REVISTA TRIMESTRAL DE DIRECCIÓN DE EMPRESAS

UNIVERSIA BusinessReview

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Turismo y moda: factores que afectan a la duración del viaje
Haydeé Calderón-García, Martina Gonzalez-Gallarza, Teresa Fayos-Gardó & Pauline Osullivan

Nº 51
Tercer trimestre / Third Quarter 2016
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CARTA DEL DIRECTOR
NÚMERO 51 UNIVERSIA BUSINESS REVIEW

En el tercer trimestre de 2016 se ha publicado el "Índice H de las Revistas Científicas Españolas según Google Scholar Metrics, (2011-2015)", Universia Business Review ocupa la primera posición de las 87 revistas analizadas en el área de ECONOMÍA y EMPRESA. Este dato junto al impacto obtenido en uno de los índices de calidad relativa en los que se encuentra indexada *Universia Business Review*: SCOPUS (*Elsevier Bibliogrphic Databases. Scimago Journal Rank 2015 (SJR) :0,219 Q2; Category: Business, Management and Accounting (miscellaneous)*, confirma la tendencia de UBR. Por esta razón, iniciamos el proceso de ser revaluados por el *Social Science Citation Index* y somos optimistas en relación a la posibilidad de que en un plazo de tiempo, no excesivamente largo, la revista vuelva a ser aceptada.

En el primer artículo se analiza si existe una interrelación entre el turismo y las compras, y merece especial atención la influencia de las compras de productos del sector de la moda en la decisión de viajar. El concepto de implicación cognitiva y hedónica nos permite relacionar la importancia percibida de las compras por los consumidores de productos de moda y el turismo. Las profesoras Haydeé Calderón-García, Martina Gonzalez-Gallarza y Teresa Fayos-Gardó (Universidad de Valencia) analizan si la implicación del turista en la compra de productos de moda afecta a la duración del viaje turístico. Adicionalmente, investigan si la duración del viaje se ve influenciada por factores clásicos como los demográficos (edad, sexo, y nivel de renta), y los propios de la evaluación del comportamiento de compra en establecimientos de moda (calidad de servicio, calidad de producto, y disfrute de la compra). La investigación empírica con una muestra de 370 turistas permite obtener conclusiones interesantes para la gestión turística al afirmar que la implicación con la moda, el disfrute con las compras, la calidad del servicio, la implicación cognitiva en la selección del destino, la edad y la renta predicen la duración del viaje.

Seis Sigma es actualmente una de las herramientas más potentes para la mejora de la calidad. Concebida para procesos productivos muy repetitivos y de gran volumen de producción, ha sido adoptada por las organizaciones más grandes de todo el mundo en muchos sectores. Los profesores Pedro Garrido-Vega, Macarena Sacristán-Díaz y Luis Miguel Magaña-Ramírez (Universidad de Sevilla) estudian su aplicabilidad en pymes, con bajos volúmenes de producción, e tratan de identificar los principales factores de éxito y obstáculos para su implementación. Para ello emplean la metodología "investigación en acción" en una pyme del sector aeronáutico, aplicando el ciclo de mejora DMAIC a un proyecto Seis Sigma concreto. Los resultados confirman su aplicabilidad y sugieren que el éxito depende de factores claves como el compromiso del equipo, la disponibilidad de recursos y la formación previa.

Los avances tecnológicos han permitido que la educación también evolucione introduciendo herramientas pedagógicas innovadoras que mejoran la experiencia de aprendizaje para los individuos. Una de estas herramientas para el aprendizaje activo y experiencial es el uso de juegos de simulación empresarial. Estas nuevas herramientas pedagógicas permiten mejorar la motivación, autonomía y control del estudiante en su proceso de aprendizaje. En el este artículo los profesores Iguacel Melero (Universidad

de Zaragoza) pretenden analizar el éxito en la implantación de una asignatura basada en un juego de simulación empresarial mediante el estudio de la experiencia de aprendizaje del estudiante a través de dicho juego. Los resultados ponen de manifiesto que el apoyo recibido por parte del profesorado, la diversión del estudiante y un alto nivel de entusiasmo experimentado con el juego de simulación contribuirán de forma especialmente positiva a la opinión de los estudiantes sobre esta herramienta pedagógica innovadora.

En el siguiente artículo Federico Carril-Caccia y Juliette Milgram Baleix (Universidad de Granada) estudian el perfil de los inversores chinos en España utilizando datos a nivel empresa y datos primarios obtenidos mediante un cuestionario en el sector de manufacturas, energía renovable y distribución. Para los autores en el sector manufacturero, las empresas chinas buscan adquirir y desarrollar nuevas capacidades y acceder, no sólo al mercado español, pero también a mercados dentro y fuera de la UE. En energía renovable, también están orientados hacia la exportación pero, a diferencia de los demás, valoran especialmente la cualificación de la mano de obra española. Las empresas chinas dedicadas a la distribución están más atraídas por la demanda interna nacional: quieren adquirir nuevas capacidades, dar a conocer su marca y servir de apoyo a sus exportaciones a España. Concluyen que el estudio puede ser de utilidad para aquellos que busquen entender la estrategia de estos nuevos inversores en el mercado español y los riesgos y las oportunidades que plantean.

Las etapas de madurez en las industrias suelen llevar aparejados procesos de concentración, como una reacción natural a la intensificación de la competencia. Este es el caso del sector de la telefonía móvil, donde una vez alcanzada la madurez, hemos asistido a un número no desdeñable de fusiones en los últimos años. A pesar de que la literatura existente ha documentado procesos de concentración en otros sectores de mayor tradición, la todavía incipiente historia de las telecomunicaciones móviles ha implicado que son menos numerosos los trabajos que analizan el fenómeno en esta industria. En este estudio los profesores Pilar Bernal, Elisabet Garrido y Pablo Ríos (Universidad de Zaragoza) pretenden arrojar luz en esta dirección, valorando el potencial de las fusiones domésticas como herramienta competitiva de las operadoras en el largo plazo. Los análisis realizados en el marco de la industria en Europa revelan que las operaciones de fusión han tenido, además de los efectos inmediatos en el poder de mercado de las empresas implicadas, un claro efecto en la evolución de la competencia a largo plazo. Así, se observa que las fusiones ralentizan el incremento de la competencia que ha tenido lugar desde 2000 a 2015 fruto, entre otros factores, de la entrada de nuevos competidores y de los esfuerzos del regulador en esta dirección.

No quiero finalizar sin agradecer de nuevo a Universia su confianza, y la labor desempeñada durante este último periodo por los Editores de Área, los miembros del Comité Científico, Consejo Editorial y evaluadores.

José Ignacio López
Director de UBR

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LETTER FROM THE EDITOR IN CHIEF
NUMBER 51 UNIVERSIA BUSINESS REVIEW

The "H Index of Spanish Scientific Journals according to Google Scholar Metrics (2011-2015)" has recently been published in the third quarter of 2016, revealing that Universia Business Review ranks first among the 87 journals analysed in the field of ECONOMY and COMPANIES. The publication's leading status is also confirmed by the findings of one of the relative quality indices on which Universia Business Review is indexed: SCOPUS *(Elsevier Bibliographic Databases. Scimago Journal Rank 2015 (SJR) :0,219 Q2; Category: Business, Management and Accounting (miscellaneous).* We are now, therefore, embarking on the process of being reassessed by the *Social Science Citation Index* and we are confident that our journal will once again be accepted before too long.

In the first article, the authors discuss possible correlations between tourism and buying, paying particular attention to how shopping for fashion products might influence our travel choices. The concept of cognitive and hedonic involvement allows us to relate the perceived importance of buying by consumers of fashion products with tourism. Professors Haydeé Calderón-García, Martina Gonzalez-Gallarza and Teresa Fayos-Gardó (University of Valencia) analyse whether the act of buying fashion products by the tourist affects the duration of the trip or holiday. They also investigate whether the length of the trip is influenced by classic demographic factors (age, gender and level of income), along with other factors relating to buying behaviour at fashion establishments (quality of service, product quality, and buying enjoyment). The empirical study involved a sample of 370 tourists and offers some interesting conclusions for tourism management purposes by revealing that involvement with fashion, buying enjoyment, quality of service, cognitive involvement in selecting the destination, age and income all shape the length of the trip.

Six Sigma is currently one of the most powerful tools when it comes to improving quality. Originally designed for highly repetitive, high-output production processes, it has been adopted by many of the world's largest organisations across a wide spectrum of sectors. Professors Pedro Garrido-Vega, Macarena Sacristán-Díaz and Luis Miguel Magaña-Ramírez (University of Seville) explore how this set of techniques can be applied at SMEs, which have relatively low production outputs, while attempting to identify the main success factors and hurdles to implementing the system. In doing so, they employ the "research to action" methodology at an SME from the aeronautical sector, applying the DMAIC improvement cycle to a specific Six Sigma project. Their results reveal that it can be applied and suggest that whether or not this is successful will ultimately hinge on certain key factors such as team commitment, resource availability and prior training.

Technological progress has allowed education to evolve in tandem by providing innovative teaching aids to improve the learning experience for individuals. Business simulation games are one such aid to active and experiential learning. These new educational tools allow us to improve the student's motivation, autonomy and control over his or her learning process. In her article, professor Iguácel Melero (University of Zaragoza) aims to analyse the degree of success in implanting a subject based on a business simulation game, by studying the student's learning experience through that game. Her findings reveal that the

support received from teaching staff, plus the enjoyment and enthusiasm experienced by the student while playing the simulator are all particularly strong factors positively shaping the student's opinion of this ground-breaking educational aid.

In the following article, Federico Carril-Caccia and Juliette Milgram Baleix (University of Granada) study the profile of Chinese investors in Spain by using company-level information and primary data obtained through a questionnaire targeting the manufacturing, renewable energies and distribution sectors. For the authors, Chinese companies in the manufacturing sector are seeking to acquire and develop new capacities and to penetrate not only the Spanish market but also other markets both within and outside the EU. In the field of renewable energies, investors are also geared towards exports, yet in contrast to other sectors they are particularly attracted by highly skilled Spanish labour. Chinese companies engaged in distribution are most swayed by domestic demand: they are looking to acquire new capacities, increase exposure for their brand and support their exports to Spain. They conclude that the study may be useful for those wishing to understand the strategy of these new investors in the Spanish market and the associated risks and opportunities.

The maturity stage of an industry life cycle tends to generate concentration processes as a natural response to increasingly fierce levels of competition. A prime example here is the mobile telephony sector, in which we have seen a large number of mergers in recent years now that the industry has reached maturity. Although there is ample evidence of concentration processes in other more traditional sectors, far fewer studies have explored the phenomena in the still relatively young mobile telecommunications sector. In their recent study, professors Pilar Bernal, Elisabet Garrido and Pablo Ríos (University of Zaragoza) aim to shed further light on the matter, evaluating the potential of domestic mergers as a valuable means of increasing the competitiveness of telecoms operators in the long term. Existing analyses within the wider context of European industry reveal that merger operations have had a clear impact on competition in the long run, on top of the immediate effects on the market power of the companies involved. It has been shown that mergers effectively slowed down the increasing levels of competition we saw from 2000 to 2015, and this is down, among other factors, to the arrival of new competitors and the efforts being made by the market regulator.

Last but not least, I would like to thank Universia once again for its ongoing trust and for the hard work of the Division Editors, the members of the Scientific Committee, Editorial Board and reviewers.

José Ignacio López
Editor in Chief of Universia Business Review

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Los Editores de Área se nombran para un periodo de dos años

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MISIÓN DE UBR

Universia Business Review no es una publicación exclusiva del mundo académico en sentido estricto, sino que su misión principal **es trasladar a quienes tienen la responsabilidad de dirigir empresas y negocios las ideas y desarrollos más innovadores que el ámbito científico y académico sea capaz de generar.**

Por otro lado, *Universia Business Review* no renuncia a dar servicio a la comunidad universitaria y científica como la publicación de referencia, en la que los especialistas puedan efectuar un seguimiento sistemático de las aportaciones novedosas de los colegas de su misma especialidad. En particular, esta revista pretende ser un vehículo de unión y comunicación de las comunidades universitarias de habla latinoamérica dedicadas al estudio de la Empresa.

PROCEDIMIENTO EDITORIAL

Los originales recibidos y admitidos por el Comité de Dirección, serán enviados al Editor del área correspondiente para que analice si el trabajo debe continuar el proceso editorial y ser remitido a dos evaluadores anónimos (expertos ajenos a la entidad editora), de reconocido prestigio en el campo de estudio. Para desarrollar su labor se le envía el listado de evaluadores de los últimos años, pudiendo seleccionar e incluir aquellos nuevos revisores que el Editor de Área considere más acorde con el trabajo para su evaluación.

Una vez recibidas las dos evaluaciones el Editor de Área elevará al Comité de Dirección su propuesta de aceptar o rechazar el artículo para su publicación en UBR. Se pretende que, mediante la implantación de sucesivos "filtros" de calidad, el lector obtenga garantías de que la revista publica sólo aportaciones de nivel y de actualidad.

NORMAS PARA LOS ARTÍCULOS

UBR está abierta a la recepción para su publicación de originales preparados por miembros del mundo universitario, escuelas de negocios de todo el mundo, directivos y empresarios. Para que los trabajos puedan ser publicados los autores deberán atenerse a las siguientes normas:

• **Los artículos, que serán inéditos**, tendrán una extensión alrededor de 5.000 palabras, incluyendo notas a pie de página y bibliografía. **No deberá utilizarse un número excesivo de referencias bibliográficas**. Se considera que no deben superar las veinticinco.

• El artículo debe estar redactado de forma que facilite la lectura y comprensión de los contenidos a un público no académico. Se **debe evitar utilizar un lenguaje de corte excesivamente especializado**, en beneficio de una más fácil comprensión de las ideas expuestas y en la medida de lo posible, el abuso de términos muy académicos (metodología, hipótesis, etc.) y funciones matemáticas, aunque esto haya podido servir para que los evaluadores analicen el alcance de su investigación. Las **conclusiones no deben ser un resumen del trabajo**, sino una aplicación, una lección que se está trasladando a los responsables de las empresas para que estos la puedan considerar como un "buen consejo", y lo que es más importante, que lo puedan entender y aplicar.

Si es necesario, o el evaluador lo requiere, se puede adjuntar como un fichero complementario (o anexo) todos los datos, técnicas econométricas, etc..., que hayan podido utilizar los autores para alcanzar las conclusiones de su investigación.

Una vez dado el visto bueno al trabajo, dicho fichero (o anexo) no se incorporaría en el artículo editado. Los autores deben hacer un esfuerzo para adaptar su trabajo a nuestros lectores, a los empresarios y directivos, no sólo al mundo académico.

• Los autores deberán subir un **fichero adicional "Archivo complementario" respondiendo a las siguiente preguntas**:

1. ¿cuál es el mensaje o idea principal del artículo? ¿pueden aplicarla los empresarios y directivos?
2. ¿por qué cree que los directivos deben conocer su artículo? ¿para qué tipo de empresas serviría y para qué tipo no?
3. ¿qué investigación se ha llevado a cabo para argumentar su propuesta? ¿sobre qué trabajos (artículos, teorías, etc...) fundamenta su propuesta?.
4. ¿cuál es su experiencia personal, académica y/o profesional que avale sus conocimientos sobre el tema?

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• Los **artículos se publicarán en inglés y castellano**. Los autores pueden enviar el artículo en castellano, pero una vez finalizado el proceso editorial y antes de su aceptación definitiva, los autores se comprometen a enviar la versión íntegra en inglés para publicarse en los dos idiomas.

• **No deberá aparecer el nombre del autor/es en ninguna hoja**, con el fin de facilitar el proceso de evaluación, ya que los datos se incorporarán en el formulario digital.

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o Takeuchi, H. (2013). "Knowledge-Based Vied of Strategy". *Universia Business Review*, 40, 68-79.
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• Una vez recibido el artículo, **UBR acusará recibo**, por correo electrónico, e iniciará el proceso de selección anteriormente mencionado. Finalizado el mismo se comunicará al autor de contacto la decisión sobre su aceptación o rechazo por parte del Comité de Dirección.

• La revista se reserva la **posibilidad de editar y corregir los artículos**, incluso de separar y recuadrar determinadas porciones del texto particularmente relevantes o llamativas, respetando siempre el espíritu del original.

• Los autores deberán estar en disposición de ceder a Universia Business Review los **derechos de publicación de los artículos**.

MISSION

As stated in our mission, *Universia Business Review (UBR)* is not a publication dedicated strcitly and exclusively to the academic world; its primary mission is **to transmit the most innovative ideas and developments generated by the scientific and academic communities to business leaders**.

Nevertheless, UBR does not neglect to provide a service to the university and scientific community, as a publication of reference through which specialists can systematically follow the latest contributions made by colleagues in their field. In particular, the journal seeks to be a vehicle of communication and union among university communities that speak Latin American languages and are dedicated to the study of Business.

EDITORIAL PROCEDURE

The originals received and accepted by the Management Board will be sent to the Associate Editor for the relevant area who will determine whether the work should proceed through the editorial process and be forwarded to two anonymous evaluators (experts external to the publishing entity), renowned for their work in the field. The list of evaluators from the last few years is provided to support their work by enabling them to select and include new reviewers that the Associate Editor considers most appropriate for evaluation of the work.

Once the Associate Editor receives the two evaluations, they will submit a proposal to the Management Board to accept or reject the article for publication in UBR. It is intended that, through the implementation of successive quality "filters", the reader will be assured that the magazine only publishes contributions that are high quality and current.

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UBR is open to receiving original documents for publication prepared by members of universities, business schools from around the world, and business owners and executives. To ensure that the work is suitable for publication authors must abide by the following rules:

• Check that **the articles, which must be unpublished**, are limited to around 5,000 words, including footnotes and bibliography. **There should not be an excessive number of bibliographical references**, which must not exceed twenty-five.

• Particular attention should be paid to the fact that the article must be worded in a way that enables the content to be read and understood by a non-academic audience. **The use of very specialised language should be avoided** in order to make the ideas presented more easily understood, as should the overuse of very academic terms (methodology, hypothesis, etc.) and mathematical functions as far as possible, even if that may have helped evaluators to analyse the scope of the research.**Conclusions should not be a summary of the work**, but an application: learning that is transferred to business leaders so that they will consider it "good advice" and, more importantly, something they can understand and apply.

If necessary or required by the evaluator, all of the data, econometric techniques, etc. that may have been used by the authors to reach the conclusions of their research may be attached as a supplementary file (or annex).

Once the work has been approved, the file (or annex) will not be incorporated as part of the edited article. The authors must make an effort to adapt their work to our readers –business owners and executives– not just the academic world.

• The authors must upload an **additional "Supplementary file", responding to the following questions**:

1. What is the primary message or idea in your article? Can business owners and executives apply it?
2. Why do you think executives should see your article? Which kinds of companies would it be of use to, and which not?
3. What research have you undertaken in order to argue your proposal? What pieces of work (articles, theories, etc.) is your proposal based on?
4. What personal, academic and/or professional experience do you have to endorse your knowledge on the subject?

• Each article must be preceded by the title, a short summary in Spanish and English of approximately 80 words in each case, and five key words in both languages. It should also incorporate a classification of the work according to the descriptors used by the Journal of Economic Literature.

• **Articles will be published in English and Spanish**. Authors can send the article in Spanish, but once the editorial process is completed and before it is finally accepted, the authors must undertake to send the full version in English for publication in both languages.

• **The author's name should not appear on any page** in order to simplify the process of evaluation, since the data will be incorporated into the digital form.

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Tourism and fashion: factors affecting trip length[1]

Turismo y moda: factores que afectan a la duración del viaje

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1. INTRODUCTION

According to the World Tourism Organization (UNWTO), in 2013 global export earnings generated by international tourism stood at $1.4 trillion (UNWTO, 2014a). Tourism is the world's fifth largest export category. Research on tourist behaviour shows a clear link between the trip and spending in the destination's retail outlets (Guo, Vasquez-Parraga and Wang, 2006; Sullivan, Bonn, Bhardwaj and DuPont, 2012).

