

Edgar Brea, Ph.D.

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CAREER SUMMARY

- Innovation management researcher with 10+ years of academic and consulting experience analysing economic and business data to support strategic decision making in scientific research contexts
- Extensive experience conducting end-to-end research investigating success factors in technology commercialisation and innovation activities
- Strong qualitative and quantitative skills. In the quantitative area, I have deep expertise in a range of data science methods including big data analytics, supervised and unsupervised machine learning
- Significant experience managing research projects, stakeholder engagements, and collaborations with cross-disciplinary teams to achieve project and organisational level goals
- Strong communication skills, using various strategies for different audiences: written (e.g. thought leadership reports for executives), visual (dashboards for scientists), verbal (talks, workshops)

EDUCATION

The University of Queensland Doctor of Philosophy – Innovation management Thesis topic: Examining business model innovation from financial data	Jul 2013 - Jan 2018
The University of Queensland Master of Technology and Innovation Management	Feb 2011 - July 2012
Universidad Metropolitana (VE) Bachelor of Information Systems Engineering	Feb 2000 - May 2006

PROFESSIONAL EXPERIENCE

Industry Research Fellow – Business School, The University of Queensland (UQ) May 2021 - Present
Responsibilities:

- Conducting applied research with industry clients using computational statistics, econometrics, and techno-economic assessments to solve business problems
- Conducting and leading case study research on the use of data-driven strategies to increase innovation outputs and performance
- Leading the design and implementation of a data analytics laboratory at UQBS to support research on innovation strategy and management
- Directing and conducting research on creating measures and models to examine innovation outputs at the firm and national levels
- Collaborating in the development of an industry/corporate engagement model associated with the Master of Business Analytics

Research Fellow – Business School, Queensland University of Technology Mar 2021 - Dec 2021
Responsibilities:

- Led and conducted a study on innovation activities in science-driven organisations using qualitative and quantitative data, seeking evidence of systematic knowledge management and innovation management practices
- Collaborated with professors and senior researchers on multiple grant applications on organisational learning from innovation-related projects

Research Fellow – Australian Institute for Business and Economics, UQ

Aug 2017 - Mar 2021

Responsibilities:

- Led a national study on innovation in ASX-listed firms together with CSIRO. It involved various data sources and econometric models, and provided insights on how executives can manage innovation activity to boost financial performance
- Led a strategic assessment for CSIRO's Cyber-Physical Systems research program that influenced decisions on which areas to grow in the short, mid and long terms
- Investigated business model innovation in Mining Equipment, Technology and Services firms, as a joint project with QUT, Mining3 and METS Ignited
- Conducted research on innovation performance, research and innovation activity measurement, and financial performance of techno-scientific organisations, using econometrics, machine learning, network analysis and big data analytics

Management Consultant – Independent Consulting

Jul 2013 - Jul 2017

Responsibilities:

- Developed technological innovation evaluations, value chain analyses and strategic assessments for companies from several industries including food manufacturing, telecommunications, agriculture and biotechnology
- Employed advanced data analytic and visualisation methods to qualitative and quantitative data within research frameworks designed to provide business insights and solutions and facilitate long-range planning
- Examples of outputs: delivering results presentations to executives of a telecom firm and an agricultural industry peak body, strategic plan reports and thought leadership reports to horticulture and food manufacturing organisations

Business Development Associate – CSIRO

Sep 2012 – Jul 2013

Responsibilities:

- Developed a market scan and technology audit for a new strategic research program involving assistive ICT-based manufacturing systems, contributing to envisage the socio-economic impact of these technologies and potential markets
- Prepared industry reports that attracted industry's interests in the initiative. The documents supported decision making on pathways to deliver, commercialise and acquire disruptive technologies for the manufacturing industry
- Established and conducted consultation forums (interviews and workshops) and presentations to validate the desktop market scan and collect additional insights

Information Systems Consultant – Banesco (Finance sector, Venezuela)

Jun 2009 - Jan 2011

Responsibilities:

- Developed and implemented IT web-based solutions through strategic projects, contributing to the expansion and upgrading of the bank's technological platform
- Maintained continuous communication with internal clients (managers), and project members with different backgrounds (accountants, lawyers, IT developers, database developers marketing and finance analysts)
- Managed and scheduled source code deliveries, contract programming activities, documentation, internal client's participation and allocated budget for two ICT development projects

Information Systems Consultant – PDVSA Petrocedeno (Oil & Gas, Venezuela)

Jun 2005 - May 2009

Responsibilities:

- Analysed, designed and developed web applications and IT solutions required by the company's departments and managers of corporate divisions
- Maintained the content and operability of the company's intranet, including negotiation with department leaders to update information in the intranet
- Maintained effective communication with internal clients in order to understand their needs regarding information technology requirements

