

	NAME: FRANCESCO D. SANDULLI, PhD <i>FULL PROFESSOR IN MANAGEMENT</i> UNIVERSITY COMPLUTENSE OF MADRID SPAIN SANDULLI@CCEE.UCM.ES
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1. EDUCATION

Complutense University of Madrid (UCM)	PhD. Management	03/2003
Complutense University of Madrid (UCM)	B.S. Management	06/1996

1.1 Title of Doctoral Dissertation

The procurement behavior of Spanish Firms on the Internet – March 2003

Award to the best Doctoral Thesis from the Business & Economics School of the Complutense University of Madrid (UCM). 2002-2003)

2. PRINCIPAL FIELDS OF INTEREST

- Industry 4.0 & Digital Transformation of the Firm
- Frontier Technology Entrepreneurship
- Innovation Strategies
- Industrial & Innovation Policy
- Regulatory Market Impact
- Pharmaceutical Industry
- ITC Industry

3. EMPLOYMENT

Institution	Position	Period	
Complutense University of Madrid	Full Professor in Management and Director of the Research Group on Production and Information and Communication Technologies	01/2000	Current
Vinces Consulting	Off-counsel Director of Research and Innovation	10/2010	Current
Complutense University of Madrid	Director of the PhD Program in Management	09/2018	02/2024
University Camilo José Cela	Vice-Rector for Research & Innovation	01/2016	09/2018
Complutense University of Madrid	Director of the <i>France Telecom</i> Chair on Information Society	09/2006	01/2016
University of California, Berkeley	Visiting Scholar at the Institute of Management, Innovation and Organization (IMIO)	08/2008	04/2011
Complutense University of Madrid	Director of the <i>Everis</i> Chair on Information and Communication Technologies	09/2000	09/2006
Internet Research	Co-Founder and Vice-President for Marketing and Sales	01/2000	6/2001
Everis	Co-Founder of the ERP Consulting Unit	09/1998	01/2000
Accenture	ERP Consultant – Industry Unit	04/1997	09/1998

4. MEMBERSHIP IN PROFESSIONAL BODIES AND EDITORIAL BOARDS
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Institution	Period	
Member of the Steering Committee of the Technology & Policy Group of the European Consortium for Political Research (ECPR)	09/2024	Current
Member of the Steering Committee of the Science & Politics Research Committee of the International Political Science Association (IPSA)	07/2023	Current
Editor of the Technology and Innovation Area UCJC Business Review. JCR and Scopus Indexed.	09/2021	Current
Editor in Chief UCJC Business & Society Review (JCR and Scopus Indexed)	12/2018	09/2021
Editor in Chief Universia Business Review (JCR and Scopus Indexed)	02/2014	12/2018
Guest Editor European Planning Studies (JCR and Scopus Indexed)		
Board Member of the Science & Technology Committee of the Madrid Region – Madrid Regional Government	01/2016	09/2018
Founder and Advisor of the Spain Tech Center in Silicon Valley of the Spanish Institute for Foreign Trade (ICEX)	09/2009	Current
Director of the Open Innovation National Plan – Ministry of Science- Spanish Government	09/2009	09/2010

5. MANAGEMENT OF RESEARCH ORGANIZATIONS

Institution	Responsibilities	Period	
Complutense University of Madrid	Director of the Research Group on Production and Information and Communication Technologies	01/2000	Current
Complutense University of Madrid	Director of the PhD Program in Management	09/2018	02/2024
University Camilo José Cela	Vice-Rector for Research & Innovation	01/2016	09/2018
Complutense University of Madrid	Director of the <i>France Telecom</i> Chair on Information Society	09/2006	01/2016
Complutense University of Madrid	Director of the <i>Everis</i> Chair on Information and Communication Technologies	09/2000	09/2006

6. EVALUATION AND STRATEGIC PLANNING OF HIGHER EDUCATION QUALITY, SCIENCE AND RESEARCH

Activity	Period	
Member of the Committee for Higher Education Quality Assurance Fundación Madri+d– Evaluation and Approval of Bachelor, Masters and PhD degrees in Social Sciences in Madrid Region	09/2019	Current
Responsible for the Design of a Peer-to-Peer Evaluation Process for Competitive Grant Programs for Higher Education Institutions in Tajikistan – World Bank	10/2020	9/2021
Board Member of the Science & Technology Committee of the Madrid Region - Definition of the IV Regional Plan for Research, Science and Technology (PRICIT) of the Madrid Regional Government 2016-2020.	01/2016	09/2018
Director of the Open Innovation National Plan – Ministry of Science- Spanish Government	09/2009	09/2010