Shopping for pleasure is no longer purely an incidental activity whilst travelling for leisure. It is currently one of the main reasons to travel for millions of tourists (UNWTO, 2014B: 13). Shopping tourism represents earnings of €13.5 billion in Europe. Spain currently ranks fourth worldwide on the list of preferred countries for shopping tourism, with non-EU citizens adding €1.1 billion to the economy every year. Spain ranks third globally in the number of foreign tourists, yet its earnings from tax-free purchases made by non-EU citizens represents only 3.2% of its income, i.e. €1.6 billion (Ernst & Young, 2015). A study carried out by the BBVA (2014) revealed that spending on fashion and shopping is now the leading expenditure concept for international tourists in Spain paying by card via terminals belonging to this bank. The average fashion expenditure per visitor in 2014 was €106.

According to TURESPAÑA (2014b), 40% of international visitors (travelling to Spain or to other destinations) include shopping in their travel plans. Accurate numbers of tourists travelling to shop in other countries cannot be calculated, yet growth in this tourist product will

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EXECUTIVE SUMMARY

Tourism and shopping are closely related, and the influence of fashion shopping on a tourist's decision to travel is especially significant. The concept of cognitive and hedonic involvement enables us to relate the importance given to shopping by consumers of fashion products and of tourism services. This research analyses whether tourist involvement in fashion shopping has an impact on the length of their stay in a destination. In addition, it examines whether trip length is conditioned by traditional factors, such as demographic indicators (age, gender and income bracket), as well as by cognitive and affective involvement, and shopping motivations (service quality, product quality and shopping enjoyment). The empirical research carried out on a sample of 370 tourists has enabled us to draw interesting conclusions for destination managers and other tourism decision-makers, showing that involvement in fashion, shopping enjoyment, service quality, cognitive involvement in the choice of destination, age, and income significantly predict trip length.

RESUMEN DEL ARTÍCULO

Existe una interrelación entre el turismo y las compras, y merece especial atención la influencia de las compras de productos del sector de la moda en la decisión de viajar. El concepto de implicación cognitiva y hedónica nos permite relacionar la importancia percibida de las compras por los consumidores de productos de moda y el turismo. La presente investigación analiza si la implicación del turista en la compra de productos de moda afecta a la duración del viaje turístico. Adicionalmente, investigamos si la duración de viaje se ve influenciada por factores clásicos como los demográficos (edad, sexo, y nivel de renta), y los propios de la evaluación del comportamiento de compra en establecimientos de moda (calidad de servicio, calidad de producto, y disfrute de la compra). La investigación empírica con una muestra de 370 turistas nos permite obtener conclusiones interesantes para la gestión turística al afirmar que la implicación con la moda, el disfrute con las compras, la calidad del servicio, la implicación cognitiva en la selección del destino, la edad y la renta predicen la duración del viaje.

be far superior to that of other areas given that shopping is the main reason, or one of the main reasons to travel in emerging countries which will be leading growth in international tourism.

The influence of shopping on tourist behaviour has grown to such an extent that it now has its own category, "shopping tourism", defined as "a contemporary form of tourism fostered by individuals for whom purchasing goods outside of their usual environment is a determining factor in their decision to travel" (UNWTO 2014b: 13). Going shopping is one of the greatest attractions in cities visited by tourists and it has been demonstrated that shopping has a major impact on the tourist experience (Moscardó, 2004; Molina *et al*., 2011).

The influence of shopping on tourist behaviour has grown to such an extent that it now has its own category, "shopping tourism"

Within the broad spectrum of tourist shopping behaviours, purchases of fashion industry products, the area under study in this paper, merit particular analysis, based on the theory that fashion has a major impact on travel decisions and on the choice of travel destination (Lewis, Kerr and Burgess, 2013). According to Moscardó (2004), modern tourists choose to make their purchases in the fashion, handicraft and design industries. In the case of Spain, the fashion and accessory purchases made by non-EU tourists in 2013 (with VAT returns) accounted for 55.2% of total purchases (TURESPAÑA, 2014b).

Fashion is a broad and diverse industry, and includes textiles and clothing, leather goods, footwear, and jewellery (Castro, 2002). Yet despite its importance, research into the relationship between fashion and tourist destination is relatively limited. Lewis, Kerr and Burgess (2013:5) stated that "fashion can be a moderating variable in the travel decision and destination selection process" and called for "more extensive studies of the relationship between fashion and tourism" in their research. This article delves into the link between fashion and tourist destination through the concept of involvement, taking consumer involvement as referring to the feelings of interest, enthusiasm, and excitement that consumers have about specific product categories (Flynn and Goldsmith, 1993). In the fashion sector, involvement is defined as the extent to which the consumer views the focal activity as a central part of their life, or a meaningful and engaging activity in their life (O'Cass, 2004). In consumer behaviour research, the involvement theory has long been considered as an explanatory factor for this kind of behaviour (e.g. Huang, Chou and Lin, 2010; Flynn and Goldsmith, 1993).

KEY WORDS
Tourist destination, fashion shopping, cognitive involvement, hedonic involvement, trip length.

PALABRAS CLAVE
Destino turístico, compras de moda, implicación cognitiva, implicación hedónica, duración del viaje.

Against this background of tourist behaviour, a new line of research has emerged which establishes a link between tourist involvement in fashion and specific behaviour, such as trip length (Sullivan *et al*., 2012; Lewis *et al*., 2013). These authors found a direct relationship between fashion and the length of tourists' stay in the destinations where they go shopping.

Therefore, in addition to its relevance for consumer behaviour research, the convergence between involvement in fashion and tourist destination and the impact this has on trip length is important as it adds value to the regional and local economy (Sullivan *et al*., 2012).

This research aims to answer the question to what extent tourist involvement in fashion shopping affects trip length. Additionally, it will assess how traditional factors, such as demographic indicators (age, gender and income bracket), as well as factors involved in the assessment of shopping behaviour in fashion establishments (service quality, product quality and shopping enjoyment) are elements which explain the length of stay in a destination.

To achieve these aims, this paper will first set out the theoretical framework in which the concept of involvement in fashion and involvement in tourism will be examined, as well as addressing other relevant issues. The proposed model, the methodology to be used and the results obtained will then be put forward, and finally, conclusions and future implications for management will be drawn.

2. THE CONCEPT OF INVOLVEMENT IN CONSUMER STUDIES

The concept of involvement describes the personal importance a product or service has for consumers, their values, needs and interests. As mentioned above, involvement is an important factor in explaining consumer behaviour (Huang *et al*., 2010; Flynn and Goldsmith, 1993). It is made up of two complementary, interactive dimensions; the utilitarian or cognitive dimension (functions, product attributes and value) and the hedonic or affective dimension (feelings and pleasure) (Putrevu and Lord, 1994; Park and Jun, 2003).

Cognitive involvement centres on rational thought, indicating a high degree of objective knowledge about product attributes, including the idea of involvement understood as the amount and type of information a consumer processes in making a decision about a product and about purchasing it (Vera, 2010), whilst affective involvement expresses emotional values.

2.1. Involvement in fashion

Tigert *et al*. (1976) consider that fashion-related behavioural activities consist of the capacity for innovativeness, time of purchase, interpersonal communication, interest, knowledgeability and awareness. In turn, Guo *et al*. (2006) used a four-item scale to gauge fashion consciousness, and found that it was directly related to cross-border shopping. Lewis *et al*. (2013) showed that involvement in fashion was related to tourist behaviour. In turn, Sullivan *et al*. (2012), based on the idea that involvement in fashion influences tourist behaviour, carried out a study on tourism in the USA and concluded that tourists who included shopping among their main activities stayed longer in their destination than those who did not include it. Accordingly, and based on all of these previous studies, we put forward our first research hypothesis:

H_1: Involvement in fashion positively predicts trip length

2.2. Involvement in tourism

Involvement is total absorption in an activity and contributes to consumer satisfaction, especially in the case of a leisure activity (Unger and Kernann, 1983). Therefore, the concept of involvement is related to tourism (as a leisure activity) and there is abundant literature on consumer involvement in tourism (Jamrozy *et al*., 1996; Zalatan, 1998; Lehto *et al*., 2004; Huang *et al*., 2010).

Research shows that there is a positive relationship between tourist involvement and destination image, place attachment, satisfaction, recommendations and the intention to return to a destination (Prayag and Ryan, 2012). In addition, there is a correlation between involvement and trip length (Zalatan, 1998). Other types of involvement in tourism which could be related to trip length have also been identified, such as destination activities, risk, prior economic involvement (Lehto *et al*., 2004), and enduring involvement (Jamrozy *et al*., 1996).

Although studies on tourist identity take into account affective and cognitive dimensions (e.g. Palmer *et al*., 2013), there is little research applying this cognitive-affective dichotomy to the concept of involvement in the choice of destination and to its influence on trip length. The length of a trip is a variable which, despite its economic importance (the longer the trip, the greater the expenditure and therefore, greater income from tourism) and behavioural importance (as a variable explaining consumer behaviour), has received little attention from scholars (Alegre and Pou, 2012; Pestana and Pinto, 2010). In

addition, one of the main characteristics of current tourism is a reduction in the length of stay (AVT, 2014; Turespaña, 2014). Therefore, we believe the development of hypotheses enabling us to understand the role that cognitive and affective involvement in the tourist destination plays on the length of a trip is a valid exercise.

Along these lines, the groundbreaking contribution of this article over previous papers dealing with involvement in tourism is the introduction of both dimensions in terms of involvement in the choice of tourist destination. We consider that rational cognitive involvement will vary in line with trip length, as opposed to hedonic involvement which, given its emotional and therefore more subjective and relative nature (Flynn and Goldsmith, 1993), will vary in the opposite direction. Accordingly, we put forward the following research hypotheses:

H_2: Cognitive involvement in the choice of tourist destination predicts longer trip length

H_3: Affective involvement in the choice of tourist destination predicts shorter trip length

In turn, it has also been demonstrated that both sociodemographic variables such as age, gender (Zalatan, 1998) and income (Lehto *et al*., 2004), as well as other variables or psychosociological traits of tourism consumers (Jamrozy *et al*., 1996) have an impact on involvement in the tourist destination. Age and income have a positive effect on trip length (Alegre and Pou, 2006), and trip length is explained to a great extent by age and gender (Pestana and Pinto, 2010). Fleischer and Pizam (2002) also showed that age and income have a positive effect on length of stay, whilst more recently, Alén *et al*. (2014) reached the same conclusion in the case of Spanish senior citizens. Based on these studies, we put forward the following hypotheses:

H_4: The age of tourists has a positive effect on trip length.

H_5: The gender of tourists affects trip length.

H_6: The level of income of tourists has a positive effect on trip length.

2.3. Shopping motivations

Tourists' shopping behaviour is also governed by the standard parameters behind shopping motivations. Guo *et al*. (2006) found that the factors explaining shopping in countries outside a tourist's country of origin included fashion consciousness, shopping enjoyment, self-esteem, egoism, masculinity and shopping frequency. Other research (Barutçu, Doğan and Üngüren, 2011) has pointed to more traditional

tourist motivations, such as store variety and the experience of sales staff. In addition to these reasons, there are also characteristics inherent to the shopping experience which contribute to consumer satisfaction, such as the availability of regionally distinctive products, value for money, opening hours, window displays and shop layout, and the skills of sales staff (Murphy, Moscardo, Benckendorff and Pearce, 2011). Such a broad range of factors shows the variety and abundance of shopping motivations and of tourist behaviour in their holiday destinations. In addition, tourists' reasons for shopping will influence their behaviour, and therefore, their decisions about trip length, thus highlighting the importance of analysing this phenomenon in our research.

In the studies mentioned above about tourists' shopping motivations, hedonic and affective elements, such as shopping enjoyment, were also identified. For example, an opinion poll of travellers from 17 different countries (EGATUR, 2013) revealed that, in relative terms, the number one reason for tourists who went shopping when visiting Spain was "enjoyment and having a good time", which fits in perfectly with the hedonic or affective element of this activity. Accordingly, we put forward the following hypothesis:

H_7: Shopping enjoyment positively predicts trip length.

Research on tourist motivations has also revealed cognitive reasons, such as the expertise of staff, their attitudes and sales skills, and shop layout. In short, elements which refer to the quality of the establishment and of the service received. In addition, in the case of Spain, one of the strategic lines of its Shopping Tourism Plan (TURESPAÑA, 2014b) includes tailoring retail services to the needs and tastes of tourists so that they cater for what these visitors are looking for, when they look for it, where they look for it and how they look for it, whilst another line highlights the need to train the sector's employees. Therefore, we put forward the following hypotheses:

H_8: The quality, variety, innovative character and adaptation of the products in retail establishments positively predicts trip length.

H_9: The perceived quality of service offered by retail establishments positively predicts trip length.

3. METHODOLOGY

3.1. Design of the questionnaire and compiling information

A structured questionnaire was designed based on scales validated in previous research. The scales used for the constructs of cognitive and affective involvement in the choice of destination were taken from the work by Putrevu and Lord (1994) and the work by Sullivan *et al*. (2012) was used to measure sociodemographic variables. The involvement in fashion, shopping enjoyment, characteristics of products in shops and service quality constructs used the indicators taken from the study by Guo *et al*. (2006). The items for each construct were measured using a five-point Likert scale in which 1 was the lowest value and 5 was the highest[3].

The place chosen to carry out the empirical study was Spain, a country whose fashion industry employs over 130,000 workers in 21,000 companies (Marca España, 2014). The fashion industry is closely related to two important economic sectors in Spain, the textile industry and the footwear industry. Over the last few decades, both industries have undergone major transformation and a restructuring process which have led to an increase in turnover and greater presence in domestic and foreign markets (Marca España, 2014). As a result, the fashion industry in Spain is in excellent health and has a prestigious reputation all over the world, thanks to companies such as Camper, Cortefiel, Inditex (Zara, Bershka, Massimo Dutti, etc.), Mango, and Pronovias. All of these firms, together with other internationally recognised companies, are present in Valencia, which ranks third on the list of the best Spanish cities to go shopping, and was the location used to compile the information.

On the tourism side, 60.6 million tourists visited Spain in 2014, making it the third most visited country in the world. The choice of Valencia to carry out the field work from a tourism perspective was not a random decision either; the Valencian Region is the third most popular tourist destination in Spain, with a growth rate of 11% (AVT, 2014). In 2014, over six million tourists visited Valencia (TURESPAÑA, 2014b). Valencia is also one of the Mediterranean ports that welcomes the largest number of cruise ships.

The sample was chosen using the convenience sampling method for the population taking part in the study, following Teddlie and Yu (2007). In this case, and in line with the WTO definition, a tourist was

deemed to be a person who spends at least one night in Valencia. The questionnaire was carried out between May and August 2014 in the city centre's main shopping areas via personal interviews with both Spanish and foreign tourists over 16 years of age. A reasonable balance between age and gender was sought in the interviews. A total of 374 questionnaires were completed, four of which were eventually eliminated as they were incomplete.

3.2. Sample description

Table 1 shows the sample description.

Table 1. **Sample description**

GENDER		SITUATION		EDUCATION		AVERAGE INCOME
Male	34.9%	Working	50.1%	Postgraduate	10.0%	€35,000
Female	65.1%	Studying	24.9%	Secondary school	20.6%	
				Vocational training	36.7%	Average age
				Undergraduate	29.7%	40 years old

Table 2 shows the trip-related characteristics. Other information collected revealed that tourists visit the city of Valencia twice a year on average, and that less than 50% of these visitors travelled with children.

Table 2. **Trip characteristics**

MAIN REASONS TO VISIT VALENCIA		VISITORS CAME TO VALENCIA BY		AVERAGE NUMBER OF PEOPLE TRAVELLING TOGETHER	
Pleasure	38.4%	Car	10.0%	2 people	
Shopping	23.6%	Plane	20.6%		
Studying	20.2%	Other	36.7%	Country of origin	
Other	17.8%			Spain	69.7%
				Other EU countries	18.9%
				Non-EU countries	11.4%

3.3. Model validation

To validate the proposed model, ordinal logistic regression analysis was carried out given that the value of the dependent variable (trip length measured by number of nights) can be used to predict the assignment probability of each P category level. For the independent variables, the score of the factors involvement in fashion, shopping enjoyment, shop quality, and service quality was used, whilst for the variables cognitive involvement and affective involvement in the destination, the score obtained from the sum of the averages of each construct was used. The linear regression equation provided natural estimates (log) for the probability of assignment to a short stay, divided by the probability of assignment to another group (in our case, a long stay). The model had a confidence level of 95%. The results showed that the probability of correct assignment to the short stay category was 69.8%, and 92.9% for long stays. The model was therefore accurate in predicting the category. The odds ratio was good for involvement in fashion and cognitive involvement in the choice of destination, average for involvement in fashion and service quality, and low for age and income (**Table 3**).

Table 3. **Significant items in the model (p<.05)**

ITEM	B	S.E.	WALD	DF	SIG.	EXP(B)
Involvement in fashion	-.579	.169	11.697	1	.001	.560
Shopping enjoyment	-1.236	.183	45.479	1	.000	.291
Service quality	.767	.168	20.739	1	.000	2.154
Cognitive involvement in the choice of destination	1.756	.233	56.619	1	.000	5.786
Age	-.007	.002	7.743	1	.005	.993
Income	-.509	.233	4.763	1	.029	.601
Constant	-6.035	.805	56.184	1	.000	.00

3.4. Results

The model found that six of the nine variables proposed were predictive: involvement in fashion, shopping enjoyment, service quality, cognitive involvement in the choice of destination, age, and income. These variables were valid to estimate trip length probability, thus providing a response to the question we put forward in the introduction to this paper. **Table 4** shows the results for the nine research hypotheses.

More specifically, trip length was longer for tourists involved in fashion, i.e. fashion is important to them (H_1). This was also true for tourists who were rationally involved in the destination, i.e. they had or had previously acquired comprehensive objective knowledge about the characteristics of the destination before they travelled (H_2).

In terms of sociodemographic characteristics, older tourists and higher income had a positive effect on trip length (H_4 and H_6). However, trip length did not vary by gender (H_5).

Regarding tourist motivations, results show that tourists who enjoy shopping stay longer in the destination (H_7).

Finally, the quality of service received by tourists in retail outlets is important and is related to longer stays (H_9). Conversely, the variety, quality and innovative character of the products in these outlets was not relevant (H_8).

Table 4. **Acceptance of research hypotheses**

RESEARCH HYPOTHESES	ACCEPTED	
H_1: Involvement in fashion positively predicts trip length	Yes	
H_2: Cognitive involvement in the choice of tourist destination predicts longer trip length	Yes	
H_3: Affective involvement in the choice of tourist destination predicts shorter trip length		No
H_4: The age of tourists has a positive effect on trip length	Yes	
H_5: The gender of tourists affects trip length		No
H_6: The level of income of tourists has a positive effect on trip length	Yes	
H_7: Shopping enjoyment positively predicts trip length	Yes	
H_8: The quality, variety, innovative character and adaptation of the products in retail establishments positively predicts trip length		No
H_9: The perceived quality of service offered by retail establishments positively predicts trip length	Yes	

4. CONCLUSIONS AND RECOMMENDATIONS FOR TOURISM MANAGERS

Given the paucity of empirical research on the fashion-tourism relationship (Lewis *et al*., 2013), despite its economic potential (as a generator of income for destinations) and academic potential (for tourism and retail researchers), this paper has reviewed and analysed factors explaining the relationship between these two concepts. More specifically, after a literature review of these factors,

the empirical study took a more innovative approach than previous studies by centring on the concept of involvement. Thus, a regression model was constructed in which trip length could be predicted by nine variables: three different types of involvement (involvement in fashion, and affective and cognitive involvement in the choice of destination), as well as more traditional variables, such as the cognitive and affective motivations behind shopping (shop quality, service quality and shopping enjoyment), and sociodemographic variables (gender, age and income bracket).

The logistic regression model validated six of the nine hypotheses for predicting trip length. However, the predictive effects of affective involvement in the destination, tourist gender and the characteristics of the products in the shops were rejected. This result is not surprising in terms of the last variable given that products from anywhere around the world can now easily be bought online. Consequently, this hypothesis could be replaced in future studies with variables related to the actual retail outlet environment and experience, as these are features which do make a significant difference in the current retail scenario.

