directly to CERIS PhD and MSc researchers/students).

Advanced consultancy contracts with public entities and private firms were an important source of funding. Overall these contracts raised ~5.0 M€ of income for CERIS.



Scientific outputs

CERIS researchers co-authored a total of 1402 ISI-Scopus papers, i.e. 3.0 papers per integrated member (92) and per year. 73% were published in Q1 and Q2 journals, with an average impact factor of 2.8. 38% of these papers were co-authored with researchers from foreign institutions and 31% from other national institutions. These papers received around 14500 citations in the period 2015-19 and 10 are "Highly Cited".



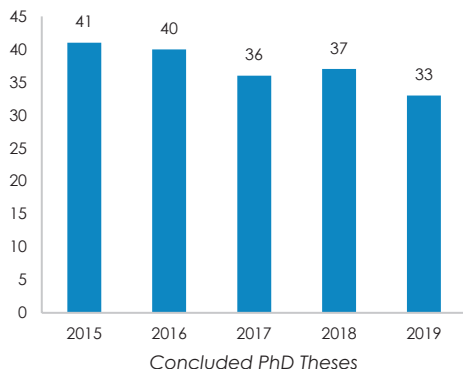
CERIS researchers co-authored 31 international and national books, edited 32 entire books and co-authored 167 book chapters. CERIS researchers also disseminated the results of their research through the publication of 1507 papers in international conferences and 495 papers in national conferences. CERIS researchers organized 53 international conferences (in addition to many workshops, seminars and other sessions, not included here) and 14 national conferences.

Advanced training

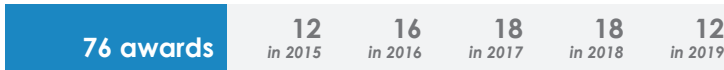
CERIS members concluded the supervision of a total of 187 PhD theses, i.e. 1.95 theses per integrated member over the period. In addition, CERIS members successfully supervised a total of 1346 MSc dissertations, i.e. ~3 MSc dissertations per integrated member (92) and per year.

CERIS researchers led the following 5 competitively-funded FCT PhD programs (138 PhD grants, ~ 8.0 M€ for 2014-20), offered under international protocols with foreign partners (e.g. EPFL and MIT) and/or national consortia:

- Analysis and Mitigation of Risks in Infrastructures - <http://infrarisk.tecnico.ulisboa.pt>;
- Eco-Construction and Rehabilitation - <http://ecr.tecnico.ulisboa.pt>;
- Environmental Hydraulics and Hydrology - <http://envhidro.tecnico.ulisboa.pt>;
- River Restoration and Management - <http://rrm.tecnico.ulisboa.pt>;
- Transportation Systems - <https://aai.tecnico.ulisboa.pt/en/programas-de-estudo/programas-duplos-graus/mit-portugal/>.



Awards and distinctions



The 2018 and 2019 CERIS Open Day events were recognized as a Best Practice under the category of Research, Development and Innovation, by the 3rd and 4th editions of the Best Practices Observatory (ObservIST) of Técnico-Lisboa.

CERIS researchers earned 76 awards and distinctions during 2015-19, attesting the relevance of their work at both international and national levels. The following international awards and distinctions are highlighted.

Year	Researcher	Description	Institution
2016	André Martins, Dinar Camotim, Pedro Borges Dinis	Structures Best Research Paper Award 2016 for the best paper published in the journal "Structures" during 2015 ("Local-distortional interaction in cold-formed steel columns: Mechanics, testing, numerical simulation and design", by Martins AD, Camotim D, Dinis PB, Young B)	Institution of Structural Engineers, U.K.
2016	João Ramôa Correia	2016 IIFC Distinguished Young Researcher Award	International Institute for FRP in Construction (IIFC)
2016	Maria Bacharel Carreira	Glenn Earthman Outstanding Dissertation Award for best PhD Thesis (Bacharel Carreira M), supervised by Teresa Heitor	International Society for Educational Planning
2017	José Oliveira Pedro	John Henry Garrood King Medal for best paper in Journal of Bridge Engineering ("Composite cable-stayed bridges: state of the art")	Institute of Civil Engineers (ICE), U.K.
2017	Rodrigo Gonçalves	2017 SSRC McGuire Award for Junior Researchers (MAJR Medal)	Structural Stability Research Council (SSRC)
2017	Rui Cunha Marques	Career Merit Award	International Water Association (IWA)
2018	Dinar Camotim	2018 SSRC Distinguished Member for the significant contributions over a long period of time	Structural Stability Research Council (SSRC)
2018	Dinar Camotim	2918 Ulisboa/Santader Scientific Award for the scientific activity during five-year period 2013-2017	Ulisboa/Santader Universities
2019	Fernando Branco	The title of Advisory Professor	University of Tongji
2019	Jorge de Brito	Dr. Wim Bakens Coordinator's Award 2016-2019 for the co-coordination of CIB Commission W80 - Service Life Prediction of Building Products and Components	International Council for Research and Innovation in Building and Construction (CIB)
2019	Cristina Matos Silva; Patrícia Ferreira Dinis; Inês Teotónio	ASEE Engineering Economy Division for the best paper in The Engineering Economist ("The Socioeconomic Feasibility of Greening Rail Stations: A Case Study in Lisbon")	ASEE Engineering Economy Division and Institute of Industrial Engineers

Editorial activities

CERIS researchers played an important role in editorial activities in scientific publications, during the period 2015-19. Namely, they served as Editor-in-Chief (2), Associate Editor (23) and Editorial Board Members (102). The following editorial activities are highlighted.