7. ACTIVE INVOLVEMENT IN PROJECT ACTIVITIES & COMPLETED INTERNATIONAL AND NATIONAL PROJECTS

7.1 ACTIVE RESEARCH PROJECTS AS PRINCIPAL INVESTIGATOR

Role. Project Title. Project Partners	Funding Organization	Date
Principal Investigator. <i>Job-creating innovative activities and its integration with IT based capabilities in Madrid Region.</i> UCM, U. Autonoma Madrid, U. Alcalá de Henares, U. Rey Juan Carlos, U. Oviedo, U. Jena.	Madrid Region Government	09/2024-Current (expected end 09/2027)
Principal Investigator. <i>Divergencies of European Innovative Transformations.</i> UCM, U. of Jena, U. Chester, U. Firenze, U. Tilburg.	Hans Boeckler Stiftung.	09/2024-Current (expected end 09/2027)
Principal Investigator. <i>Socio-economic Impact of 5G based Mobility Services.</i> UCM, U. Murcia, Orange-France Telecom, Abertis, CellNex, Indra, Opus.	Next-Generation EU Funds	07/2022-Current (expected end 09/2025)
Principal Investigator. <i>Socioeconomic impact of Obesity Policies in Spain.</i> UCM, SEEDO, U. Malaga.	Novo-Nordisk	03/2023-Current (expected end 12/2024)
Principal Investigator. <i>Economic impact of Innovative Transformations of Agro-Food Industry in Europe.</i> UCM, U. Lleida	Vall Companys Group	04/2022-Current (expected end 12/2024)

7.2 COMPLETED INTERNATIONAL RESEARCH PROJECTS

Role. Project Title. Project Partners	Funding Organization	Date
Principal Investigator. <i>Digital Transformation impact on the employment of Pharmaceutical and Chemical Industries.</i> UCM, U. Jena and U. Freiburg	European Work Council Merck EMEA	09/2023-09/2024
Principal Investigator. <i>Impact of Regulatory Entry Barriers on the Allergy Vaccines Market in Europe.</i> UCM, CNRS France.	Leti-Pharma	07/2022-03/2024
Principal Investigator. <i>VAT Tax modification and its impact on Shopping Tourism in Spain and France.</i> UCM, U. Paris-Sorbonne.	Global Blue	11/2016-5/2021
Principal Investigator. <i>Requirements for a Sustainable Industrial Policy.</i> UCM, U. Jena.	Hans Boeckler Stiftung.	09/2020-03/2021
Principal Investigation. <i>Off- shoring and Re-shoring impact of the production in the Pharmaceutical Industry.</i> UCM, European Chemical Agency	Leti-Pharma	3/2020-7/2021
Full Time Researcher. <i>High Performance Manufacturing.</i> UCM, U. Minnesota, U. Sevilla.	Spanish Ministry of Innovation	01/2007-12/2009

7.3 COMPLETED NATIONAL RESEARCH PROJECTS

Role. Project Title. Project Partners	Funding Organization	Date
Principal Investigator. <i>The Impact of Marketing Campaigns on the Size of the Pharmaceutical Market.</i> UCM, Field Fisher.	Allergy Therapeutics	01/2024-07/2024
Principal Investigator. <i>Attraction of Job-Creation and Innovative Activities to Madrid Region</i> UCM, U. Autonoma Madrid, U. Alcalá de Henares, U. Rey Juan Carlos, U. Oviedo.	Madrid Region Government	01/2020-01/2024
Principal Investigator. <i>Do Housing Platforms Put Pressure on the Real State Market?</i> UCM.	Airbnb	10/2023-5/2024
Full Time Researcher. <i>Monitoring and Analysis of Social Change Through Big Data.</i> UCM, U. Politécnica Madrid, U. Rey Juan Carlos, U. Carlos III.	Madrid Region Government	01/2016-12/2019
Principal Investigation. <i>Pharmacy Oriented Higher Education and the future of young professionals in Community Pharmacy in Spain.</i> UCM.	Spanish General Counsel of Community Pharmacies	2/2018-09/2018
Principal Investigation. <i>Economic Impact of the Platform Economy in the Madrid Region.</i> UCM.	Airbnb	1/2015-5/2018
Principal Investigator. <i>Impact of Sweetened Beverages Taxes on Food Industry.</i> UCM, Central Bank of Spain.	Coca Cola Group	06/2014-06/2018
Principal Investigation. <i>Big Data Analysis of Stakeholders</i>	Merck and Sanofi	5/2017-9/2017