Data shows, therefore, that involvement in fashion, shopping enjoyment, service quality, cognitive involvement in the choice of destination, age, and income strongly predict trip length. The theory of Lewis *et al*. (2013), in terms of the relationship between fashion and choice of destination, has been empirically confirmed in this study for these variables. However, further research is necessary to confirm the link between fashion and other factors that are relevant to tourist behaviour, such as the transport modes used by tourists and the choice of destination.

In terms of recommendations for tourism managers and retail professionals, the results corroborate the relationship between fashion and cognitive involvement in the choice of destination and trip length. Fashion marketing should be used as a way to extend trip length. To achieve this, changes or additions must be made to traditional discourse. Spanish cities are synonymous with museums, cuisine, and sightseeing but not with clothing, shoes or fashion accessories. Traditionally, communication has focused on sun, sand and culture, but we have not told the rest of the world that Spain is a great place to go shopping. There are numerous arguments that can be used in this line of communication, such as the fact that the Spanish climate is perfect for strolling around shopping areas,

the variety of bars that are an ideal accompaniment to shopping, competitive prices, and the availability of world famous brands. Those in charge of promoting tourism in cities should make an effort to position cities as a product characterised by the "going shopping" value, as Milan did several decades ago.

In addition, the empirical study shown here reveals that there are two variables, shopping enjoyment and service quality, which have a positive effect on trip length. Companies can work with these elements to make tourist trips more attractive and thus extend tourists' length of stay. To achieve this, it would be advisable to improve the commercial services on offer on two different levels:

- Firstly, municipal authorities should make an effort to promote shopping areas, providing them with good transport services, making sure streets are clean and tidy and that these areas are safe, as well as permitting longer opening hours.
- Secondly, retail outlets must cater for the needs and tastes of tourists in terms of what they are looking for, when they look for it, where they look for it and how they look for it, as well as choosing the language used to interact with them. They need to ensure that the shopping experience is easy, fun, pleasurable and safe. Accordingly, a training plan will be required so that retail staff can acquire the skills that will enable them to provide better customer service.

According to Ernst & Young (2015), non-EU tourists generate the highest income from shopping in the destinations they visit, spending four times as much as EU tourists and seven times more than Spanish visitors. However, and as we have already mentioned, despite the fact that Spain ranks third in the world in terms of international tourists, its income from tax-free shopping from non-EU tourists is only 3.2%. Efforts should be made to attract Asian, Russian and Arab tourists, who already visit other European countries in considerable numbers, yet are only starting to be visible in Barcelona at present. These visitors have high purchasing power, are looking for prestigious brands, and require highly personalised services, though it should be stated that the scarcity of direct flights and numerous bureaucratic obstacles may make growth difficult in this area.

All these initiatives should be backed by the introduction of actions that materialise in a National Tourism Plan, as drafted by the Spanish Tourism Institute, to promote the image of Spain in foreign

countries as a top-quality shopping destination, taking advantage of its image as a "different country". Initiatives should include the organisation of events, courses, stands at fashion fairs and other actions encouraging the idea of "Shopping in Spain". The Mesias Report (Spanish Ministry of Foreign Affairs and Cooperation, 2016) is an interesting monitoring tool to study weaknesses and strengths and highlights the presence of the tourist industry in shopping and studies the "fashion and retail expansion" attribute. In turn, the ever increasing presence of Spanish fashion retail brands on international markets is an excellent calling card for potential tourists. Accordingly, government actions should be taken to eliminate barriers so that more and more fashion retailers can establish themselves abroad (Fayos *et al*., 2015).

In conclusion, it should be stated that our research has its limitations. Firstly, it has only been carried out in one city, thus creating the need to test it in other destinations to see whether its results can be extrapolated to other cultural and geographical areas. Secondly, our sample is mainly made up of domestic tourists whose motivations may differ from those of foreign tourists in terms of the choice of destination and trip length. In turn, trip length may not be the best measure of behaviour when choosing a destination. We therefore propose other dependent variables, such as loyalty, word-of-mouth communication, and recurring behaviour, which could be included in future research, thus enabling scholars to obtain a deeper insight into the link between tourism and fashion.

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NOTES

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3. A pilot test was carried out with 20 students to check the validity of the questionnaire's content and to verify whether the interviewees understood the questions correctly. The pre-test of the questionnaire in both languages showed normal distribution of data. Cronbach's alpha confirmed internal consistency. The ANOVA test confirmed that there were no significant differences between the versions of the questionnaire in English and Spanish. The validity of the constructs was established through a Principal Components Factor Analysis) with Varimax rotation.

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Turismo y moda: factores que afectan a la duración del viaje[1]

Tourism and fashion: factors affecting trip length

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1. INTRODUCCIÓN

La Organización Mundial del Turismo (UNWTO) estimó para 2013 que las ganancias mundiales por exportación que provenían del turismo internacional fueron 1,4 trillones de US$, (UNWTO, 2014a). El turismo es la quinta mayor categoría de exportación del mundo. Dentro de la investigación del comportamiento del turista, se observa una clara interdependencia entre el viaje y el gasto que se realiza en los establecimientos minoristas de los lugares de destino (Guo, Vasquez-Parraga y Wang, 2006; Sullivan, Bonn, Bhardwaj y DuPont, 2012).

Las compras por placer han dejado de ser una actividad puramente circunstancial mientras se realiza un viaje de ocio; hoy día, para millones de turistas, supone una de las principales motivaciones para viajar (UNWTO, 2014B: 13). El turismo de compras mueve ya 13.500 millones de euros en Europa. Actualmente España ocupa el cuarto puesto en los países del mundo preferido para hacer turismo de compras y sólo en nuestro territorio los viajeros extracomunitarios dejan 1.100 millones de euros anuales. España es el tercer destino mundial en número de turistas internacionales, sin embargo sólo ingresa el 3,2% de las compras tax free (libres de impuestos) realizadas por turistas extracomunitarios, equivalentes a 1.600 millones de euros (Ernst & Young, 2015). Un estudio del BBVA (2014) revela que el gasto en moda y compras ya es el primer concepto de gasto que los turistas internacionales realizan en España vía cargos con tarjeta en terminales de esta entidad financiera, siendo el gasto medio en moda por visitante de 106 € en 2014.

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RESUMEN DEL ARTÍCULO

Existe una interrelación entre el turismo y las compras, y merece especial atención la influencia de las compras de productos del sector de la moda en la decisión de viajar. El concepto de implicación cognitiva y hedónica nos permite relacionar la importancia percibida de las compras por los consumidores de productos de moda y el turismo. La presente investigación analiza si la implicación del turista en la compra de productos de moda afecta a la duración del viaje turístico. Adicionalmente, investigamos si la duración de viaje se ve influenciada por factores clásicos como los demográficos (edad, sexo, y nivel de renta), y los propios de la evaluación del comportamiento de compra en establecimientos de moda (calidad de servicio, calidad de producto, y disfrute de la compra). La investigación empírica con una muestra de 370 turistas nos permite obtener conclusiones interesantes para la gestión turística al afirmar que la implicación con la moda, el disfrute con las compras, la calidad del servicio, la implicación cognitiva en la selección del destino, la edad y la renta predicen la duración del viaje.

EXECUTIVE SUMMARY

Tourism and shopping are closely related, and the influence of fashion shopping on a tourist's decision to travel is especially significant. The concept of cognitive and hedonic involvement enables us to relate the importance given to shopping by consumers of fashion products and of tourism services. This research analyses whether tourist involvement in fashion shopping has an impact on the length of their stay in a destination. In addition, it examines whether trip length is conditioned by traditional factors, such as demographic indicators (age, gender and income bracket), as well as by cognitive and affective involvement, and shopping motivations (service quality, product quality and shopping enjoyment). The empirical research carried out on a sample of 370 tourists has enabled us to draw interesting conclusions for destination managers and other tourism decision-makers, showing that involvement in fashion, shopping enjoyment, service quality, cognitive involvement in the choice of destination, age, and income significantly predict trip length.

Según TURESPAÑA (2014b), el 40% de los viajeros internacionales (que viajan a España o a otros destinos) incluyen las compras entre sus planes de viaje. No es posible establecer un número exacto del número de turistas que viajarán para realizar compras en otro país, pero el crecimiento de este producto turístico será muy superior al del resto debido a que las compras son la motivación principal, o una de las principales, de los mercados emergentes que liderarán el crecimiento del turismo internacional.

La influencia de las compras en el comportamiento de los turistas ha ido creciendo hasta el punto de tener su propia categoría, "el turismo de compras", definido como "una forma contemporánea de turismo promovido por personas para las que la compra de bienes, fuera de su entorno habitual, es un factor determinante en su decisión de viajar" (UNWTO 2014b: 13). El hecho de ir de compras es una de las actividades de mayor atractivo en las ciudades turísticas y ha quedado demostrado que las compras tienen una alta influencia en la experiencia turística (Moscardó, 2004; Molina *et al*., 2011).

La influencia de las compras en el comportamiento de los turistas ha ido creciendo hasta el punto de tener su propia categoría, "el turismo de compras"

Entre el amplio espectro del comportamiento de compra de los turistas, merece especial atención las compras de productos del sector de la moda, ámbito que nos ocupa en este trabajo en base a la idea de que la moda influye de manera destacada en la decisión de viajar y en la selección del destino de los turistas (Lewis, Kerr y Burgess, 2013). Tal y como afirma Moscardó (2004), el turista moderno decanta sus compras hacia el sector de la moda, la artesanía y el diseño. En el caso de España, las compras de productos de moda y complementos realizadas por turistas extracomunitarios en 2013 (con devolución de IVA), representaron un 55,2% del total de las compras realizadas (TURESPAÑA, 2014b).

Entendemos que el sector de la moda es amplio y diverso; abarca multitud de actividades y engloba desde el sector textil - confección, el de marroquinería, el sector calzado, la bisutería, entre otros (Castro, 2002). A pesar de su importancia, la investigación sobre la relación entre moda y destino turístico es relativamente limitada; como señalan Lewis, Kerr y Burgess (2013: 5) "la moda puede ser una variable moderadora en los procesos de decisión del viaje y selección del destino", y hace un llamamiento en su trabajo a "estudios más extensos sobre la relación entre moda y turismo". Con esta investigación intentamos comprender mejor la relación

entre moda y destino turístico a través del concepto implicación, entendiendo que la implicación se refiere al sentimiento de interés, entusiasmo y excitación que siente un consumidor hacia categorías de producto específicas (Flynn y Goldsmith, 1993). En el ámbito de la moda, la implicación se define como la medida en que un consumidor considera que las actividades relacionadas con la moda son una parte significativa y atractiva de su vida (O`Cass, 2004). Para la investigación del comportamiento del consumidor, la teoría de la implicación posee una larga tradición como factor explicativo de dicho comportamiento (e.g. Huang, Chou y Lin, 2010; Flynn y Goldsmith, 1993).

PALABRAS CLAVE
Destino turístico, compras de moda, implicación cognitiva, implicación hedónica, duración del viaje.

KEY WORDS
Tourist destination, fashion shopping, cognitive involvement, hedonic involvement, trip length.

En este contexto del comportamiento del turista aparece una nueva línea de investigación que establece una relación entre la implicación de los turistas con la moda y determinados comportamientos como la duración del viaje (Sullivan *et al*., 2012; Lewis *et al*., 2013). Dichos autores encuentran una relación directa entre la implicación con la moda y el tiempo de estancia de los turistas en los lugares de destino donde pueda desarrollarse la actividad de compra.

Por todo ello, además de por su interés para la investigación del comportamiento de consumo, la confluencia entre implicación con la moda y destino turístico y su influencia en la duración del viaje se revela importante ya que proporciona un valor añadido a la economía regional y local (Sullivan *et al*., 2012).

La presente investigación busca así responder a la pregunta de en qué medida la implicación del comportamiento de compra de moda del turista pueden afectar a la duración del viaje turístico. Adicionalmente, valoraremos como factores clásicos como son los demográficos (edad, sexo, y nivel de renta), y los propios de la evaluación del comportamiento de compra en establecimientos de moda (calidad de servicio, calidad de producto, y disfrute de la compra) son factores explicativos de la duración del viaje en el destino.

Para ello desarrollaremos en primer lugar el marco teórico en el que abordaremos el concepto de implicación por la moda e implicación en el turismo y plantearemos las cuestiones de interés. Posteriormente expondremos el modelo propuesto, la metodología y los resultados obtenidos y cerraremos con las conclusiones e implicaciones para la gestión.

2. EL CONCEPTO DE IMPLICACIÓN EN EL ESTUDIO DEL CONSUMIDOR

El concepto de implicación describe la relevancia personal que un producto o servicio tiene para los consumidores, sus valores, necesidades e intereses. Tal y como se ha mencionado, la implicación es un importante factor explicativo del comportamiento del consumidor (Huang *et al*., 2010; Flymm y Goldsmith, 1993), y se compone de dos dimensiones, complementarias e interactivas, la utilitaria o cognitiva (funciones, atributos del producto y valor) y la hedónica o afectiva (sentimiento y placer) (Putrevu y Lord, 1994; Park y Jun, 2003).

La implicación cognitiva se centra en el pensamiento racional, indica un alto nivel de conocimiento objetivo sobre los atributos del producto, implica la idea de involucramiento entendido como la cantidad y tipo de información que procesa un consumidor en la toma de decisiones con respecto a un producto y ante la elección de compra del mismo (Vera, 2010), mientras que la implicación afectiva expresa valores emocionales.

2.1. Implicación con la moda

Tigert *et al*. (1976) consideran que las actividades de comportamiento relacionadas con la moda son la capacidad de implicación en la innovación, el tiempo de compra, la comunicación interpersonal, el interés, el conocimiento y la sensibilización. Por su parte, Guo *et al*. (2006) utilizan una escala de cuatro ítems para medir la sensibilidad hacia la moda, demostrando que la sensibilidad hacia la moda tiene una relación directa en las compras transfronterizas. Lewis *et al*. (2013) demuestran que la implicación por la moda está relacionada con el comportamiento del turista. Por su parte (Sullivan *et al*., 2012) partiendo de la idea de que la implicación hacia la moda influye en el comportamiento del turista, realizan un estudio sobre el turismo en EE.UU. en el que se concluye que los turistas que sitúan las compras entre sus actividades principales tienen una estancia de mayor duración que aquellos que no tienen ese comportamiento. En base a todos estos trabajos anteriores formulamos la primera cuestión de investigación:

C_1: La implicación con la moda predice positivamente la duración del viaje

2.2. Implicación con el turismo

La implicación es la inmersión total en una actividad y contribuye a la satisfacción del consumidor, especialmente si se trata de una actividad de ocio (Unger y Kernann, 1983). La implicación es por tanto un concepto que se relaciona también con el turismo (como actividad de ocio que es), existiendo abundante literatura sobre la implicación del consumidor por la actividad turística (Jamrozy *et al*., 1996; Zalatan, 1998; Lehto *et al*., 2004; Huang *et al*., 2010).

Las investigaciones indican que existe una relación positiva entre la implicación del turista y la imagen del destino, el apego al lugar, la satisfacción, las recomendaciones, y la intención de volver al destino (Prayag y Ryan, 2012). Además, la implicación correlaciona con la duración del viaje (Zalatan, 1998), y también se han identificado otros tipos de implicación con el turismo que pueden tener relación con la duración del viaje: la actividad en el destino, el riesgo, el compromiso económico previo (Lehto *et al*., 2004), y la permanencia de la implicación (Jamrozy *et al*., 1996).

Si bien en los estudios sobre identidad del turista se consideran dimensiones afectivas y cognitivas (e.g. Palmer *et al*., 2013), pocas investigaciones aplican esta dicotomía cognitivo-afectiva al concepto de implicación en la selección del destino y a su influencia en la duración del viaje. La duración del viaje es una variable que, a pesar de su importancia económica (a mayor duración, más gasto y por tanto mayores ingresos por turismo) y comportamental (como variable explicativa de la conducta del consumidor), ha recibido poca atención por parte de la doctrina en turismo (Alegre y Pou, 2012; Pestana y Pinto, 2010). Además, una de las principales características del turismo actual es la reducción del periodo de estancia en el destino (AVT, 2014; Turespaña, 2014), por lo que consideramos de interés desarrollar hipótesis que nos ayuden a entender el papel de la implicación cognitiva y afectiva con el destino turístico en la duración del viaje.

Así, esta investigación aporta como novedad respecto a otras anteriores sobre implicación en turismo, la incorporación de ambas dimensiones en la implicación de la selección del destino turístico. La implicación cognitiva, de carácter más racional consideramos que varía con el mismo signo que la duración del viaje, al contrario que la hedónica que al ser de carácter emotivo y por tanto más subjetiva y relativa (Flynn y Goldsmith, 1993), consideramos que lo hará con signo contrario. Proponemos por tanto las siguientes cuestiones de investigación:

C_2: La implicación cognitiva en la selección del destino turístico predice una mayor duración del viaje

C_3: La implicación afectiva en la selección del destino turístico predice una menor duración del viaje

Por otra parte, está demostrado que tanto variables sociodemográficas como la edad, el género (Zalatan, 1998) y la renta (Lehto *et al*., 2004), como otras variables o rasgos psicosociológicos de los consumidores turísticos (Jamrozy *et al*., 1996) influyen en la implicación con el destino. La edad y la renta afectan positivamente a la duración del viaje (Alegre y Pou, 2006), y la duración del viaje se explica en gran medida por la edad y el género (Pestana y Pinto, 2010). También Fleischer y Pizam (2002) demostraron que la edad, y la renta tienen un efecto positivo sobre el tiempo de estancia de vacaciones, mientras que recientemente Alén *et al*. (2014) han llegado a la misma conclusión para el caso de la población *senior* española. Sobre la base de estos estudios, proponemos las siguientes cuestiones de análisis:

C_4: La edad del turista afecta positivamente a la duración del viaje.

C_5: El género del turista afecta a la duración del viaje.

C_6: El nivel de renta del turista afecta positivamente a la duración del viaje.

2.3. Motivaciones de compra

El comportamiento de compra de los turistas se rige también por los parámetros habituales de las motivaciones de compra. Guo *et al*. (2006) han estudiado como factores explicativos de las compras realizadas en países distintos del de origen, la concienciación con la moda, el disfrute en las compras, la autoestima, el egoísmo, la masculinidad, la frecuencia de compra, etc. Otros trabajos (Barutçu, Doğan y Üngüren, 2011) apuntan hacia motivaciones más clásicas en el turista como la variedad de tiendas y la pericia del personal de ventas. Además de las motivaciones, existen características propias de la experiencia de compra que contribuyen a la satisfacción del consumidor como la disponibilidad de productos distintos por zonas, la relación calidad/precio, el tiempo de compra, la visualización del escaparate y disposición de la tienda, y las habilidades del personal (Murphy, Moscardo, Benckendorff y Pearce, 2011). Tantos factores no sólo muestran la variedad y riqueza de las motivaciones de compra y del comportamiento de los turistas en los comercios en destino, sino que además las motivaciones de los turistas a la hora de realizar sus compras influirán en su propio comportamiento, y por tanto en la

decisión sobre la duración del viaje, de ahí la importancia de su análisis en esta investigación.

Por otra parte, en los estudios citados sobre las motivaciones de compra del turista, se han identificado elementos hedónicos o afectivos, entre los que destacamos el disfrute de la compra. En concreto para el caso de España un estudio demoscópico de viajeros procedentes de 17 distintos países (EGATUR, 2013), determinó que el motivo más valorado en términos relativos para viajar a España por los viajeros que fueron de compras fue el de "divertirse, pasarlo bien y disfrutar", lo que encaja claramente con el componente hedoníco o afectivo que tiene esta actividad. En base a ello planteamos la siguiente cuestión a investigar:

C_7: El disfrute en las compras predice positivamente la duración del viaje.