RESEARCH AND TECHNICAL SKILLS

- End-to-end data analytic skills: data collection (via APIs, web scraping, large csv files), data cleaning, exploratory data analysis (descriptives, correlations), visualisation (Tableau, Shiny, Plotly, R's ggplot)
- Expertise with multiple econometric, statistical and machine learning models: logistic, negative binomial, panel and quantile regressions, random forests, factor analysis, hierarchical and k-means clustering, generalised linear models, time series, growth mixture modelling, network analysis
- Expertise in qualitative research methods: multiple case studies, semi-structured interviews, text mining, topic modelling
- Advanced research design skills: Sampling, systematic literature reviews, deductive and inductive approaches, cross-sectional and longitudinal data modelling, statistical robustness tests
- Advanced programming skills in various languages: R (advanced), Python (intermediate), SQL (advanced), HTML/CSS (intermediate), C# (intermediate), Visual Basic .NET (intermediate)

RESEARCH PAPERS (LAST 5 YEARS)

- (2023) Brea E. "Ecosystem success in the connectivity era: A framework for understanding actors' innovation potential". *Under review by Technovation (Second R&R)*
- (2022) Brea E. and Ford J. "No silver bullet: Cognitive technology does not lead to novelty in all firms". *Technovation (In press)*
- (2022) Brea E. "Recombination and collaboration patterns driving novelty in machine learning technology". *Under review by Research Policy*
- (2022) Brea E., Rosemann M. and Desouza K. "Innovation science: Linking organisational innovation and knowledge systems through organised knowing". *Under review by Journal of Innovation and Knowledge*
- (2021) Brea, E. "An empirical exploration of the role of artificial intelligence in enhancing innovation performance in organisations". *Paper presented at the 18th International Schumpeter Society Conference in Rome, Italy (virtual)*
- (2019) Brea, E. "Business ecosystems and their multifirm business models: A framework for understanding ecosystem evolution". *Paper presented at the Strategic Management Society 39th Annual Conference in Minneapolis, United States*
- (2018) Brea, E., Hine, D. and Kastle, T. "Business model evolution through a complex adaptive system lens: An examination using data mining of financial data". *Paper presented at the 17th International Schumpeter Society Conference in Seoul, Korea*
- (2018) Brea, E., Hine, D. and Kastle, T. "Using data mining techniques to explore business model innovation processes". *Paper presented at the 18th EURAM Conference in Reykjavik, Iceland*

INDUSTRY REPORTS

- (2021) Brea E., Hine D., Green T., Oyola G. and Elfes A. "Mapping emerging opportunities for the Cyber-Physical Systems Program". CSIRO
- (2020) Ford, J. and Brea E. "Thriving through innovation: Lessons from the top". CSIRO
- (2014) King, S., Hine, D., Brea, E. and Cook, H. "Make for Asia: The emerging Asian middle class and opportunities for Australian manufacturing". CSIRO and Telstra
- (2013) Brea, E., Kambouris, P., Elfes, A., Duff, E., Bick, M., Bonchis, A., Tews, A. and Lopes L. "An initiative to enhance SME productivity through fit for purpose information and robotic technologies". CSIRO
- (2013) Brea, E. "State of the food and beverage market in Australia". Food Innovation Australia

RESEARCH GRANTS

AI for Missions PhD Scholarship Program <i>Project Title: Global Transitions and the rise of new industries: Uncovering nascent technology trends to understand future material demand</i> <i>Funding agency: CSIRO</i> <i>Amount: \$120,000</i> <i>Co-Investigators: Prof Martie Louise Verreyne (UQ), Dr Tim Baynes (CSIRO), Dr Jim West (CSIRO), Dr Jerad Ford (CSIRO)</i>	2022 - 2025
New Staff Start-up Support Funding Scheme <i>Project Title: Predicting Australian firms' innovativeness using web mining</i> <i>Funding agency: UQ Business School</i> <i>Amount: \$20,000</i>	2021 - 2023
National innovation and technology study <i>Funding agency: CSIRO</i> <i>Amount: \$263,955</i> <i>Co-Investigators: Prof Damian Hine (UQ), Dr Jerad Ford (CSIRO)</i>	2019 - 2021
Assessing the potential technological and economic impact of large-scale deployment of robotic technologies to various sectors of the Australian economy <i>Funding agency: CSIRO</i> <i>Amount: \$110,000</i> <i>Co-Investigators: Prof Damian Hine (UQ), Dr Alberto Elfes (CSIRO)</i>	2017 - 2018

PRESENTATIONS

- “Thriving through innovation and a corporate entrepreneurial culture”. Suncorp. August 2021
- “Innovation science: From intuition to empiricism”. QUT Centre for Future Enterprise. August 2021
- “Business model innovation in the METS sector”. METS Ignited. August 2018
- “Innovation metrics and business model innovation”. Era Innovation (consultancy). May 2016

AWARDS AND ACHIEVEMENTS

- Nomination for Best Research Paper Award – Knowledge & Innovation Interest Group (Strategic Management Society Conference, 2022)
- PhD thesis in the Top 30 of the International Innovation Management Dissertation Award (ISPIM, 2019)
- CSIRO Flagship Postgraduate (PhD) Scholarship recipient (CSIRO, 2013)
- Latin American Internship Scholarship recipient (The University of Queensland, 2011)

PROFESSIONAL MEMBERSHIPS

- Strategic Management Society (Since 2019)
- Institute of Analytics Professionals of Australia (2016-2018)