Role. Project Title.	Funding Organization	Date
Project Partners		
<i>in the Pharmaceutical Industry.</i> UCM.		
Principal Investigator. <i>The impact of higher recycling rates of household packaging waste on the circular economy.</i> UCM, U.Cartagena.	Ecoembes	01/2015-09/2016
Principal Investigator. <i>Organizational Capabilities, Information Technology and the Success of Open Innovation.</i> UCM, UC Berkeley.	Spanish Ministry of Innovation	01/2014-12/2015
Principal Investigator. <i>Competitive Impacts of Remuneration Systems on Community Pharmacy in Europe.</i> UCM.	Spanish Association of Community Pharmacies	12/2013-10/2014
Principal Investigator. <i>The Role of Natural Monopolies in the Collective Management Organization in Europe.</i> UCM, CNMC.	Spanish General Society of Authors and Editors (SGAE)	11/2013-7/2014
Principal Investigator. <i>Analysis of the Evolution and current situation of the legal offers of digital content in Spain.</i> UCM.Cultura en Red.	NBC Universal	04/2013-5/2014
Principal Investigator. <i>Synergies between Information Technology and Organizational Capabilities in SMEs.</i> UCM.	Spanish Ministry of Innovation	01/2011-12/2013
Principal Investigator. <i>Entry deregulation in the Community Pharmaceutical Industry in Europe.</i> UCM.	Spanish Association of Community Pharmacies	2/2013-5/2013
Principal Investigator. <i>Impact of the Buzz Effect and Trailers on the Willingness to Pay of Movie Customers.</i> UCM.	Cinesa Group	3/2012-6/2012

Role. Project Title. Project Partners	Funding Organization	Date
Principal Investigator. <i>Impact of the On-line Release Window of the Motion Picture Industry on the Willingness to Pay of Customers.</i> UCM.	Cinesa Group	12/2011-3/2012
Principal Investigator. <i>Firm Survival and Risks in the Community Pharmacy Market in Andalusia.</i> UCM.	Spanish Association of Community Pharmacies	11/2011-1/2012
Principal Investigator. <i>Impact of the Intangible Assets on Value Creation in the Movie Theatre Industry.</i> UCM.	Spanish Association of Movie Theaters	10/2010-10/2011
Full Time Researcher. <i>IT based relationship with Public Administrations. Barriers and Benefits for the Users.</i> UCM, U. Zaragoza.	Aragon Region Government	01/2008-12/2010
Full Time Researcher. <i>The integration of Information Technology and Operations Management in Retail Industry.</i> UCM, U. Autònoma Madrid.	Madrid Region Government	01/2001-01/2002

8 TEACHING

Course	Institution	Degree	Period
Operations Management	University Complutense of Madrid	B.S. Management B.A. Law B.A. Commerce MBA	2000-Current
Corporate Economic Control	University Complutense of Madrid	B.S. Management	2000-2001
eBusiness	University Complutense of Madrid	B.S. Management MBA	2001-2020
B2B Ebusiness	Villanueva International University	Master in Net-Economy	2001-2003
Open Innovation (assistant professor)	UC Berkeley	MBA	2008
Information Technology Management	University Complutense of Madrid	B.S. Management	2008-2009
Management of Technological Projects	University Complutense of Madrid	Master in Videogames Marketing	2009-Current
Principles of Management Science	University Complutense of Madrid	B.S. Management	2010-2017
Principles of Operations and Information Technology Research	University Complutense of Madrid	Master in Management Research	2011-Current
Strategic Innovation	Istituto Europeo di Design	Master in Design and Innovation	2011-2015

Course	Institution	Degree	Period
Industrial Management	University Complutense of Madrid	Master in Biotechnology	2015-2022
Innovation Leadership	University of Granada	Master in Economics	2020-Current
Product Management	Joint North American Universities Program Spain: Tufts, Indiana, Georgetown, Tulane, CalState, Stetson, Purdue, P.Meridian	Product Management	2023- Current