En la investigación sobre motivaciones del turista también hemos encontrado motivaciones de carácter cognitivo, como el personal experto, las actitudes de venta y habilidades del personal, o la disposición de la tienda. En definitiva, elementos que hacen referencia a la calidad del establecimiento y la calidad del servicio recibido. Adicionalmente para el caso de España, el Plan de Turismo de Compras (TURESPAÑA, 2014b) establece por una parte como una de sus líneas estratégicas la adaptación de la oferta comercial a las necesidades y los gustos de los Turistas en cuanto a lo que buscan, cuándo lo buscan, dónde lo buscan y cómo lo buscan; y por otra subrayan entre sus líneas de actuación la capacitación de los trabajadores del sector comercial. Por ello proponemos las siguientes cuestiones de análisis:

C_8: La calidad, surtido, novedad, y adaptación de los productos de los establecimientos predice positivamente la duración del viaje

C_9: La calidad percibida del servicio de los establecimientos predice positivamente la duración del viaje.

3. AFECTA A LA DURACIÓN DEL VIAJE TURÍSTICO LA IMPLICACIÓN DEL TURISTA EN LA COMPRA DE PRODUCTOS DE MODA? UN ESTUDIO EN LA CIUDAD DE VALENCIA

3.1. Diseño del cuestionario y recogida de información

Se diseñó un cuestionario estructurado partiendo de escalas validadas en investigaciones precedentes. Las escalas para los constructos de implicación cognitiva y afectiva en la selección del destino

provienen del trabajo de Putrevu y Lord (1994); el trabajo de Sullivan *et al*. (2012) se utilizó para la medida de las variables sociodemográficas. Los constructos implicación con la moda, el disfrute en la compra, las características de los productos del establecimiento y la calidad del servicio utilizan los indicadores del estudio de Guo *et al*. (2006). Los ítems para cada constructo se han medido con una escala Likert de cinco puntos donde 1 es el valor más bajo y 5 el más alto .

El lugar escogido para el estudio empírico es España, un país cuya industria de la moda emplea a más de 130.000 trabajadores en 21.000 empresas (MarcaEspaña, 2014). El sector de la moda está estrechamente vinculado a dos sectores económicos de gran importancia en España, el sector textil y el sector del calzado. En las últimas décadas ambas industrias han sufrido una importante transformación y un proceso de reestructuración que ha llevado a un aumento del volumen de negocios y a una mayor presencia en los mercados nacionales e internacionales (MarcaEspaña, 2014). Como resultado, el sector de la moda en España goza de una salud excelente y de un reconocido prestigio en todo el mundo avalado por empresas como Camper, Cortefiel, Inditex (Zara, Bershka, Massimo Dutti, etc.), Mango, o Pronovias. Todas estas empresas, junto con otras destacadas internacionalmente, están presentes en Valencia, reconocida como tercera ciudad española para hacer “shopping” y ciudad donde tuvo lugar la recogida de información.

Por otra parte, en cuanto a la vertiente turística, 60,6 millones de turistas visitaron España en 2014, siendo el tercer país más visitado del mundo. La elección de Valencia desde la perspectiva turística para la realización del trabajo de campo tampoco es arbitraria; no sólo la Comunidad Valenciana es el tercer destino turístico de España con un crecimiento del 11,4% (AVT, 2014), sino que en 2014 visitaron Valencia más de 6 millones de turistas (TURESPAÑA, 2014b), y Valencia posee uno de los puertos del Mediterráneo que recibe mayor cantidad de cruceros.

Para la selección de la muestra se ha utilizado el método de muestreo de conveniencia entre la población objeto de estudio siguiendo a Teddlie y Yu (2007). En este caso, en consonancia con la conceptualización del turista de la OMT, se define al turista como la persona que pasa al menos una noche en Valencia. La información se recopiló en el centro urbano, en las zonas comerciales donde se ubican las tiendas más reconocidas, entre mayo y agosto de 2014, a través de entrevistas personales asistidas por encuestadores. La aproximación

se hizo tanto a turistas nacionales como extranjeros mayores de 16 años buscando mantener cuotas razonables de género y edad. Se recogieron 374 cuestionarios, de los que finalmente se desestimaron cuatro por resultar incompletos.

3.2. Descripción de la muestra

En la **tabla 1** recogemos la descripción de la muestra.

Tabla 1. **Descripción de la muestra**

GÉNERO		OCUPACIÓN		ESTUDIOS		RENTA MEDIA
Hombre	34.9%	Trabajando	50.1%	Postgraduados	10.0%	35.000 euros
Mujer	65.1%	Estudiando	24.9%	Secundarios	20.6%	
				FP	36.7%	Media de edad
				Graduados	29.7%	40 años

En la **tabla 2** se muestra las características relacionadas con el viaje. Otras características relativas al viaje de los encuestados son que visitan Valencia una media de dos veces al año, y que menos del 50% ha realizado el viaje con niños.

Tabla 2. **Características del viaje**

PRINCIPALES RAZONES PARA VISITAR VALENCIA		LLEGARON A VALENCIA EN		MEDIA DE PERSONAS QUE VIAJAN JUNTAS	
Placer	38.4%	Automóvil	10.0%	2 personas	
Compras	23.6%	Avión	20.6%		
Estudios	20.2%	Otras	36.7%	País de origen	
Otras	17.8%			España	69.7%
				Otros Unión Europea	18.9%
				No Unión Europea	11.4%

3.3. Validación del modelo

Para la validación del modelo propuesto se ha realizado un análisis de Regresión Logística Ordenada debido a que la variable dependiente (duración del viaje medido por el número de noches), tiene un valor por el que se puede predecir la probabilidad de asignación de cada nivel de la categoría P. Para las variables independientes, se

utilizó la puntuación de los factores implicación con la moda, disfrute de la compra, calidad de la tienda, y calidad del servicio; y para las variables implicación cognitiva y la implicación afectiva con el destino se ha formado una puntuación con la suma de las medias de cada constructo. La ecuación de la regresión lineal otorga estimaciones naturales (log) para la probabilidad de asignación a una estancia corta, dividida por la probabilidad de ser asignado a otro grupo (en nuestro caso, estancia larga). El modelo tiene un nivel de confianza del 95%. Los resultados indican que la probabilidad de asignación correcta a la categoría de estancia corta es de 69,8%, y de 92,9% para estancias largas. El modelo es por tanto preciso en la predicción de la categoría. El ratio *odds* es satisfactorio para implicación con la moda, e implicación cognitiva en la selección del destino, y de carácter moderado para implicación en la moda y calidad de servicio, pero bajo para edad y renta (**Tabla 3**).

Tabla 3. **Items significativos en el modelo (p<.05)**

ITEM	B	S.E.	WALD	DF	SIG.	EXP(B)
Implicación con la moda	-.579	.169	11.697	1	.001	.560
Disfrute de la compra	-1.236	.183	45.479	1	.000	.291
Calidad de servicio	.767	.168	20.739	1	.000	2.154
Implicación cognitiva en la selección del destino	1.756	.233	56.619	1	.000	5.786
Edad	-.007	.002	7.743	1	.005	.993
Renta	-.509	.233	4.763	1	.029	.601
Constante	-6.035	.805	56.184	1	.000	.00

3.4. Resultados

El modelo encuentra predictivas seis de las nueve variables propuestas: implicación con la moda, disfrute con la compra, calidad de servicio, implicación cognitiva en la selección del destino, edad, y renta. Estas variables son válidas para estimar la probabilidad de la duración del viaje, dando así respuesta a la pregunta que nos planteábamos en la introducción de este trabajo. Resumimos en la **Tabla 4** la contrastación de las nueve cuestiones de investigación propuestas.

Concretando, la duración del viaje es más larga para aquellos turistas que muestran implicación con la moda es decir, que la moda es algo relevante para ellos (C1). También para aquellos turistas que se implica-

ron de una forma racional con el destino, es decir disponían, o habían adquirido previo al viaje un alto nivel de conocimiento objetivo sobre las características del destino (C2).

Con respecto a las características sociodemográficas del turista, la mayor edad y el mayor nivel de renta afectan positivamente a la duración del viaje (C4 y C6). Sin embargo la duración del viaje no será distinta para los hombres y las mujeres (C5).

En relación con las motivaciones del turista, los resultados apuntan que los turistas que disfrutan yendo de compras permanecen más días en el destino (C7).

Por último la calidad del servicio recibida por los turistas en los comercios minoristas físicos sí que es importante y está relacionada con una estancia más larga (C9), no siendo en cambio relevante para la duración del viaje el surtido, calidad o novedad de los productos en dichos comercios (C8).

Tabla 4. **Aceptación de las Cuestiones de Investigación**

CUESTIONES DE INVESTIGACIÓN	ACEPTADAS	
C1: La implicación con la moda predice positivamente la duración del viaje	Si	
C2: La implicación cognitiva en la selección del destino turístico predice una mayor duración del viaje	Si	
C3: La implicación afectiva en la selección del destino turístico predice una menor duración del viaje		No
C4: La edad del turista afecta positivamente a la duración del viaje	Si	
C5: El género del turista afecta a la duración del viaje		No
C6: El nivel de renta del turista afecta positivamente a la duración del viaje	Si	
C7: El disfrute en las compras predice positivamente la duración del viaje	Si	
C8: La calidad, surtido, novedad, y adaptación de los productos de los establecimientos predice positivamente la duración del viaje		No
C9: La calidad percibida del servicio de los establecimientos predice positivamente la duración del viaje	Si	

4. CONCLUSIONES Y RECOMENDACIONES PARA LOS GESTORES TURISTICOS

Siendo conocedores de la insuficiente investigación empírica sobre el tándem moda y turismo (Lewis *et al*., 2013), a pesar de su potencial económico (como generador de ingresos para los destinos) y académico (para investigadores del turismo y del comercio), el

presente trabajo ha revisado y analizado cuáles pueden ser los factores explicativos de la relación entre estos dos conceptos. De manera más concreta, después de la revisión de la literatura sobre dichos factores, el estudio empírico se ha centrado de manera más innovadora que otros trabajos anteriores, en el concepto de implicación. Así, se ha construido un modelo de regresión en el que la duración del viaje puede ser predicha por nueve variables: tres distintos tipos de implicación (implicación en la moda, implicación afectiva y cognitiva en la selección del destino turístico), además de por variables más clásicas como las motivaciones cognitivas y afectivas de la compra (calidad de la tienda, calidad de servicio y disfrute con la compra), y variables sociodemográficas (género, edad y nivel de renta).

El modelo de regresión logística ha permitido aceptar seis de las nueve cuestiones que pueden predecir la duración del viaje. Sin embargo, se han rechazado los efectos predictivos de la implicación afectiva al destino, el género del turista, y las características de los productos de los establecimientos. Con respecto a esta última, el resultado no es sorprendente dado que cada vez es más fácil el acceso a cualquier tipo de productos desde cualquier parte a través del canal on-line, por lo que proponemos para futuros estudios su reemplazo por variables relacionadas con el entorno y la experiencia en el propio comercio, aspectos si diferenciales hoy en día de los establecimientos minoristas.

Los datos indican por tanto que la implicación en la moda, el disfrute en la compra, la calidad del servicio, la implicación cognitiva en la selección del destino, la edad y la renta son predictores significativos de la duración del viaje. El argumento de Lewis *et al*. (2013) con respecto a la relación entre moda y selección del destino, se confirma empíricamente en este estudio para estas variables; sin embargo, se necesita investigación adicional para tener confirmación de las relaciones entre la moda y otros factores relevantes del comportamiento turístico como son los modos de transporte de los turistas y la selección del destino.

En términos de recomendaciones para los gestores turísticos y para los profesionales de la distribución minorista, los resultados muestran la relación entre la moda y la implicación cognitiva en la selección del destino con la duración del viaje. La comunicación de marketing en torno a la moda debería utilizarse como un medio para incrementar la duración de la estancia del viajero, para ello es

fundamental cambiar o complementar el discurso tradicional. Las ciudades españolas son museos, gastronomía, monumentos, pero no es ropa, ni zapatos ni complementos de moda. Tradicionalmente la comunicación se ha centrado en sol, playa y cultura, pero no hemos comunicado que somos un país idóneo para ir de compras. Los argumentos para utilizar en esta comunicación pueden ser muy diversos: el clima que invita a pasear por las calles comerciales, la oferta de bares que combina con la actividad de compras, los precios, la presencia de marcas destacadas...Los responsables de promoción turística de las ciudades deben hacer un esfuerzo por posicionar la ciudad como un producto caracterizado por el valor "ir de compras", al igual que hizo Milán hace varias décadas

Adicionalmente, del estudio empírico aquí presentado se desprende que existen dos variables, el disfrute en la compra y la calidad del servicio, que influyen positivamente en la duración del viaje, y con las que la empresa puede trabajar para hacer más atractiva la estancia del viajero y en consecuencia prolongar su permanencia. Para ello sería conveniente mejorar la oferta comercial a dos niveles:

- En un primer nivel, las instituciones municipales deben esforzarse por fomentar las zonas comerciales, dotarlas de buenos servicios de transporte, mantener las calles limpias y arregladas, garantizar la seguridad, permitir la amplitud de horarios.
- En el segundo nivel se encuentran los establecimientos comerciales, que deben adaptarse a las necesidades y los gustos de los turistas: lo que buscan, cuándo lo buscan, dónde lo buscan y cómo lo buscan, en que idioma deberían ser atendidos. Deben conseguir que la experiencia de compras sea lo más fácil, divertida, placentera, y segura. Entre otros aspectos, será por tanto necesario un plan de formación para que los empleados de estos establecimientos adquieran las capacidades que les permita ofrecer ese mejor servicio.

Según Ernst & Young (2015) el turista extracomunitario es el que mayor ingreso genera en el destino por compras, este turista gasta en compras cuatro veces más que uno comunitario y siete veces más que uno nacional. Y sin embargo, ya hemos apuntado que España a pesar de ser el tercer destino mundial en número de turistas internacionales, sólo ingresa el 3,2% de las compras *tax free* (libres de impuestos) realizadas por turistas extracomunitarios. Es necesario realizar un esfuerzo por atraer al turista asiático, ruso

y árabe, turista que sí tiene presencia en otros países europeos y que en España tan sólo está empezando a crecer su presencia en Barcelona. Este perfil busca realizar compras de gran nivel, de marcas reconocidas y requiere servicios muy personalizados. Aunque en ocasiones la escasez de vuelos directos y las trabas administrativas dificultan este crecimiento

Todo ello debe ir apoyado por la implementación de acciones que materialicen un Plan Nacional de Turismo, tal y como se ha diseñado por el Instituto de Turismo de España, que trabaje por fomentar en los países emisores la imagen de España como destino de compras con un posicionamiento elevado, aprovechando la imagen de "país diferente". Acciones como organización de eventos, cursos, presencia en ferias de moda u otras acciones, que empujen la idea del "*Shopping in Spain*". Una herramienta interesante de monitorización para el estudio de las debilidades y oportunidades la constituye el Informe Mesias (Ministerio de Asuntos Exteriores y Cooperación, 2016) en el que no sólo está presente el sector turismo sino que también uno de los atributos considerados es el de "Expansión en moda y retail". Por otra parte, la cada vez mayor presencia de marcas minoristas de moda españoles en los mercados internacionales representa una excelente tarjeta de presentación frente a los potenciales turistas, por lo que también deberían ser emprendidas acciones por parte de la administración para eliminar barreras que faciliten la presencia de cada vez más minoristas de moda en el exterior (Fayos *et al*., 2015).

Para terminar, indicar que la investigación realizada no está exenta de limitaciones. La primera es que su ámbito ha sido una única ciudad, lo que determina la necesidad de su réplica a otros destinos para la extrapolación de sus resultados a otros ámbitos culturales y geográficos. En segundo lugar, la muestra recogida está compuesta principalmente por turistas domésticos, cuyas motivaciones pueden diferir de las de los turistas internacionales en relación tanto a la selección de destino como a la duración del viaje. Por otra parte, la duración del viaje puede no ser la mejor medida del comportamiento de selección del destino. Proponemos así otras variables dependientes como la lealtad, como la comunicación boca-oreja, o la repetición del comportamiento, que sería interesante considerar en futuras investigaciones que permitan profundizar sobre este interesante binomio turismo-moda.

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NOTAS

1. Este trabajo se ha desarrollado en el marco de dos proyectos financiados por el Ministerio de Economía y Competitividad de España: ECO2014-55881codirigido por Alejandro Mollá y Marta Frasquet, y ECO2013-43353-R dirigido por Irene Gil.
2. Autor de contacto: Facultad de Economía; Universidad de Valencia; Avda de los Naranjos s/n; 46022 Valencia; SPAIN
3. Se realizó una prueba piloto con 20 estudiantes para verificar la validez del contenido del cuestionario y para comprobar si los entrevistados entendían correctamente las preguntas del mismo. El pretest de los cuestionarios en ambos idiomas produjo una distribución normal de los datos. Con el alpha de Chronbach se confirmó la consistencia interna. La prueba ANOVA confirmó que no existían diferencias significativas entre las versiones en español e inglés del cuestionario. La validez de los constructos se estableció a través de un ACP (Principal Components Factor Analysis) con rotación Varimax.

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Six Sigma in SMES with low production volumes. A successful experience in aeronautics.

Seis Sigma en PYMES con bajo volumen de producción. Una experiencia de éxito en aeronáutica.

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1. INTRODUCTION

In the current challenging economic environment, which requires a reduction in production costs while maintaining high levels of quality and reducing delivery times, the use of methodologies for the improvement of production and/or organisational processes is a very interesting proposition for any sector.

Six Sigma is considered to be one of the most powerful improvement strategies currently available to companies. Many large organisations in a wide range of different sectors have already adopted this strategy or have its adoption on their agenda (Kumar et al., 2008). It was conceived by Motorola in the 1980s with the aim of reducing variability and waste in very repetitive processes with high production volumes, through a systematic improvement methodology based on statistical techniques and tools.

Although Six Sigma has been exploited by many world class organisations, there has been relatively little documented evidence of its implementation in SMEs (Antony et al., 2008) although more examples have been found in a range of different sectors more recently (Paslawski, 2013; McAdam et al., 2014; Sharma & Sharma, 2014). However, these businesses play a key role in the economies of all countries. Therefore, it is a matter of interest to know the contexts in which Six Sigma can be applied, the best way for it to be implemented, and the main factors that lead to its success or failure.

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EXECUTIVE SUMMARY

Six Sigma is currently one of the most powerful tools that exists for quality improvement. Designed for highly repetitive and high volume production manufacturing processes, it has been adopted by leading large organisations in many different sectors all around the world. Our goal is to study its applicability to SMEs with low production volumes and identify key success factors and obstacles to its implementation. The methodology followed is Action Research in an SME in the aeronautics sector using the DMAIC improvement cycle applied to a specific Six Sigma project. The results confirm Six Sigma's applicability and suggest that success depends on key factors, such as the team's commitment, the availability of resources and prior learning.

RESUMEN DEL ARTÍCULO

Seis Sigma es actualmente una de las herramientas más potentes para la mejora de la calidad. Concebida para procesos productivos muy repetitivos y de gran volumen de producción, ha sido adoptada por las principales grandes organizaciones de todo el mundo en muchos sectores. Nuestro objetivo es estudiar su aplicabilidad en pymes, con bajos volúmenes de producción, e identificar los principales factores de éxito y obstáculos para su implementación. Se ha empleado la metodología "investigación en acción" en una pyme del sector aeronáutico, aplicando el ciclo de mejora DMAIC a un proyecto Seis Sigma concreto. Los resultados confirman su aplicabilidad y sugieren que el éxito depende de factores claves como el compromiso del equipo, la disponibilidad de recursos y la formación previa.

Implementing Six Sigma in SMEs is a challenge because their size, production volumes, levels of worker training and resources are all much smaller than in the case of large companies. In particular, the production processes of these companies often do not present the degree of repeatability for which Six Sigma has been created, either because of lower production volumes, greater product customisation, continuous changes in the product, or other factors.

The aeronautics sector is especially interesting for the study of continuous improvement methodologies such as Six Sigma. This is a highly competitive industry, where the priority is to ensure safety and airworthiness. Due to their operating conditions, aeronautics products are subject to very high quality, reliability and sustainability[2] standards. Therefore, the use of continuous improvement methodologies to enhance internal quality levels becomes virtually indispensable.