Editor-in-Chief	Journal – International		
Jorge de Brito	Journal of Building Engineering	ISI/SCOPUS	Q1
Rosário Macário	Case Studies on Transport Policy	ISI/SCOPUS	Q2

Associate Editor	Journal – International		
Carlos Chastre Rodrigues	Frontiers in Materials	ISI/SCOPUS	Q1
Carlos Sousa Oliveira	Bulletin of Earthquake Engineering	ISI/SCOPUS	Q1
Dinar Camolim	Journal of Structural Engineering	ISI/SCOPUS	Q1
Eduardo Júlio	Journal of Applied and Computational Mechanics	ISI/SCOPUS	Q2
Helena Ramos	Water	ISI/SCOPUS	Q1
João de Abreu e Silva	Journal of Transport and Land Use	ISI/SCOPUS	Q1
João Ramôa Correia	Advances in Structural Engineering	ISI/SCOPUS	Q2
João Ramôa Correia	Journal of Composites for Construction	ISI/SCOPUS	Q1
Jorge de Brito	European Journal of Environmental and Civil Engineering	ISI/SCOPUS	Q2
Jorge de Brito	Applied Sciences	ISI/SCOPUS	Q1
Jorge de Brito	Helvion	ISI/SCOPUS	Q1
Luís de Picado Santos	Applied Sciences	ISI/SCOPUS	Q1
Maria Paulina Rodrigues	Journal of Building Engineering	ISI/SCOPUS	Q1
Miguel Amado	Journal of Urban Planning and Development	ISI/SCOPUS	Q1
Rui da Cunha Marques	Journal of Infrastructure Systems	ISI/SCOPUS	Q2
Rui da Cunha Marques	Water Policy	ISI/SCOPUS	Q2
Rui M.L. Ferreira	Journal of Hydraulic Engineering	ISI/SCOPUS	Q1
Rui M.L. Ferreira	Advances in Water Resources	ISI/SCOPUS	Q1

Advanced consultancy

CERIS researchers have supported the industry and the public administration with advanced and innovative consultancy in many areas. Examples of initiatives with national impact are: seismic studies of key infrastructures in the metropolitan area of Lisbon (e.g. schools and hospitals); tsunami risk map of Lisbon municipality; hydraulic studies of over 20 bridge crossings; assessment and maintenance of the Vasco da Gama Bridge in Lisbon; risk assessment study of debris flow in the Madeira island; characterization and study of the vulnerabilities of infrastructures networks to earthquakes and tsunami in the Algarve; expert inspections on the construction defects of 60 secondary schools and of the Lisbon Creative Hub; coordination of procurements processes in the PPP programme for new hospitals.

Technology transfer

A substantial part of the research activities developed at CERIS aim at improving/developing innovative products that can be applied by the construction industry, improving its competitiveness. This was achieved, along the past years, with many funded research projects involving CERIS and construction companies. From these partnerships, new Products or Prototypes, New Materials, Software Solutions, Special Testing Techniques and Expert studies were developed and implemented in private and public works. The following patents were published during the period 2015-19.

Year	Researcher	Description	Institution
2015	Fernando Branco; Albano Neves e Sousa	Thermal block for walls (Utility Model N° 11055)	National Institute for Industrial Propriety (INPI), Portugal
2017	Albano Neves e Sousa; Marco Pedroso	Process for production of a Blanket for Sound Absorption and Thermal Insulation (PT 108864 B)	National Institute for Industrial Propriety (INPI), Portugal
2019	Inês Flores-Colen; António Soares; Jorge de Brito	Thermal mortar with subcritical silica aerogel (PT 108864)	National Institute for Industrial Propriety (INPI), Portugal

Life-long training

Through FUNDEC, the knowledge transfer interface of DECivil (www.fundec.pt), CERIS members organized professional training courses, with a total of 2168 teaching hours and 2721 trainees, raising a total of 0.9 M€.

Year	Courses	Trainees	Teaching hours	Funding (k€)
2015	42	569	537	244
2016	37	467	406	151
2017	30	488	269	139
2018	41	620	497	168
2019	39	577	459	147

Technical standardisation committees

CERIS researchers had 88 participations in a wide range of international regulatory bodies and scientific associations and 73 participations in national technical standardization committees, where they translated into practice the results of their research activities.