9 CORPORATE TRAINING

Course	Institution	Year
Impact of Digital Transformation on Employment	Merck	2024
Job Market Impact of Digital Transformation	Spanish Trade Unions Association	2023
Design Thinking	Ecoembes	2020
Evidence Based Policy	Ecoembes	2020
Frontier Technologies Business Plans	National Association of Entrepreneurial Scientists	2019
Professional Development for New PhD Graduates	Caixa Bank	2019
Design Thinking and Innovative Methodologies	British Telecom	2018
Dual Vocational Training in US	Bertlesmann Alliance for Dual Training	2016
Open Innovation	Business Association – Navarra Region	2014
Big Data and Open Innovation	Isoco	2012
Open Innovation	Banca Intesa San Paolo	2011
Living Labs	Zinnae Cluster of Water Industries	2010
Open Innovation	Mondragon Corporation	2009
Open Innovation	Business Association of Biotech Firms Spain	2009
On-line Branding Strategies	Spanish Institute of Foreign Trade	2006
SAP Implementation	ONO	2000
SAP Implementation	Kodak	1997

10 PUBLICATIONS

10.1 Innovation Strategies

- Gimenez-Fernandez, E. M., Stefan, I., Beukel, K., & Sandulli, F. (2023). Exploring the dynamics of openness and formal appropriability and its impact on innovation performance in start-ups. *R&D Management*, 53(3), 434-458.
- Gimenez-Fernandez, E. M., Ferraris, A., Troise, C., & Sandulli, F. D. (2022). Openness strategies and the success of international entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, 28(4), 935-951.
- Gimenez-Fernandez, E. M., Sandulli, F. D., & Bogers, M. (2020). Unpacking liabilities of newness and smallness in innovative start-ups: Investigating the differences in innovation performance between new and older small firms. *Research Policy*, 49(10), 104049. Q1 SJR.
- Fernández, E. M. G., & Sandulli, F. D. (2020). High skilled workers mobility in Spain and Europe: motivations and implications. *UCJC Business and Society Review (formerly known as Universia Business Review)*, 17(2), 70-89. Q3 SJR.
- Rodríguez Ferradas, M. I., Alfaro Tanco, J. A., & Sandulli, F. (2017). Relevant factors of innovation contests for SMEs. *Business Process Management Journal*, 23(6), 1196-1215. Q1 SJR.
- Sandulli, F. D., & Fernandez, E. G. (2019). Underemployment of middle-skilled workers and innovation outcomes: A cross-country analysis. In *Diversities of Innovation* (pp. 137-154). Routledge. Q1 SPI.
- Gimenez-Fernandez, E. M., Bogers, M., & Sandulli, F. (2019). How the Diversity of Cooperation Partners Affects Startups' Innovation Performance: An Analysis of the Role of Cooperation Breadth in Open Innovation. In *Open Innovation and Entrepreneurship* (pp. 9-35). Springer, Cham. Q1 SPI.
- Gimenez-Fernandez, E. M., & Sandulli, F. D. (2017). Modes of inbound knowledge flows: are cooperation and outsourcing really complementary?. *Industry and Innovation*, 24(8), 795-816. Q1 SJR.
- Olalla, M. F., Sandulli, F. D., Menéndez, J. F., & Duarte, A. R. (2014). ¿Cómo afectan las características de la industria a la relación entre la capacidad de I+ D y la adopción de innovación abierta de entrada?. *Economía industrial*, (391), 23-32.4.5 ICDS MIAR.
- Sandulli, F. (2013). User-led innovation: final users' involvement in value cocreation in services industries. In *New Business Models and Value Creation: A Service Science Perspective* (pp. 87-103). Springer, Milano. Q1 SPI.
- Sandulli, F. D., Fernandez-Menendez, J., Rodriguez-Duarte, A., & Lopez-Sanchez, J. I. (2012). Testing the Schumpeterian hypotheses on an open innovation framework. *Management Decision*, 50(7), 1222-1232. Q1 SJR.
- Sandulli, F. D., & Chesbrough, H. (2009). Open business models: las dos caras de los modelos de negocio abiertos. *UCJC Business and Society Review (formerly known as Universia Business Review)*, (22). Q3 SJR.