Six Sigma is considered to be one of the most powerful improvement strategies currently available to companies.

In recent years, there have been many incursions in this sector with Lean Production and they have finally started to achieve positive results internally (Crute et al., 2003; Mathaisel, 2005; Bhuiyan et al., 2006; Prida & Grijalvo, 2011; Martínez-Jurado & Moyano-Fuentes, 2014) and, to a more modest degree, externally with regard to achieving a more efficient supply chain (Sacristán-Díaz et al., 2012; Alfalla-Luque et al., 2013). The same is not true of Six Sigma, whose implementation has been scarce. One study of aeronautics companies (Zimmerman & Weiss, 2005) followed Six Sigma improvement programmes and shows that the outcomes were totally unsatisfactory in a non-negligible percentage (over 50%). Other studies for different sectors show similar results (e.g., Feng & Manuel, 2007). In most cases, it appears that the absence of a practical model for achieving the targets may doom the Six Sigma improvement project to utter failure. This last point was a decisive incentive to conduct this study of a Six Sigma project implementation at an SME in the aeronautics sector. Therefore, the objective of this paper is to study the applicability of Six Sigma in this context and to identify the main success factors and obstacles to its implementation in order to provide relevant implications and recommendations for practitioners.

The methodological approach followed is Action Research (AR) in order to produce research that, while contributing to theory, is of special value for practitioners, (Westbrook, 1995). To this end, and taking advantage of the Six Sigma training of one of the authors,

it was proposed to the company that it could use this methodology to address some of the problems in its production area. The co-author worked for three months on the Six Sigma project at the firm being analysed. This enabled a close detailed study of the system, interaction with company members, and learning through the practical implementation of the activity (Coughlan & Coghlan, 2002).

KEY WORDS
Six Sigma; DMAIC; Quality; Aeronautics; Action Research.

PALABRAS CLAVE
Seis Sigma; DMAIC; Calidad; Aeronáutica; Investigación en Acción.

2. SIX SIGMA PROJECTS IMPLEMENTATION: KEY FACTORS AND OBSTACLES

The maximisation of financial performance that is typical of any business organisation, and the way to achieve it (by reducing waste and increasing customer satisfaction) are two key aspects usually combined in the definition of Six Sigma (Harry & Schroeder, 2000; Linderman et al., 2003; Kwak & Anbari, 2006). Thus, Six Sigma is considered to be (a) a business strategy used to improve financial performance and the effectiveness and efficiency of all operations with the primary objective of satisfying customer needs, as well as (b) a statistical tool which pursues defect rates of 3.4 units per million (equivalent to a quality level of 99.9997%).

Six Sigma makes use of many tools yet most of them are not original or specific to its methodology. For example, statistical tools such as EDA (exploratory data analysis), SPC (statistical process control), ANOVA (analysis of variance) and DOE (design of experiments), and non-statistics tools, such as FMEA (Failure mode and effects analysis), QFD (Quality Function Deployment) and Poka Yoke -all available to companies long before Six Sigma appeared- are used. However, as in other improvement approaches, Six Sigma requires quality to be measured objectively and provides a measurement metric for this that went on to give the name to the methodology (Linderman et al., 2003).

The Sigma (σ) variable represents the parameter that measures the variability of a statistical distribution, that is, its standard deviation. If the result of a process is a function that follows a normal probability distribution (most processes fit into the bell curve) and the tolerance range is equal to 12σ, which means six standard deviations each side of the nominal value, then the defect rate of a centred process would be 0.002 ppm (parts per million, which refers to the ratio between the number of defective parts to one million parts that

would form the analysed sample). In this case, the process is said to have a 6σ quality level.

However, processes do not remain stable with an average fixed at the nominal value. If the nominal value is moved 1.5σ to either side, the defect rate would increase by up to 3.4 ppm. Therefore, the goal of Six Sigma is to achieve defect rates of 3.4 units per million opportunities (dpmo) for a defect to be able to appear in the sample. Given the nature of its measurement metric, it is not unusual for traditional Six Sigma techniques to be adjudged severely limited in highly changeable production contexts characterized by small batch productions and customized, or even one-of-a-kind products, as well as in-line product inspections (Colledani et al., 2014), which are all features that, to a greater or lesser extent, are present in most SME processes, and particularly in the aeronautics sector.

Regarding SMEs, a pilot survey in UK manufacturing firms showed that SMEs are not aware of Six Sigma and do not have the resources to implement Six Sigma projects (Antony et al., 2008). In addition, the low implementation of Six Sigma in the aeronautics industry, perhaps due to some of the special features of the sector mentioned above (low production volume, long production time, etc.), means that its implementation in aeronautics SMEs poses an even more difficult challenge, but a challenge that should be faced, considering the huge rewards that it can bring.

Studies reporting on Six Sigma implementation essentially emphasise the same obstacles and the same key factors that underpin its effectiveness, and these can be found in **Table 1**. Most point to management commitment, education and training, cultural change, and the link to business strategy being the most critical success factors in Six Sigma implementation. As for obstacles, some studies have investigated the reasons for not implementing Six Sigma, among which lack of awareness, no perceived benefits and insufficient resources stand out. Other studies have focused on factors that may lead to its failure, finding that the lack of resources (financial, human and time), lack of leadership, lack of training and internal resistance are among the most important. As with many of the improvement methodologies that organisations use to enhance the performance of their processes, Six Sigma often involves deep, mainly structural changes that sometimes produce rejection from workers. Six Sigma further aggravates these potential setbacks, since its success depends largely on the training that workers

receive and, therefore, on a profound cultural change that enables the methodology to be assimilated with sufficient efficiency.

Table 1. **Implementation of Six Sigma Projects: Key factors for success and main obstacles**

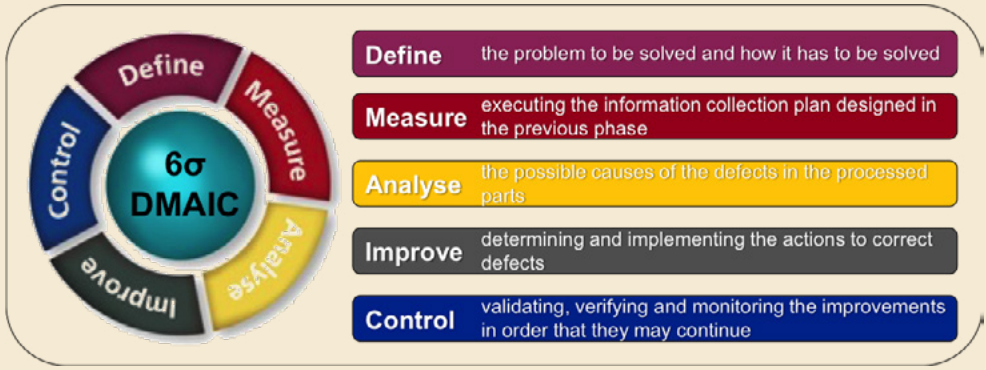
KEY FACTORS FOR SUCCESS	MAIN OBSTACLES
1. Management involvement and commitment 2. Cultural change 3. Organisation infrastructure 4. Training 5. Project management skills 6. Project prioritisation and selection 7. Understanding Six Sigma methodology, tools and techniques 8. Linking Six Sigma to business strategy 9. Linking Six Sigma to the customer, customer focus 10. Linking Six Sigma to employees 11. Linking Six Sigma to suppliers 12. Attaching the success to financial benefits 13. Organisational understanding of work processes 14. Clear performance metrics 15. Include all employees and all aspects of business appropriately	1. Not aware of Six Sigma 2. No perceived benefits 3. Existing Quality System is sufficient 4. Not required by customers 5. Lack of resources (this includes financial resources, human resources, time, etc.) 6. Lack of leadership 7. Poor training and coaching 8. Internal resistance (especially political resistance and technical resistance) 9. Poor project selection (lack of methodology, scope too large, unimportant or fuzzy objectives, and poor process performance metrics) 10. Lack of tangible results 11. Team too large

Source: Based on Antony & Banuelas (2002), Johnson & Swisher (2003), Antony et al. (2005), Kwak & Anbari (2006), Antony et al. (2008), Chakrabarty & Tan (2007), Brun (2011), and Näslund (2013

From the above discussion it can be deduced that SMEs encounter greater difficulties in the implementation of Six Sigma than larger firms, and it is easy to understand why its use is much less widespread. Lack of knowledge of its existence, lack of financial, human and time resources, and low employee training levels are some of the main obstacles. This is coupled with a lower volume of production that makes it difficult to use Six Sigma metrics and achieve its ultimate goal. It could be said that Six Sigma 'is too big' for most SMEs.

One important characteristic that defines Six Sigma is the use of a structured method (Schroeder et al., 2008). Six Sigma Projects usually apply the DMAIC (Define, Measure, Analyse, Improve, Control) cycle (Thomas et al, 2009) for process improvement. The route that this process has to follow is shown in **Figure 1**.

Figure 1. **The DMAIC Cycle in Six Sigma Projects**



This similarity to the Shewhart and Deming PDCA improvement cycle leads to what has been previously stated about Six Sigma making few contributions of its own. Therefore, its greatest merit lies in knowing how to structure each of these steps systematically, providing Six Sigma Project managers with statistical and non-statistical tools to enable the inputs and outputs to be better identified in each phase. The results and discussion will be presented in Section 4 following these five stages.

3. COMBINING ACADEMIC RESEARCH AND PRACTICE DEVELOPMENT THROUGH ACTION RESEARCH

Action Research (AR) is the methodological approach followed. As previously mentioned, this approach produces research that, while making contributions to theory, is of special value for practitioners (Westbrook, 1995). According to Alfaro & Avella (2013), AR can be highly useful for management since problems are analysed inside the company, in situ, making it possible to close the gap between academic research and firms' activities and needs. With participatory AR, in any specific context, a problem or opportunity for improvement and an academic objective (which constitute the research goal) are identified, a joint action plan is developed, and some results are obtained for both the firm's practitioners and the research team.

Consequently, since both researchers and practitioners actively participate in all the stages of the research, and the aim of the researcher is not to solve a problem for practitioners, but with

them. Johansson & Lindhult (2008) consider that through this direct interaction between all the people concerned, AR manages to combine research and development for their mutual benefit. As a result, AR is very recommendable for the implementation of changes and considered to be a very useful tool for improving firms' competitiveness (Alfaro & Avella, 2013; Avella & Alfaro, 2014). Since it favours the success of any intervention in firms' activities, AR is frequently used by organizations to improve their strategies, practices and processes.

Indeed, AR has frequently been used for management research in different sectors (Avella & Alfaro, 2014). In aeronautics, the works on quality management by Prybutok & Ramasesh (2005) and by Prida & Grijalvo (2011) on lean manufacturing implementation can be cited. Our research has specifically focused on problems in the aerostructure final paint area in an SME in the aeronautics sector: a newly established local company designed to respond to the integral management services needs of the aeronautics industry, from raw materials to build-to-print subassemblies. The company's productive organisation is based on three core technologies: machining, surface treatments and assembly.

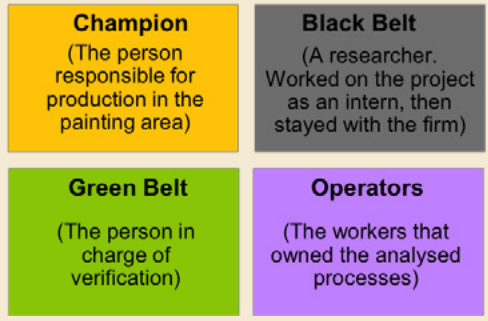
The company in question is local and does not belong to any company group, although it is part of the Andalusian aeronautical cluster. Its position in the supply chain is Tier II. In 2013, the year in which the project was conducted, it had a turnover of €15 Million and a flat functional workforce of close to 150 people, of which 120 were operatives. Average seniority was three years, and there were 10 managers, engineers for the most part. The company had limited experience of continuous improvement projects, which were usually the outcome of customer requirements. The projects were small and on an ad-hoc basis, without any formal development process, and no champion of continuous improvement existed.

The company was experiencing some quality problems in the aerostructure final paint area in some of its contracted programmes. This area generated about 10% of turnover and staff there made up about 20% of the total workforce. The firm's end goal was to solve these problems, and the research team proposed a Six Sigma improvement project, even though theoretically the context was not appropriate.

After both parts had agreed on what, questions on how were also developed together, which started with the creation of a Six Sigma

Committee to address the problems in the painting area. This committee comprised the members shown in **Figure 2**, all of whom were instructed in Six Sigma methodology with the aim of conveying the importance of the project and asking all participants to create synergies that favoured continuity and the rapid deployment of solutions.

Figure 2. **The Six Sigma Committee**



Once the Six Sigma Committee had been instructed, several brainstorming sessions were held to select the specific project to be executed. The problems aligned with the organisation's business strategy that best adapted to the methodology according to the selection criteria (viability, business benefit and impact on the organisation) were set out, with special emphasis placed on the feasibility factor.

Two possible projects were considered for analysis (PG001 and PG002). After analysing these projects on the basis of the definition given in the Project Charters, a project prioritisation matrix (**Figure 3**) was developed with the evaluation criteria that the company considered to be of greatest interest.

Figure 3. **Project prioritisation matrix**

ASSESSMENT CRITERIA / PROJECTS	Impact on costumer	Potential savings	Team availability	Data availability	Fast delivery	Alignment with strategy	Criterion weight x score	Likelihood project will succeed	Final assessment of the project
PG 001	C	A	B	C	B	C	120	+	360
PG 002	A	C	B	E	E	A	123	-	123
Criterion weight	Θ	□	□	Θ	□	Θ			

Project criteria matrix
A 5.00 Exceeds the total fulfilment of the criterion
B 4.00 Full compliance of the criterion
C 3.00 Meets essential aspects of the criterion
D 2.00 Partially meets the criterion
E 1.00 Slightly meets the criterion
- 0.00 Contravenes the criterion

Criterion weight
Θ 9.00 Very important
□ 3.00 Important
▲ 1.00 Slightly important

Likelihood of the project succeeding
++ 9.00 Very high likelihood (> 90 %)
+ 3.00 High likelihood (70 % - 90 %)
- 1.00 Risky project (< 70 %)

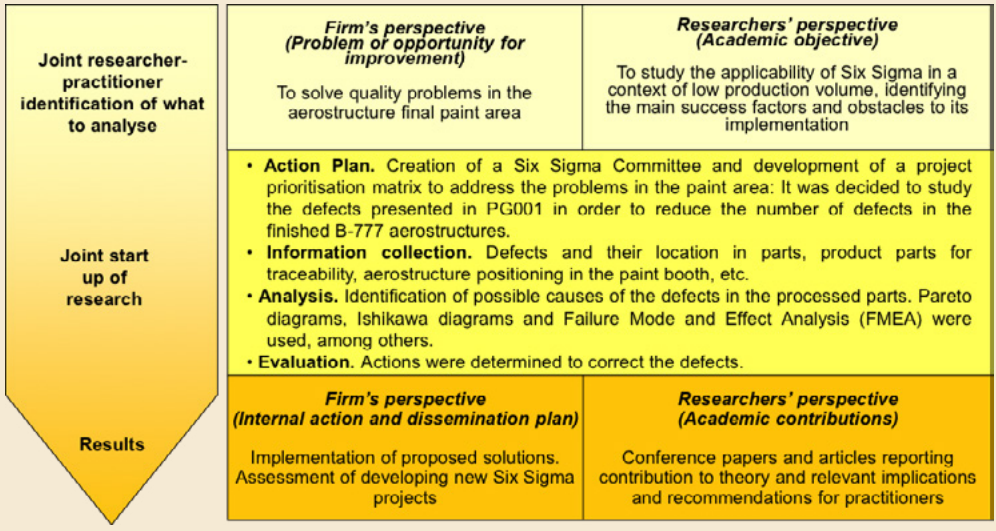
From this matrix, the Six Sigma Committee decided to study the defects presented in PG001. Production of these elements was about 28 units per month during the analysed period. The improvement pursued consisted of reducing the number of defects in certain finished aerostructures that caused a high rework rate with consequent costs and delays. It must be highlighted that one special feature of this sector that had to be taken into account when implementing the project is that scrap is not permitted and that all pieces have to be checked and reprocessed until they fully comply with customer standards.

A DMAIC cycle was followed for process improvement (Mast & Lokkerbol, 2012), which is the most common way for a Six Sigma project to be executed. Various Six Sigma tools were used at each

stage, including Project Charters, Flow charts, checklists, Ishikawa diagrams, FMEA and p-charts.

Figure 4 shows a summary of the goals set, activities carried out and results obtained in this research considering the three basic AR steps suggested by Alfaro & Avella (2013): joint identification, joint start up, and results.

Figure 4. **Action Research developed**



4. RESULTS AND DISCUSSION

With the problem to be addressed in the Six Sigma project duly stated, below we summarise some of the activities performed in each of the DMAIC steps and discuss the results achieved.

4.1. Step 1: Define

In this step, both the project objectives and the constraints were defined, i.e., the problem to be solved and how it was to be measured. The company was aware that there was a serious problem in relation to the project under review. It was known that about 70% of the parts had to be reprocessed but, except for the information provided by the people involved in the Processes (VOE, Voice of Employees), there

was a patent lack of data. However, it was estimated that a realistic goal was for the percentage to be reduced to 10%.

A data collection plan was also prepared. For this, both the definition of an NCP (Non-Conforming Product) and the way that the information was to be gathered had to be clarified. For the former, the Critical to Quality features (CTQs, Y variables) included in the customer standards were taken into account. There were 13 of these: pores, lumps, orange-peel effect, cracks, etc. For the latter, check-lists were prepared to collect data on the number and types of defect for each of the references processed, the area where the defects were concentrated on plan types, and the location of the part in the paint booth.

As part of this DMAIC definition phase, a flow chart was prepared of the way that the parts were processed. This included all the operations carried out from the time that the package was signed in to the organisation's facilities until delivery was signed off. The chart was also used to identify and quantify NCP costs that were attributable to reprocessing. These costs could be broken down into labour, paint, power consumed by tools (sander, spray gun, dryer blow gun, etc.), direct process-linked costs (electricity and fuel consumed by the generator) and other non-quantifiable costs. This information was used to make an initial estimate of the total monthly value lost to the quality problems analysed, with the final figure calculated at €3,440.85.

This same information was used to calculate the defect rate per million opportunities (with each of the 13 types of defects listed in the customer standards counted as an opportunity) and, subsequently, the initial sigma quality metric for the process, which was 3.36.

4.2. Step 2: Measure

This phase included executing the information collection plan designed in the previous phase. This plan laid down the parameters that the work team considered that it would be interesting to monitor (defects and their location in parts, product parts for traceability, aerostructure positioning in the paint booth, etc.). Workers involved were also instructed as to the steps in the process; specifically, the inspectors and painters, so that data could be collected efficiently.

Data collection forms were used to quantify these defects according to the most interesting evaluation criteria for decision making as to the conformance of the part. There were three aspects to the-

se evaluation criteria: quantity, size and location. Each of these was measured on a discrete scale of 1, 3 and 9. The arithmetic mean of these aspects provided an indicator of the seriousness of the defect, which enabled part conformance or non-conformance to be specified. Plans/graphics were also used to show where the defects were located on the parts and where these parts were placed in the paint booth.

This phase lasted 5 weeks and the information gathered was used to draw up a sufficiently coherent Pareto diagram to allow some initial conclusions to be drawn. The diagram showed that around half of NCPs were mainly caused by debris. This pointed to dirt and dust in the air and in the paint booth being the main cause of the defects found. The second most common defect (around 13.5%) was caused by the presence of pores during the paint-drying process. These could have been caused by the inadequate preparation of the paint. Finally, silicones (lack of sticking-power) were the third most important cause of defects that resulted in NCPs (around 13%). These three types of defects together fulfilled the 80/20 rule.

As a consequence of the Pareto analysis, some measures were urgently put in place during this period with regard to the cleanliness of the paint booth.

With the data collected during the first four weeks of this phase, defects per million opportunities were again determined and the process' sigma was more accurately valued, with a quality level of 3.42 being obtained. Accumulated losses of €2,479.32 were also calculated during this phase.

4.3. Step 3: Analyse

During this phase, the possible causes (X variables) of the defects in the processed parts and, therefore, their non-conformance, were identified on the basis of the previous considerations and bearing in mind the deep knowledge that work team members had of the process.

For this, a number of both formal and informal meetings were held between the work team (VOE) and operators in the paint area (VOP–Voice of the Process) that enabled sufficient information to be gathered to establish the causes.

These analyses and the prior considerations that were taken from the Pareto Diagram enabled an Ishikawa Diagram to be prepared to classify the possible causes identified according to the 6 Ms (Man-

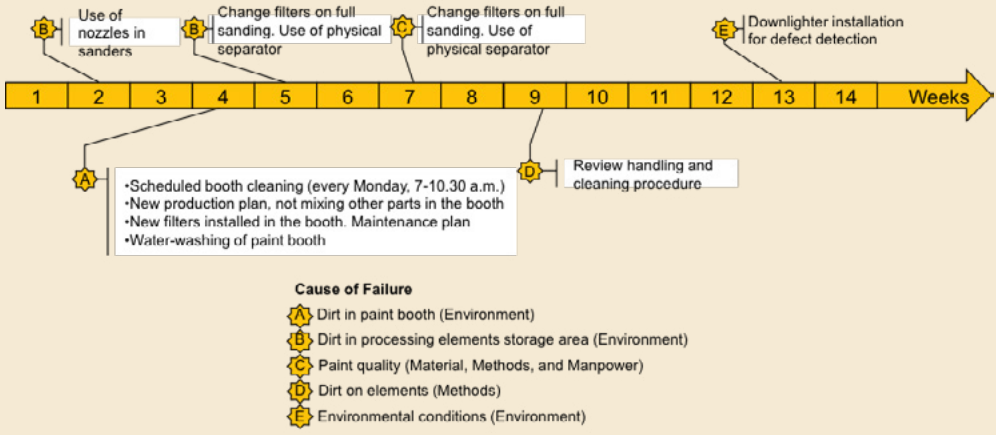
power, Materials, Measures, Milieu (environment), Methods, and Machines).

A Failure Mode and Effect Analysis (FMEA) was also carried out during this phase for Boeing package aerostructures that included all the considerations made during the project regarding the potential causes that were identified and the effects that they might have. This analysis tool also enabled a list of the most urgent corrective actions to be drawn up according to the Risk Priority Index (RPI) using the product of the seriousness, frequency and detection capability of the causes of failure.

4.4. Step 4: Improve

As indicated, the FMEA carried out during the Analysis phase enabled the causes for the failure mode to be determined and ranked according to the RPI. This was obtained from the tables in the FMEA reference standards. Once the causes had been prioritised, the actions that had to be taken to correct them were determined, and these are set out in **Figure 5**.

Figure 5. **Corrective actions implemented**



4.5. Step 5: Control

The objectives of this step are to validate, verify and monitor the improvements put in place. It seeks to ensure continuity as well as detect and correct any reoccurrence. During this phase, which covered weeks 8 to 11, data collection was done for all the references that

had been processed and a p-chart was prepared showing the proportion of defective parts in samples of variable size (each sample corresponds to the number of verifications per week of production). The results of the graph led to the conclusion that the process was under control.

At the same time, follow-up and monitoring of the process indicators during the control phase (percentage of non-conformance products, sigma quality control level reviewed, costs of poor quality, etc.) and the action plans for correction and maintenance established in the previous phases all continued.

Table 2 gives a summary of the steps in the project, indicating their durations and principal outputs.

Table 2. **Summary of the project steps**

STEPS	DESCRIPTION	OUTPUTS	DURATION
Define	• Problem description and identification of CTQs (defects that cause nonconformity). • Definition of current performance. • Definition of the goals of the objectives. • Training of coaching team.	• Timetable. • Six Sigma committee. • Project charters (goals). • Flow charts. • Sigma Metrics: initial estimate	3 weeks (1 to 3)
Measure	• Data gathering regarding current situation. • Identification of possible causes.	• Data collection plan (standardisation). • Sigma Metrics: initial assessment. • Prioritisation of causes (Pareto).	5 weeks (3 to 7)
Analysis	• Data-based identification of causes. • Identification of relationships among variables.	• Brainstorming sessions. • Ishikawa diagram. • FMEA process.	4 weeks (5 to 8)
Improvement	• Prioritisation of causes through FMEA. • Definition of improved process. • Assurance of implemented actions.	• Corrective actions plan. • Process standardisation.	4 weeks (7 to 10)
Control	• Quantification of project benefits. • Project closure communication.	• Metric assessment of improved process. • p-chart for process control. • Monitoring plan of implemented corrective actions.	4 weeks (8 to 11)

4.6. Closing the project and results achieved so far

Once the project was closed, the KPIs could be quantified and the Six Sigma project assessed. During the 2½ months of the fieldwork, process performance measurements were conducted on different aerostructure samples (flaperons and flaps) at three different times. **Table 3** shows the final improvements achieved in the four performance metrics that had been defined and the goals initially set.

Table 3. **Main results: improvements in quality and costs**

METRICS	DESCRIPTION	UNIT	INITIAL	GOAL	AFTER IMPROVEMENT
Y1	Quality level	Sigma	3.35	4.5	3.68
Y2	Rework total time	Hours	75	10	15
Y3	NCP	%	70	10	22.5
Y4	Rework total cost	€/month	3,500	1,000	600

It can be observed that the Six Sigma project can be considered a success in economic terms (Y4), as the cost after the improvement is much lower than the initial goal. These cost savings will be sustained over time and the low costs of implementing the project mean that they will be recovered in a short period of time. In this regard, it is noted that the cost of the researcher who acted as black belt was zero for the company since he worked as an intern, and that the cost of the other employees involved was regarded as an investment by the company, as it was considered to be a learning experience and training. Scheduled corrective actions, such as booth cleaning, filter changes, and the installation of nozzles and lights, did not result in any significant costs.

It can also be considered a success in terms of time devoted to reprocessing (Y2) as, even though the initial objective set was not fully met, a considerable reduction was achieved in only two months. Regarding the percentage of NCP (Y3), we can say that this objective has been met in part, as, although a significant reduction has been obtained, the end result is not as close to the initial target as in the case of Y2. The indicator that has fallen further away from the initial target set is Y1, based on the level of quality (sigma variation).

The lack of maturity of the work team in Six Sigma projects might be

the reason why all the objectives were not fully met, and this may be why over ambitious objectives were set for the quality level (Y1) and NCP (Y3). Regarding the first, it is a feature of Six Sigma projects that the mean time required to raise a quality level from 3σ to 4σ is usually around a working year, with the required investment in implementing the actions established and the dedication of the team members involved. It would therefore be of interest to continue collecting data and to keep the action plan in place in order to see how the above indicators develop.

5. CONCLUSIONS

After analysing the results obtained with the implementation of a Six Sigma Project to improve the paint final process of aerostructures in an aeronautics SME, everything points to the high degree of satisfaction of all participants, which contradicts the thesis that Six Sigma is extremely limited in production environments with low production volumes.

Nonetheless, the sector has some characteristics that influence Six Sigma application to a certain degree. Thus, low repeatability, due to the reduced volume of production, makes it very difficult, if not impossible, to achieve the objective of 6σ (3.4 dpmo). In addition, the degree of automation is relatively low, so manual labour, which is subject to greater variability, has greater weight. However, as this and other cases have shown, substantial quality improvements can be achieved through Six Sigma.

On the other hand, workers in this sector are highly qualified, which is an advantage given the intense training required by Six Sigma. Also, items that are produced are of high added value, enabling sufficient resources to be allocated to Six Sigma projects. This may not be the case in other sectors, hampering the applicability and appropriateness of Six Sigma. A further advantage of this sector which favours the application of Six Sigma is the high demand for quality. Other sectors where this requirement is not so high may feel less need to use Six Sigma.

Considering these issues, we believe that SMEs should not rule out Six Sigma methodology, even if it is initially designed for large companies with highly repetitive production processes. This case has shown that it can also be useful for improving processes in SMEs, and that the DMAIC cycle is a practical and easy-to-follow

guide for its application, even when work team members lack maturity in the methodology. In fact, the level of Six Sigma maturity is not a predictor of success in executing a Six Sigma project (Nair et al., 2011).

The experience of this study can be used by other SMEs when considering whether or not to use this powerful improvement methodology, which specific tools to use, and some key factors or barriers that would have to be taken into account. The results of this project suggest that the degree of success or failure of the Six Sigma methodology implementation process depends more on the typical key factors of any organizational change (Näslund, 2013) than on the specific industrial sector. These include team commitment, the availability of resources, previous training and, in reference to certain unsuccessful previous experiences, the ability to perform each phase as planned, without any interference. Regarding the latter, it is worth noting that there were certain coercive pressures from the customer while the project was being carried out. These were related to the decision-making process regarding the initial approach to problem-solving and the availability of resources, which, without affecting the continuity of the project, sometimes diverted attention away from the problem in hand. This is a reflection of the importance of one of the critical success factors mentioned in the literature –'linking to customer'– and one of the common barriers to Six Sigma implementation –'not required by customer'.

A future recommendation that the organisation might take into account is the skilling-up of a work group devoted to improving internal processes. While not being subject to external pressures, this group should not neglect any commitments to customers. It should enjoy greater autonomy in these matters, bearing in mind the benefits that have been achieved in a simple project such as the one reported here, the nature of which, moreover, was markedly investigative.

The conclusions reached are not confined exclusively to the analysed company. This company's experience may well be similar to that of other SMEs in this or other sectors, and can be referred to companies who have doubts about the implementation of Six Sigma or who have started its implementation and face some of the difficulties identified in the analysed case.

Finally, we believe it is of great interest to highlight the need for collaboration between practitioners and researchers that is an integral part of action research, the methodology which has supported this work, in order to achieve a balance between the rigor of academic research and its relevance for firms.

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NOTES

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2. The aeronautics industry in Europe is committed to complying with the Advisory Council for Aeronautics Research in Europe's objectives of minimising environmental impacts during the 2000-2020 period. Known as ACARE 2020, their aim is to make ambitious noise and emission reductions: a 30% reduction in CO2 emissions, 80% in nitrogen oxides, and perceived noise cut by half. ACARE 2050 seeks to have the industry commit to reducing perceived noise by 65%, CO2 emissions by 75%, and nitrogen oxide emissions by 90% (Source: ITP (2014): 2013 Sustainability Report. http://www.itp.es/).

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Game-based learning: using business simulators in the university classroom

Aprender jugando: la utilización de simuladores empresariales en el aula universitaria

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1. INTRODUCTION

Business simulation games are at the forefront of a revolution in education—driven by their ability to provide both learners and educators with a tool that facilitates active, problem solving-based learning (Geithner & Menzel, 2016). The past two decades have seen a global trend towards technological advances, allowing people to seek and share information more quickly, easily, flexibly and efficiently than ever before (Roca, Chiu & Martinez, 2006). Education, as a field, has adapted to this new environment by harnessing the potential of new information and communications technology (ICT). It is generally assumed that—for millenials—the incorporation of technology in the learning process is second nature (Murphy & Smark, 2006). Learners have gone from being passive recipients to active builders of knowledge (Fu, Su & Yu, 2009).

In such a context, digital learning offers learners greater autonomy and control over the construction of knowledge (Tao, Cheng & Sun, 2009). Business simulation games are innovative learning tools designed to encourage active, experience-based learning. A game is defined as a "competitive activity—against the computer, other players or oneself—with a predetermined objective and carried out within a framework of established rules." Simulation refers to

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EXECUTIVE SUMMARY

In recent years, technological advances have paved the way for advances in education through the deployment of innovative teaching tools designed to improve the learning experience. Such active, experiential teaching/learning tools include business simulation games which aim to boost motivation, autonomous learning and learner-centered control of the learning process. The present study provides an analysis of the implantation of a college-level course designed around a business simulation game—with a special focus on the learning process as experienced by the learners themselves. To this end, the paper seeks to identify those factors which have a positive impact on the learning experience and contribute to learner satisfaction. More specifically, learner personality traits and attitude, the role emotions may play, facilitative learning conditions and learners' intention to use business simulation games again in the future are analyzed. Our findings demonstrate that support from teachers, a high degree of learner motivation and perceived fun will have a particularly positive impact on the opinion learners hold of this innovative teaching/learning tool.

RESUMEN DEL ARTÍCULO

Los avances tecnológicos han permitido que la educación también evolucione introduciendo herramientas pedagógicas innovadoras que mejoran la experiencia de aprendizaje para los individuos. Una de estas herramientas para el aprendizaje activo y experiencial es el uso de juegos de simulación empresarial. Estas nuevas herramientas pedagógicas permiten mejorar la motivación, autonomía y control del estudiante en su proceso de aprendizaje. Este estudio pretende analizar el éxito en la implantación de una asignatura basada en un juego de simulación empresarial mediante el estudio de la experiencia de aprendizaje del estudiante a través de dicho juego. Para ello, el trabajo persigue identificar aquellos factores que pueden contribuir a que dicha experiencia de aprendizaje sea satisfactoria para los alumnos. En concreto, se analiza el papel que pueden jugar las emociones, la personalidad del individuo, las condiciones facilitadoras, la actitud y la intención futura de uso del juego de simulación empresarial. Los resultados ponen de manifiesto que el apoyo recibido por parte del profesorado, la diversión del estudiante y un alto nivel de entusiasmo experimentado con el juego de simulación contribuirán de forma especialmente positiva a la opinión de los estudiantes sobre esta herramienta pedagógica innovadora.

a "simplified model of reality—structured like a system—which includes a number of variables and their dynamic relationships" (Ranchhod, Gurau, Loukis & Trivedi, 2014, p. 76). In recent years, several scholars have recommended the use of simulation games in education, arguing that they can be linked to positive learning outcomes (Geithner & Menzel, 2016; Ranchhod et al, 2014). Such games, it appears, stimulate motivation to learn, increase ICT literacy and enhance learner-centered skill building. The secret lies in the high entertainment value games offer, together with their potential for encouraging social interaction and enhancing player immersion. Simulation games also boost intrinsic motivation, spark learners' curiosity and do away with the monotony of traditional teaching materials and methods (Prensky, 2003; Fu et al, 2009). By playing simulation games, learners are exposed, for the first time, to a wide range of business scenarios which are very similar to those which they will encounter in the job market—allowing them to put all of the theory they have acquired thoughout their studies to work themselves.

Such games, it appears, stimulate motivation to learn, increase ICT literacy and enhance learner-centered skill building.

However, while the literature recognizes that simulation games enhance the learning process, little is known about what factors contribute to their success. Hence, this paper aims to analyze the following questions: What factors stand to favor and enhance learners' experience using the simulation game? What impact might positive and negative emotions have on gaming and outcomes? How might learner attitudes towards the simulation game be explained by individual personality traits? What facilitative conditions have a positive impact on learners and lead to better attitudes and behavioral intentions towards this type of teaching/learning tools?

This paper will attempt to answer the questions raised by presenting a case study analysis of a business simulation game experience in the context of a general marketing course offered to students enrolled in an undergraduate-level Business Administration degree. The study focuses on the experience of students who have participated in an online business simulation game for two semesters in two different academic years. To this end, a review of the literature on all factors which have the potential to impact students' gaming experience while playing a business simulation game is provided in the following section. The third section presents

the bases for the empirical study. Our findings are put forth in section four. Lastly, the main implications for teaching/learning are discussed in the final section of the paper.

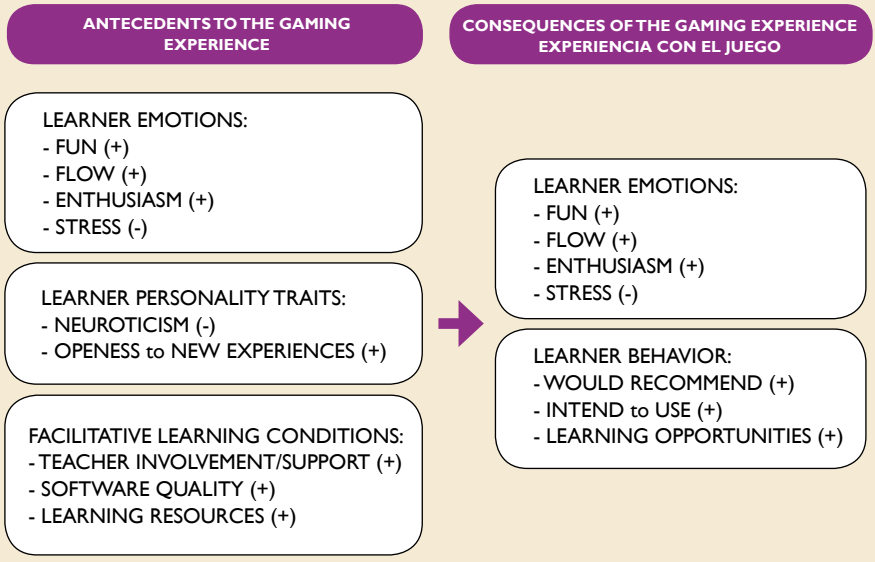
KEY WORDS
Simulation games, interactive learning environments, education, intrinsic motivation, fun.

PALABRAS CLAVE
Juegos de simulación, entornos de aprendizaje interactivos, educación, motivación intrínseca, diversión.

2. CONCEPTUAL MODEL

With a view to fully address our research objectives, a conceptual model has been designed to identify key factors which may be decisive when evaluating the success or failure of business simulation games in the tertiary classroom. In this vein, the study analyzes learner emotions, individual personality traits and facilitative learning conditions as potential antecedents to learner attitudes towards the simulation game and present and future behavior (**Figure 1**).

Figure 1. **Conceptual model**



2.1 Variables that may impact the gaming experience

2.1.1 Learner emotions

Recent studies suggest that emotions play a central role in shaping learners' experience with technology. Emotions arise in response to events associated with the goals and motivations of the learner in question (Éthier et al., 2006). An *emotion* is defined as a mental

state of readiness triggered by the assessment of events or stemming from a personal thought processes (Éthier et al, 2006). This study looks deeper into four positive and negative emotions learners experience while interacting with the business simulation game: *fun, flow, excitement* and *stress*.

First and foremost, games—by definition—should be fun to play (Yoon & Choi, 2007). *Perceived fun* is measured in terms of how much pleasure or enjoyment students experience while interacting with the business simulation game. Perceived fun is intrinsically motivating as it derives from carrying out an activity without any other apparent motive than the desire to do so iteself (Davis et al., 1992).

Flow is the term used to describe the feeling people experience when they are completely carried away by an activity (Csikszentmihalyi, 1990). Users reach a *state of flow* when they are in a mental state of total involvement, concentration, disconnection, immersion and enjoyment (Kiili, 2005). The flow state is considered to have a very positive impact on learning outcomes, as players in this state achieve such an intense level of concentration that nothing else seems to matter.

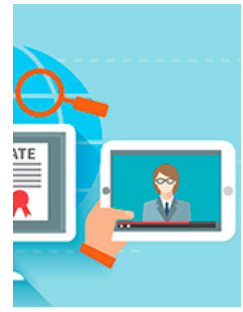
Enthusiasm is conceived as a hedonic form of well-being. This variable implies a positive mood in terms of emotion or activity (Monnot & Beehr, 2014). In the case of business simulation games, high levels of enthusiasm can be triggered in learners due to the excitement they feel about the gaming experience, the results of their decisions, interaction with the technology and other players.

Finally, several studies point out emotions like *phobia, anxiety, confusion, frustration, anger* and *stress* being triggered in tertiary learners by the use of ICT in the classroom (Saade & Kira, 2008). Generally speaking, *stress* can be defined as feelings of apprehension or fear that some users face when expected to work with a new technology (Hackbarth et al., 2003). Analyzing this variable will allow us to shed some light on a negative emotion initially experienced by learners—although it is also worth noting that stress tends to disappear as learners become more familiar with the software.

2.1.2 Learner personality traits

In light of the fact that learner profiles are very heterogeneous, this study puts forth that individual personality traits may have an impact on learner experiences with the business simulation game. A number of scholars acknowledge that a more conscientious look at the psychological characteristics of individuals can aid in predicting performance variables (Fang & Zhao, 2010). In this paper, special attention is paid to the role of neuroticism and openness to new experiences.