- Sandulli, F. D. (2008). Estrategias de Filantropía Corporativa Global: El caso de las empresas españolas en Latinoamérica. *Journal of Globalization, Competitiveness & Governability/Revista de Globalización, Competitividad y Gobernabilidad/Revista de Globalização, Competitividade e Governabilidade*, 2(1), 100-111.Q3 SJR.
- Rodríguez-Duarte, A., Sandulli, F. D., Minguela-Rata, B., & López-Sánchez, J. I. (2007). The endogenous relationship between innovation and diversification, and the impact of technological resources on the form of diversification. *Research Policy*, 36(5), 652-664.Q1 SJR.
- Lopez-Sanchez, J. I., Minguela-Rata, B., Rodriguez-Duarte, A., & Sandulli, F. D. (2006). R&D resources and diversification: controlling for indirect diversification and endogeneity. *International Journal of Technology Management*, 35(1-4), 136-155.Q1 SJR.
- Minguela-Rata, B., Sandulli, F. D., Lopez-Sanchez, J. I., & Rodriguez-Duarte, A. (2006). Effects of multi-functional new product development teams and overlapping approach on development time: an empirical study. *International Journal of Business Environment*, 1(2), 234-252.Q2 SJR.

10.2 Management of Information Technology

- Vasquez, O., Sandulli, F.D., Gallego, J. (2024). Incomplete regional innovation systems and the distant hybridization of manufacturing and knowledge intensive business services industries. *European Planning Studies*, In press.
- Sandulli, F. D., Gimenez-Fernandez, E. M., & Ferradas, M. I. R. (2022). The transition of regional innovation systems to Industry 4.0: the case of Basque Country and Catalonia. In *Industry 4.0 and Digitization* (pp. 42-56). Reprint. Routledge.
- Sandulli, F. D., Gimenez-Fernandez, E. M., & Rodriguez Ferradas, M. I. (2021). The transition of regional innovation systems to Industry 4.0: the case of Basque Country and Catalonia. *European Planning Studies*, 29(9), 1622-1636.
- Sandulli, F. D., Ferraris, A., & Bresciani, S. (2017). How to select the right public partner in smart city projects. *R&D Management*, 47(4), 607-619.Q1 SJR.
- López-Sánchez, J. I., Fossas-Olalla, M., Rodríguez-Duarte, A., & Sandulli, F. D. (2017). A new way to learn. The use of an app (blunder) to manage knowledge with higher education students. *WPOM-Working Papers on Operations Management*, 8, 86-91.
- Sandulli, F. D., Baker, P. M., & López-Sánchez, J. I. (2014). Jobs mismatch and productivity impact of information technology. *The Service Industries Journal*, 34(13), 1060-1074. Q2 SJR.
- Sandulli, F. D., & López-Sánchez, J. I. (2014). Can Online Retailers Escape the Law of One Price?. In *Handbook of Strategic e-Business Management* (pp. 187-207). Springer, Berlin, Heidelberg. Q1 SPI.
- Sandulli, F. D., Rodríguez-Duarte, A., & Sánchez-Fernández, D. C. (2014). Value Creation and Value Capture Through Internet Business Models. In *Handbook of Strategic e-Business Management* (pp. 83-108). Springer, Berlin, Heidelberg. Q1 SPI.
- Baker, P. M., Rodríguez-Duarte, A., & Sandulli, F. (2014). Un marco de análisis para la adopción de Sistemas de Gestión de Aprendizaje en las Universidades. *Journal of Globalization, Competitiveness & Governability/Revista de Globalización, Competitividad y Gobernabilidad/Revista de Globalização, Competitividade e Governabilidade*, 8(1), 124-140. Q3 SJR.