Neurotic individuals are essentially pessimistic—hence, they tend to perceive some events in a more negative light than others (Judge et al., 2002); they often experience feelings of frustration, anxiety and insecurity. Neurotic individuals also tend to be hypersensitive to negative events and emotionally unstable (Picazo-Vela et al., 2010). This negative personality trait can be a mediating factor for some learners when using simulation games since emotions like anxiety, nerviousness and insecurity will affect their perception of the new learning tool.



On the positive side of the spectrum, this study analyzes learners' *openness to new experiences*. This variable affects individuals who are eager to try out products or ideas that are new in the context of their individual experience (Aldás-Manzano, Ruiz-Mafé & Sanz-Blas, 2009, p. 740). More concretely, in the context of new technologies, this variable refers to the degree to which individuals are willing to try out new ICT—and provides intellectual and attitudinal information, as well as data regarding readyness to adapt to—and learn from—new educational environments.

2.1.3 Facilitative learning conditions

The impact *facilitative conditions* have on learners is also analyzed in this study. Facilitative conditions may refer to a range of factors that can determine the learning experience. In this paper, we focus specifically on teacher involvement and quality of software and learning resources.

There is evidence that teacher involvement and quality of learning resources are central to learners' experience with business simulation games being a success. Theory sessions on the simulation game, digital learning platforms like Moodle or Blackboard, the game's user's manual and interaction with/feedback from other classmates/players can all help to optimize the learning

experience. However, while these sources of information are sufficient for learners to get started using the business simulation game, setbacks such as technical difficulties, individual doubts, and conflicts within the group may arise. In such cases, the role of the teachers overseeing game play in the classroom becomes crucial; resolving problems quickly allows for the continuity of the learning experience.

Quality software will also facilitate a more stimulating experience for learners using simulation games. Learners must be exposed to all the possible decision-making scenarios they might encounter in a real company setting—the pros and cons of each alternative—as well as to the training required to use the simulation software itself. The more intuitive and visual the experience, the more learners will be able to invest their time and energy in the real purpose of the course: learning how to run a business (not how to use a new computer program).

2.2 Consequences of the gaming experience

2.2.1 Learner attitude

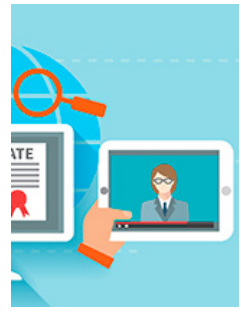
As mentioned earlier, the aim of this study is to identify the critical factors that determine the success (or failure) of a game-based educational experience. This is achieved through an analysis of the general attitude learners display towards using a business simulation game in the classroom. *Learner attitude* is defined as the positive or negative feelings learners express during and after performing a particular behavior, such as using technology (Teo & Noyes, 2011). According to the technology acceptance model (TAM), learner attitude hinges on the game's perceived usefulness coupled with ease of use. *Perceived usefulness* refers to "the degree to which a person believes that using a particular system will improve their performance"; *ease of use* is defined as the degree to which a person believes that using a particular system requires little or no effort (Davis, 1989).

2.2.2 Learner behavior & learning opportunities

This paper also analyzes the consequences in terms of learners' behavioral intentions. Three potential implications or consequences of participation have been considered: intent to continue using simulation games in the future, in other courses or curricula; intent

to recommend the course to other students in the same Major/ Degree; and the learning opportunities that the course has afforded. An analysis of these variables confirms whether or not individuals consider the simulation game to be an effective technology for improving learning performance.

Behavioral intentions towards using technology refer to the genuine intent of individuals to adopt a similar technology in the future (Venkatesh & Davis, 2000). *Word of mouth*, on the other hand, is defined as informal communication to others regarding the ownership, use or the particular characteristics of goods and services and/or vendors (Westbrook, 1987). In the context of our study, word of mouth can be defined as informal communication among learners regarding the technology used, i.e., the business simulation game. Word of mouth plays an important role in the flow of information among individuals and can spawn behavioral intentions toward using technology—particularly in third-party individuals. This variable is central to business strategy given the interactivity generated between individuals, the speed and effectiveness of information flow, and the fact that word of mouth is cost free (Villanueva et al., 2008).



Finally, the learning opportunity variable plays a crucial role in terms of determining the success or failure of the course. *Learning opportunity* is defined as the degree to which learners believe that using simulation games in the classroom can provide real opportunities for learning (Bourgonjon et al., 2010). Hence, if the game allows learners to apply theoretical knowledge in a business context, if they have more control over their own learning processes, if they can take part in teamwork, or if the game provides opportunities for developing critical thinking, learners will tend to believe that the experience has contributed positively to their education.

3. DESCRIPTION OF THE STUDY

This study analyzes the data collected directly from college students who used the RAD-MTK business simulation game in a fourth-year elective course in the Bachelor in Business Administration degree at a well-known Spanish university.

During the first few weeks teachers explained the basics of the game and how to use the software. Each competitive environment

included 5 companies and each company consisted of roughly 4 or 5 learners. Each team had to use the simulation software to manage the production and distribution of a climate control company's products in three different markets (local, European and Latin American markets). In addition, teams had make decisions regarding financial and production policies, marketing, human resources and pricing—as well as design an optimal logistics strategy to address the firm's entire distribution process. This was carried out in a highly competitive scenario in which learners had to meet the challenges posed by varying inflation, interest and exchange rates.

At the end of the semester, learners were asked to complete a self-directed survey covering the variables included in the conceptual model, together with a number of socio-demographic variables, with a view to shed light on more aspects of the sample. Seven-point Likert scales adapted from earlier studies were used (1 = totally disagree, 7 = totally agree). Data collection spanned two consecutive academic years (2013-2014 and 2014-2015). The fact that course design did not change from year to year was taken into account. Participation in the study was voluntary and students were assured that doing so would not affect their grades. Anonymity and confidentiality of personal data was guaranteed as well. Two hundred sixty-six valid questionnaires were obtained. Of the sample, 53.4% were men and 46.6% were women. Moreover, results were compared on the basis of the two years analyzed. No significant differences between years were found.

4. RESULTS

4.1 Antecedents to the gaming experience

4.1.1 Learner emotions during the gaming experience

With regard to the feelings learners experienced throughout the game simulation, our data suggests that the most common emotion is *fun*. The fun variable is one of the highest in the study, obtaining an average score of 5.82 on a scale of 7. In second place is *enthusiasm*, with an average score of 5.42. *Flow* comes in third, at 5.21. The least common emotion is *stress* (4.14 out of 7). It should be noted, however, that—while stress is the lowest score—learners do admit experiencing some degree of anxiety during decision-

making. This may be due to the inherent pressure of decision-making in a limited time—or to the highly competitive nature of the game itself.

Table 1. **Descriptive statistics for learner emotions**

SCALES	AVERAGE	STANDARD DEVIATION
FUN perceived while playing business simulation game	5.82	1.06
Playing the simulation game was fun.	5.69	1.23
I enjoyed participating in this simulation game.	5.80	1.11
This activity was entertaining.	5.97	1.06
ENTHUSIASM expressed towards business simulation game	5.42	1.21
I felt excited while playing the simulation game.	5.34	1.28
I felt enthusiastic about playing the simulation game.	5.33	1.27
I loved participating in this simulation game.	5.61	1.30
FLOW experienced while playing the business simulation game	5.21	1.05
Time flew by when I was playing the simulation game.	5.40	1.19
I think I experienced the feeling of flow while playing the simulation game.	5.21	1.31
How often did you experience flow while playing the simulation game? (On a scale of 1 to 7: 1 = never; 7 = very frequently)	4.83	1.31
Most of the time I spent playing simulation game I felt fully immersed and focused.	5.41	1.13
STRESS LEVEL while playing the business simulation game	4.14	1.53
Playing the simulation game made me tense.	4.39	1.64
I felt nervous while participating in the simulation game.	4.15	1.67
I consider it was hard to relax while playing the simulation game.	3.90	1.76

4.1.2 Learner personality traits

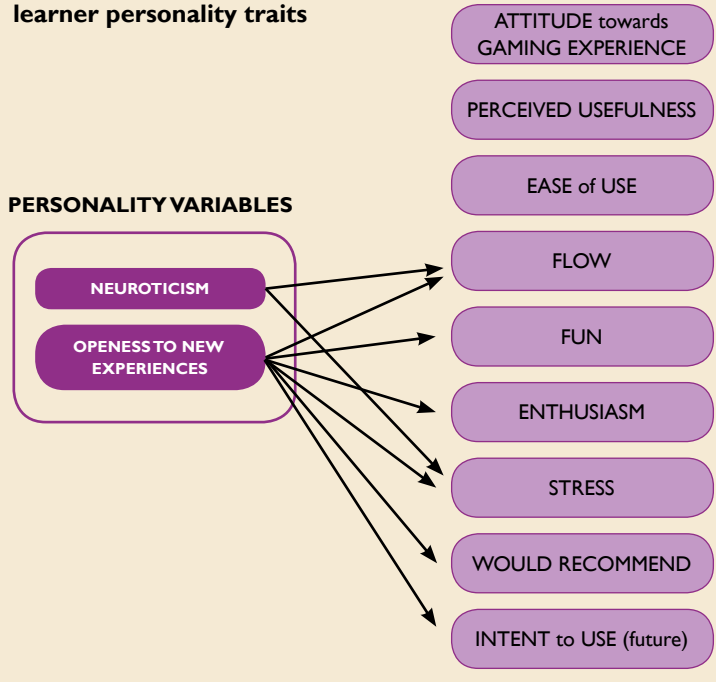
With respect to neuroticism, our results indicate that the student sample is highly heterogeneous, since the high standard deviations point to high dispersion among the answers. Participants consider themselves to be more impulsive and nervous than pessimistic and bipolar. The *openess to new experiences* variable gets higher scores: an average of 5.13—suggesting that learners are willing to try out new technology in the classroom. This data points towards rapid adaptation to the RAD-MTK business simulation game software.

Table 2. **Descriptive statistics for learner personality traits**

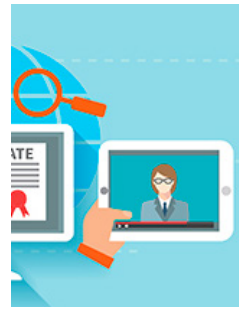
SCALES	AVERAGE	STANDARD DEVIATION
PERSONALITY TRAITS Please rate to what extent you agree or disagree with the following statements about your personality.	3.92	1.03
I am often moody.	3.62	1.60
I am a very nervous person.	4.18	1.69
I am generally pessimistic.	2.99	1.68
One might define me as being impulsive.	4.25	1.56
I worry too long after going through an embarrassing experience.	4.55	1.66
OPENESS to new experiences	5.13	1.27
I like trying out new technology when I hear about it.	5.56	1.32
Among my colleagues and friends, I'm usually one of the first to try out new technology.	4.56	1.48
I like to experiment and try out new technologies.	5.27	1.38

A correlation analysis has been carried out with a view to shed light on how neuroticism and openness to new experiences can influence learner perceptions and attitudes (**Figure 2**).

Figure 2. **Consequences of learner personality traits**



The data suggest that personality traits do not affect how individuals perceive simulation games in terms of usefulness and ease of use. Hence, attitude does not hinge on personality. Personality traits do appear to have an impact on the feelings learners have during the gaming experience itself—as well as on their future behavior. Interestingly enough, the most neurotic learners experience a higher level of flow (f = 0.20); perhaps because their perception of time management is less acute than in more confident learners. In fact, higher levels of neuroticism correlate positively with higher levels of stress (f = 0.26). With regard to openness to new experiences, the data suggest that learners who are more likely to adopt new technology have more positive feelings in terms of flow (f = 0.17), fun (f = 0.32) and enthusiasm (f = 0.30). Likewise, these learners tend to experience less stress (f = 0.14). Because the gaming experience triggers more positive emotions in this group, learners whose personality makes them more open to new experiences also tend to be more prone to adopt positive behaviors towards the simulation game—in particular, to be more willing to recommend the game (f = 0.33) and to continue using simulation games in other courses in their current or other Degree program (f = 0.39).



4.1.3 Facilitative learning conditions

Another objective of this study is to provide an analysis of the facilitative conditions that have an impact on learner attitudes towards the simulation game. Three variables were the focal point of the study: the role of teachers, the perceived value of support resources and the perceived quality of the game software.

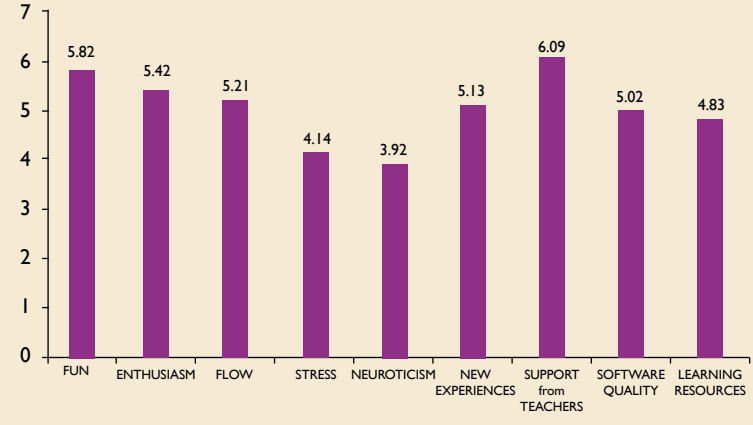
Teacher involvement receives the highest score of all the variables (6.09 out of 7). Learners place special value on the motivating role that teachers play, and their degree of involvement when it comes to explaining the simulation game. Software quality, by contrast, receives one of the lowest scores in the study (5.02). It should be noted that—while this result is not low—some aspects of the software can be improved. With regard to learning resources, learners consider the game's user's manual to have contributed most to their education (5.83).

Table 3. **Descriptive statistics for facilitative learning conditions**

SCALES	AVERAGE	STANDARD DEVIATION
Teacher INVOLVEMENT / SUPPORT	6.09	0.92
The instructor was very knowledgeable about the simulation game.	5.97	1.13
The instructor was actively involved in explaining the game.	6.14	1.03
Teachers motivated us to do our best playing the game.	6.15	1.02
Perceived SOFTWARE QUALITY	5.02	1.05
I think the game has an intuitive design.	4.88	1.19
The information is clearly organized.	5.18	1.21
Navegating around the aplication is fast and easy.	5.21	1.34
The game is well-designed.	4.83	1.34
LEARNING RESOURCES I received the information and training required to play the simulation game, by way of:	4.83	1.03
...theory-based classes (lectures).	5.02	1.59
...the Digital Teaching Ring (Moodle).	4.28	1.67
...the game's user's manual.	5.83	1.16
...fellow classmates.	4.19	1.74

On the whole, the data shows that—of all the emotion, personality and facilitative learning variables that may have an impact on learners' experience using the simulation game—perceived support from teachers, perceived fun and a high degree of enthusiasm towards the game contribute most to the positive opinion learners hold of this innovative teaching/learning tool (**Figure 3**).

Figure 3. **Antecedents to the gaming experience**



4.2 Consequences of the gaming experience

4.2.1 Learners' attitudes towards the business simulation game

The data from the quantitative study indicate that students overall have a positive attitude towards the game—the average for the *attitude* variable is 5.72 out of 7. The indicator "I think using this simulation game is a smart idea"—receiving a score of 5.86—is especially indicative of this. Positive attitudes toward the game may be motivated by *perceived usefulness* (5.29). This suggests that most learners consider the simulation game used in the Business Decisions course to have been a useful education tool and to have enhanced their learning experience. *Ease of use* obtains an average score of 5.4. Leaners perceive the application itself as easy to use; yet, they find the way the game works overall more difficult to grasp, as the second indicator reveals.

Table 4. **Descriptive statistics for learner attitude**

SCALES	AVERAGE	STANDARD DEVIATION
ATTITUDE towards the business simulation game	5.72	1.09
I have a positive opinion about this simulation game.	5.65	1.17
I like this simulation game.	5.66	1.18
I think using this simulation game is a smart idea.	5.86	1.15
PERCEIVED USEFULNESS of the business simulation game	5.29	1.17
The game allowed me to learn more efficiently.	5.30	1.26
My learning outcomes have improved.	5.22	1.21
The game has been a useful part of my education.	5.35	1.29
EASE of USE of the business simulation game	5.40	1.06
The game was easy to use.	5.44	1.17
It was easy to figure out how to play the game.	5.20	1.32
It was easy to use the application.	5.55	1.12

4.2.2 Learner behavioral intention

Another important aspect we have analyzed in this quantitative study are the consequences of using a business simulation game in the classroom. The *positive word of mouth* variable obtained the highest score (5.9 out of 7). Next highest was intent to use, with a score of 5.86. Such results suggest that users are satisfied with the game-based learning experience and, therefore, would be willing to

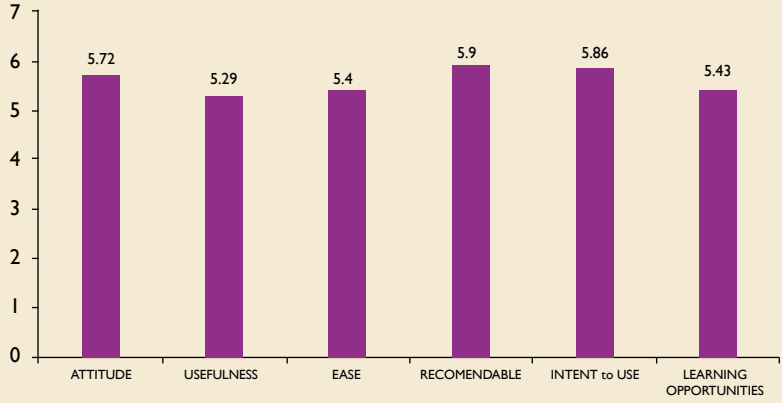
use simulation games again in other courses offered in their current or some other major or undergraduate/graduate degree program; furthermore, learners would recommend the experience to their peers. The *learning opportunities* variable received an average score of 5.43. That said, the six indicators that make up this variable should be analyzed in greater detail as they are quite different in nature and learner perceptions were varied. The indicators "The game provides opportunities for...getting motivated about course content" (5.74) and "...interacting with other students" (5.66) were the two highest scoring items. "The game provides opportunities for...developing critical thinking skills" obtained the relatively high score of 5.48.

Table 5. **Descriptive statistics for learner behavioral intention**

SCALES	AVERAGE	STANDARD DEVIATION
POSITIVE WORD-OF-MOUTH about the simulation game	5.90	1.06
Overall, I speak well of this simulation game to classmates.	5.68	1.21
I would recommend playing this game to other students.	6	1.10
If a classmate asked me for advice, I would encourage him/her to play this simulation game.	6.03	1.11
INTENT TO USE simulation games in other courses	5.86	1.08
If simulation games were offered in other courses I would choose to play them.	5.91	1.18
I would like to continue playing simulation games to round out my education.	5.80	1.17
If I were to enroll in a different Major/Degree, University, Masters Program, Erasmus Program, etc., I would like to continue playing simulation games.	5.86	1.17
LEARNING OPPORTUNITIES The game provides opportunities for:	5.43	0.90
...putting my knowledge of theory into practice.	5.28	1.25
...taking control of my own learning.	5.15	1.08
...interacting with other students.	5.66	1.17
...applying knowledge I have acquired in other courses.	5.24	1.25
...devolping critical thinking skills.	5.48	1.13
...getting motivated about course content.	5.74	1.11

On the whole, the data shows that learners score intent to use and positive word of mouth variables very highly, expressing their desire to participate in new gamified simulation experiences and their intention to recommend this particular game to peers (**Figure 4**).

Figure 4. **Consequences of the gaming experience**



5. CONCLUSIONS, IMPLICATIONS & FUTURE LINES OF RESEARCH

This study is justified, on one hand, by the need to offer competitive business simulation game-based learning alternatives and integrate new ICT learning tools in the tertiary classroom. On the other hand, our study aims to meet the need for deeper analysis of environmental factors, the characteristics of the game itself and personality traits of learners—who, ultimately, can determine the success or failure of this teaching/learning experience.