- Sandulli, F. D., Baker, P. M., & López-Sánchez, J. I. (2013). Can small and medium enterprises benefit from skill-biased technological change?. *Journal of Business Research*, 66(10), 1976-1982. Q1 SJR.
- Sandulli, F. D., Fernández-Menéndez, J., Rodríguez-Duarte, A., & López-Sánchez, J. I. (2012). The productivity payoff of information technology in multimarket SMEs. *Small Business Economics*, 39(1), 99-117. Q1 SJR.
- Sandulli, F. D., Sánchez, J. I. L., & Duarte, A. R. (2012). Habilidades de los trabajadores, adopción de las tecnologías de la información y eficiencia en las pymes. *Papeles de economía española*, (132), 261-274. 6 ICDS MIAR,
- Sandulli, F. D. (2010). Solving the Paradoxes of the Information Technology Revolution: Productivity and Inequality. In *Handbook of Research on Overcoming Digital Divides: Constructing an Equitable and Competitive Information Society* (pp. 423-438). IGI Global.Q1 SPI.
- Fernández-Menéndez, J., López-Sánchez, J. I., Rodríguez-Duarte, A., & Sandulli, F. D. (2009). Technical efficiency and use of information and communication technology in Spanish firms. *Telecommunications Policy*, 33(7), 348-359. Q1 SJR.
- Sandulli, F. D., Sánchez, J. I. L., & Rabadán, J. G. (2008). TIC y mercado electrónico:¿ son lo mismo en el sector de la construcción?. *Economía Industrial*, 370, 103-110. 4.5 ICDS MIAR.
- Sandulli, F. D., & Martín-Barbero, S. (2008). 99 Cents per Song: A Fair Price for Digital Music? The Effects of Music Industry Strategies to Raise the Willingness to Pay by P2P Users. *Journal of Website Promotion*, 2(3-4), 3-15.Q2 SJR.
- Martín-Barbero, S., & Sandulli, F. D. (2008). Harley Davidson's Brand Identity on the Web: A BIWAM® Filtering. *Journal of Website Promotion*, 2(1-2), 141-161.Q2 SJR.
- Sandulli, F. D., & Barbero, S. M. (2008). La cultura nacional y la estructura de mercado en la descarga de música en las redes P2P. In *Comunicación y música* (pp. 75-93). Editorial UOC.Q1 SPI.
- Sandulli, F. D. (2007). CD music purchase behaviour of P2P users. *Technovation*, 27(6-7), 325-334.Q1 SJR.
- Sandulli, F. D., & Martín-Barbero, S. (2007). 68 cents per song: a socio-economic survey on the Internet. *Convergence*, 13(1), 63-78.Q1 SJR.
- Fernandez Menendez, J., Lopez Sanchez, J. I., Rodriguez Duarte, A., & Sandulli, F. D. (2007). The impact of the actual use of the ICT on the technical efficiency of the spanish firms. *Estudios Gerenciales*, 23(103), 65-84. 10 ICDS MIAR.
- Sánchez, J. I. L., Rata, B. M., Duarte, A. R., & Sandulli, F. D. (2006). Is the internet productive? A firm-level analysis. *Technovation*, 26(7), 821-826.Q1 SJR.
- Sandulli, F. D., Rata, B. M., Duarte, A. R., & Sánchez, J. I. L. (2006). El comercio electrónico en España: un análisis del proceso de compra de las empresas españolas. *Economía industrial*, (361), 103-110. 4.5 ICDS MIAR,
- Sánchez, J. L., Rata, B. M., Duarte, A. R., & Sandulli, F. D. (2006). Uso de internet y paradoja de la productividad: el caso de las empresas españolas. *Cuadernos de Economía y Dirección de la Empresa*, (26), 149-173. Q1 SJR.

- Barbero, S. M., & Sandulli, F. D. (2005). *Marcating en la web: BIWAM: identidad desnuda*. CIE Inversiones Editoriales Dossat 2000.
- Barbero, S. M., & Sandulli, F. D. (2005). El usuario y el proveedor digital: el " reparto musical" en las redes p2p. *Zer: Revista de estudios de comunicación= Komunikazio ikasketen aldizkaria*, (18), 105-121. 6.5 ICDS MIAR,
- Barbero, S. M., & Sandulli, F. D. (2004). Música en Internet: estrategias a seguir. *Universia Business Review*, (4), 30-41. Q3 SJR.
- García, Á. C., & Sandulli, F. D. (2003). Creación empresarial y dominio de mercado: el caso del departamento de justicia de los Estados Unidos contra Microsoft. *ICE, Revista de Economía*, (808). 6.5 ICDS MIAR,
- Sánchez, J. I. L., & Sandulli, F. D. (2002). Evolución de los modelos de negocios en internet: situacion actual en españa de la economia digital. *Economía industrial*, 213-229. 4.5 ICDS MIAR,