The data indicate that learners consider using competitive business simulation games to be fun. During the course of the game, learners experience positive emotions like high levels of enthusiasm and flow. The flow state implies a high degree of learner immersion and concentration during gaming sessions devoted to decision making. On the other hand, the data also suggest the existence of a certain degree of stress—triggered by the competitive nature of the learning tool itself, time restraints during decision-making processes, or the uncertainty generated by an ignorance of the potential consequences their business decisions can have.

It is also evident that personality does not affect how learners perceive business simulation games in terms of usefulness or ease of use; personality does have an impact, however, on the emotional dimension and on learners' behavioral intentions regarding the gaming experience. More neurotic learners reach a higher state of flow—but also experience more stress. Learners with a tendency

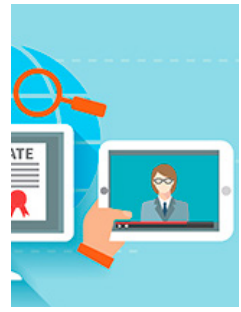
to be more open to new experiences, on the other hand, are prone to experience positive emotions such as fun, excitement and flow; in fact, these learners experience less stress and are more likely to adopt positive behaviors towards the game as positive word of mouth or the desire to continue using simulation games in the future. While learners' opinion of the learning resources was also optimal, several potential areas for improvement should be noted. Improvements in software design should be considered; more concretely, the software should be more intuitive and visual. Likewise, every effort should be made to improve learners' experience when using the course's Moodle platform.

On the whole, learners place high value on the business simulation game used for this study, as they perceive it to be both educationally useful and easy to use. This positive attitude towards the game is reflected in learners' behavioral intentions: students who have used the game express their desire to continue enrolling in courses where game-based teaching/learning methods are used. Moreover, they express their willingness to recommend the course to their peers. Finally, in terms of learning opportunities, learners admit that the simulation game-based course has enabled them to achieve a number of specific learning outcomes—enhanced motivation, interaction with others and opportunities to develop critical thinking skills are highlighted.

Finally, we can conclude that the simulation game has motivated learners to adopt a proactive role in their own learning processes—and that this has fostered the development of teamwork-related skills. Moreover, due to the game's hands-on approach to learning, learners become aware of the fact that using the simulation game contributes to building critical thinking skills—especially so because the game itself is designed with the objective that learners be the ones to evaluate their own decision-making with a view to learn from their mistakes. The game also provides opportunities to apply the theory learned—not only in marketing courses, but in other courses offered in the BA Degree in Business Administration.

In sum, the business simulation game provides learners with opportunities to acquire and hone a number of skills—more effectively than other, more traditional, teaching/learning methods. Features such as competitiveness, interactivity, learner discretion and time restraints when it comes to decision-making, and the opportunity for users to develop their own learning tools, allow

learners to assimilate key concepts more quickly. As learners progress though the simulation game, they acquire course-specific and transversal skills—in a much more efficient way. It should be noted that game-based learning appears to especially foster autonomous decision-making, teamwork and argumentation skills. For all of these reasons, we hope our findings will encourage other teaching-teams—in university, vocational and in-company training settings—to harness the potential of business simulation games to optimize learning and the acquisition of specific real-life business skills.



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NOTES

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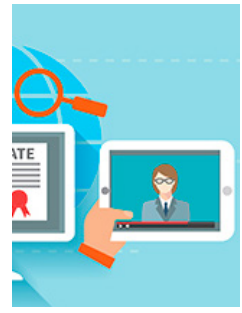

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Aprender jugando: la utilización de simuladores empresariales en el aula universitaria

Game-based Learning: Using Business Simulators in the University Classroom

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1. INTRODUCCIÓN

Los juegos de simulación empresarial representan una revolución en la educación ya que proporcionan al estudiante y al profesorado una herramienta pedagógica que facilita un aprendizaje activo basado en la resolución de problemas (Geithner y Menzel, 2016). Durante las dos últimas décadas, la sociedad ha sido partícipe de avances tecnológicos revolucionarios que han permitido a las personas interactuar y buscar información de forma más fácil, rápida, flexible y eficiente (Roca, Chiu y Martínez, 2006). El ámbito de la educación también se ha adaptado a este nuevo entorno tecnológico mediante el aprovechamiento de las ventajas que las nuevas tecnologías de la información y la comunicación (TICs) proporcionan. En general, ya está asumido que para los "millennials" el uso de las nuevas tecnologías en sus procesos de aprendizaje se vuelve completamente natural. El papel de los estudiantes en el proceso de aprendizaje ha cambiado y han pasado de ser receptores pasivos, a convertirse en constructores activos de conocimiento. Así, el aprendizaje digital ofrece a los estudiantes una mayor autonomía y control sobre la construcción del conocimiento (Tao, Cheng y Sun, 2009).

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RESUMEN DEL ARTÍCULO

Los avances tecnológicos han permitido que la educación también evolucione introduciendo herramientas pedagógicas innovadoras que mejoran la experiencia de aprendizaje para los individuos. Una de estas herramientas para el aprendizaje activo y experiencial es el uso de juegos de simulación empresarial. Estas nuevas herramientas pedagógicas permiten mejorar la motivación, autonomía y control del estudiante en su proceso de aprendizaje. Este estudio pretende analizar el éxito en la implantación de una asignatura basada en un juego de simulación empresarial mediante el estudio de la experiencia de aprendizaje del estudiante a través de dicho juego. Para ello, el trabajo persigue identificar aquellos factores que pueden contribuir a que dicha experiencia de aprendizaje sea satisfactoria para los alumnos. En concreto, se analiza el papel que pueden jugar las emociones, la personalidad del individuo, las condiciones facilitadoras, la actitud y la intención futura de uso del juego de simulación empresarial. Los resultados ponen de manifiesto que el apoyo recibido por parte del profesorado, la diversión del estudiante y un alto nivel de entusiasmo experimentado con el juego de simulación contribuirán de forma especialmente positiva a la opinión de los estudiantes sobre esta herramienta pedagógica innovadora.

EXECUTIVE SUMMARY

In recent years, technological advances have paved the way for advances in education through the deployment of innovative teaching tools designed to improve the learning experience. Such active, experiential teaching/learning tools include business simulation games which aim to boost motivation, autonomous learning and learner-centered control of the learning process. The present study provides an analysis of the implantation of a college-level course designed around a business simulation game—with a special focus on the learning process as experienced by the learners themselves. To this end, the paper seeks to identify those factors which have a positive impact on the learning experience and contribute to learner satisfaction. More specifically, learner personality traits and attitude, the role emotions may play, facilitative learning conditions and learners' intention to use business simulation games again in the future are analyzed. Our findings demonstrate that support from teachers, a high degree of learner motivation and perceived fun will have a particularly positive impact on the opinion learners hold of this innovative teaching/learning tool.

Dentro de este contexto, una de estas innovadores herramientas docentes que fomentan el aprendizaje activo y experiencial es el uso de juegos de simulación de empresa. Los juegos se definen como "una actividad competitiva (contra el ordenador, otro jugador o uno mismo), con un objetivo prefijado y que se lleva a cabo dentro de un marco de normas acordadas". Simulación se refiere a "un modelo simplificado de la realidad, estructurado como un sistema, que incluye una serie de variables así como sus relaciones dinámicas" (Ranchhod, Gurau, Loukis y Trivedi, 2014, p. 76). Algunos investigadores han recomendado recientemente el uso de juegos de simulación en la educación ya que están asociados con resultados positivos de aprendizaje (Geithner y Menzel, 2016). El uso de juegos estimula la motivación del alumno por aprender, incrementan su implicación con la tecnología y mejoran la adquisición de competencias por parte del alumno. La razón se encuentra en que los juegos de simulación ofrecen un alto grado de entretenimiento, fomentan las interacciones sociales, potencian la inmersión del jugador, mejoran la motivación intrínseca de los individuos, despiertan su curiosidad y evitan la monotonía de los materiales docentes tradicionales (Fu et al, 2009). A través de los juegos de simulación los estudiantes se exponen por primera vez a un panorama de negocios "simulado" similar al que se encontrarán en el mercado laboral, para poner en práctica todos los conocimientos teóricos adquiridos durante el grado. Sin embargo, aunque la literatura reconoce que los juegos de simulación favorecen el proceso de aprendizaje de los estudiantes, poco se conoce sobre qué factores pueden contribuir a que dicha experiencia de aprendizaje sea un éxito. Por ello este trabajo se plantea analizar: ¿qué aspectos pueden favorecer y mejorar la experiencia del alumno con el juego de simulación? ¿qué papel pueden jugar las emociones (positivas y negativas) del estudiante en el desarrollo del juego de simulación? ¿cómo puede la personalidad del estudiante explicar su actitud hacia el juego? ¿qué condiciones facilitadoras hacen que el estudiante desarrolle una mejor actitud e intenciones de comportamiento hacia este tipo de herramientas docentes?

El uso de juegos estimula la motivación del alumno por aprender, incrementan su implicación con la tecnología y mejoran la adquisición de competencias por parte del alumno

Esta investigación intentará dar respuesta a todas las cuestiones planteadas, analizando el caso del juego de simulación empresarial aplicado en una asignatura de marketing del cuarto curso del Grado

de Administración y Dirección de Empresas. En concreto, el estudio se centra en la experiencia de 266 estudiantes que han participado en un juego de simulación empresarial online durante dos semestres en dos cursos académicos diferentes. Para ello, en el siguiente apartado se realiza una revisión bibliográfica de todos aquellos factores que pueden influir en la experiencia del estudiante durante su interacción con el juego de simulación empresarial. El tercer apartado muestra las bases del estudio empírico y, el cuarto, presenta los resultados del mismo. Finalmente, se discuten las principales implicaciones de este estudio para la docencia.

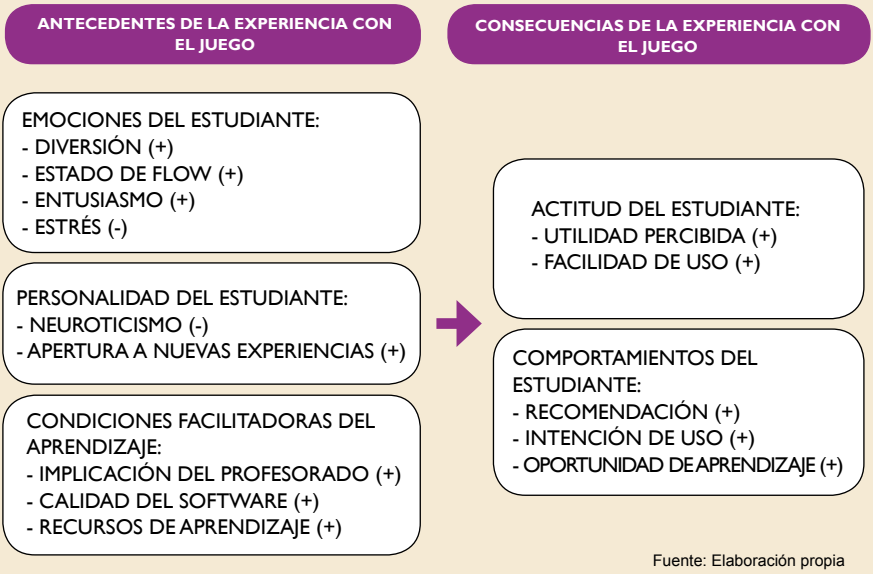
PALABRAS CLAVE
Juegos de simulación, entornos de aprendizaje interactivos, educación, motivación intrínseca, diversión.

KEY WORDS
Simulation games, interactive learning environments, education, intrinsic motivation, fun.

2. MODELO CONCEPTUAL

Para poder abordar el objetivo de este estudio, se ha diseñado un modelo conceptual que incluye variables básicas de los tradicionales modelos de aceptación tecnológica y que identifica factores que pueden ser determinantes de cara a evaluar el éxito o fracaso de los juegos de simulación empresarial (Davis, 1989). En este sentido, este trabajo analiza las emociones de los estudiantes, su personalidad y las condiciones facilitadoras de su aprendizaje como posibles antecedentes de sus actitudes hacia el juego y de sus comportamientos presentes y futuros (**Figura 1**).

Figura 1. **Modelo conceptual**



Fuente: Elaboración propia

2.1 Variables que pueden condicionar la experiencia del estudiante con el juego de simulación

2.1.1 Las emociones del estudiante

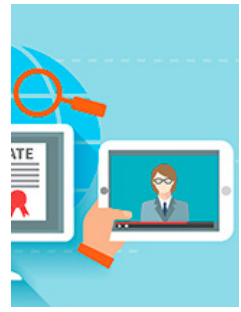
Recientes estudios sugieren que las emociones juegan un papel relevante en la experiencia de un individuo con las tecnologías. Las emociones son respuestas a eventos que están asociados con los objetivos y motivaciones de la persona (Éthier et al., 2006). Una emoción es considerada un estado mental de disposición que surge de las evaluaciones de los acontecimientos o de los pensamientos de un individuo (Éthier et al., 2006). En este estudio se va a profundizar en el análisis de cuatro emociones, tanto positivas como negativas, que puede experimentar el estudiante durante su interacción con el juego de simulación empresarial: diversión, estado de flujo o *flow*, entusiasmo y estrés.

En primer lugar, los juegos de simulación deben proporcionar a los estudiantes diversión como parte de la naturaleza básica de cualquier juego (Yoon y Choi, 2007). El grado de diversión percibida hace referencia al nivel de placer o gozo que experimentan los estudiantes mientras están interactuando con el juego de simulación empresarial. La diversión percibida constituye una motivación intrínseca del individuo porque se refiere a "la realización de una actividad sin ningún otro motivo aparente que el deseo de la realización de la actividad en sí misma" (Davis et al., 1992, p. 1112). Por otro lado, la palabra *flow* se utiliza para describir un estado de ánimo experimentado por personas que están totalmente involucradas en alguna actividad (Csikszentmihalyi, 1990). Un usuario alcanza el *estado de flow* cuando consigue un estado mental de total implicación, desconexión, concentración, inmersión y disfrute (Kiili, 2005). El *estado de flow* se considera que tiene un efecto muy positivo en los resultados de aprendizaje de los estudiantes, porque permite que los estudiantes alcancen un nivel de concentración tan elevado que ninguna otra cosa a su alrededor parece importar.

El entusiasmo se concibe como una forma hedónica de bienestar. Esta variable implica un alto estado de ánimo en términos de emoción o actividad (Monnot and Beehr, 2014). En el caso de los juegos de simulación empresarial, los estudiantes pueden experimentar niveles altos de entusiasmo al sentirse más ilusionados con la propia experiencia, los resultados de sus

decisiones y la interacción con la tecnología y los otros estudiantes implicados en el juego.

Finalmente, algunos estudios apuntan a la existencia de fobias, ansiedad, confusión, frustración, enfado o estrés hacia la utilización de nuevas tecnologías de la información por parte de estudiantes universitarios (Saadé y Kira, 2008). En general, el sentimiento de estrés se puede definir como la aprensión o miedo al que el estudiante se enfrenta cuando tiene que utilizar una nueva tecnología (Hackbarth et al., 2003). Analizar esta variable, permitirá estudiar una emoción negativa por parte del alumno, aunque es cierto que el estrés inicial desaparece conforme el estudiante se va familiarizando con el *software*.



2.1.2 La personalidad del estudiante

Debido a que el perfil de los alumnos es heterogéneo, el estudio plantea que algún rasgo específico de la personalidad podría afectar a la experiencia del alumno. Algunos investigadores reconocen que profundizar en las características psicológicas de los individuos puede ser útil para predecir variables de rendimiento (Fang y Zhao, 2010). En concreto, se estudia el papel del neuroticismo y de la apertura a nuevas experiencias por ser dos rasgos contrapuestos, uno de personalidad negativa que puede conducir a un rechazo al juego y otro de personalidad positiva que puede favorecer la aceptación del juego de simulación.

Los individuos neuróticos son de una naturaleza esencialmente pesimista y por ello perciben algunos eventos de forma más negativa que el resto (Judge et al., 2002). Los individuos neuróticos experimentan frecuentemente la sensación de frustración, ansiedad e inseguridad. Además, tienen una cierta tendencia a ser hipersensibles con los eventos negativos y a ser emocionalmente inestables (Picazo-Vela et al., 2010). Este rasgo negativo de la personalidad puede condicionar a algunos estudiantes en su propia experiencia con el juego de simulación, ya que el hecho de sentir ansiedad, nerviosismo o inseguridad afectará a su percepción sobre esta nueva herramienta pedagógica.

Por otro lado, el estudio analiza la apertura a nuevas experiencias del estudiante. Esta variable hace alusión a individuos que están deseosos de adoptar productos o ideas que son nuevas en el contexto de su experiencia individual (Aldás-Manzano, Ruiz-Mafé y Sanz-Blas, 2009, p. 740) Específicamente en el contexto de las

nuevas tecnologías, esta variable hace referencia al grado en que un individuo está deseoso de probar una nueva tecnología de la información. Esta variable proporciona información sobre las características intelectuales y actitudinales de los individuos así como de su deseo de aprender o adaptarse a nuevas circunstancia de su entorno.

2.1.3 Las condiciones facilitadoras del aprendizaje

El papel de las condiciones facilitadoras va a ser también estudiado. Las condiciones facilitadoras aluden a diversos factores que pueden determinar la experiencia de aprendizaje. En concreto, se estudia el papel de la implicación del profesorado, la calidad del software y de los recursos de aprendizaje.

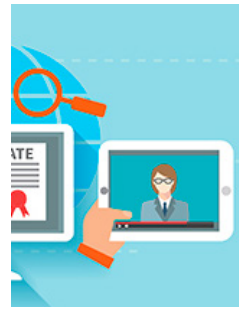
La implicación del profesorado así como los recursos de aprendizaje van a resultar claves para que la experiencia de los estudiantes con el juego de simulación empresarial sea un éxito. Por ejemplo, la utilización de clases de instrucción teóricas sobre la simulación, el uso de plataformas docentes digitales (como Moodle o Blackboard), el propio manual del juego proporcionado por la empresa que diseña la aplicación o, incluso, la interacción con otros compañeros de aula, pueden contribuir a optimizar la experiencia del aprendizaje del alumnados. Sin embargo, aunque estas fuentes de información son suficientemente formativas para que los estudiantes puedan comenzar con el simulador empresarial, pueden surgir contratiempos, problemas informáticos, dudas, conflictos dentro del grupo, etc. En estos casos, el papel de los profesores que se encuentren supervisando las jugadas en el aula será determinante para resolver cualquier problema y permitir la continuidad de la actividad.

Asimismo, la calidad del software también facilitará que la experiencia de los estudiantes con el juego de simulación sea más estimulante. Los alumnos tienen que conocer todas las posibles decisiones que se pueden tomar en una empresa “simulada”, los pros y contras de cada alternativa y, además, el manejo del propio software. Cuanto más intuitivo y visual resulte, más recursos podrán invertir los estudiantes en el propósito de la asignatura que no es el de conocer un nuevo programa informático, sino el de dirigir una empresa.

2.2 Consecuencias de la experiencia del estudiante con el juego de simulación

2.2.1 La actitud del estudiante

El objetivo de este estudio, como ya se ha comentado, es identificar los factores críticos que determinan el éxito de esta experiencia docente. Esto se ha realizado mediante el estudio dela actitud general del alumno hacia el juego de simulación empresarial. La actitud del estudiante se define como los sentimientos positivos o negativos que experimenta tras realizar un determinado comportamiento como, por ejemplo, utilizar una tecnología (Teo y Noyes, 2011). Siguiendo los modelos de aceptación de tecnologías, esta actitud depende de las percepciones del estudiante en cuanto a la utilidad del juego y a la facilidad de uso. La utilidad percibida hace referencia al "grado en que una persona cree que usar un sistema específico va a mejorar su rendimiento" y la facilidad de uso se define como el "grado en que una persona cree que el uso de un determinado sistema está libre de esfuerzo" (Davis, 1989, p. 320).



2.2.2 Comportamiento del estudiante y oportunidades de aprendizaje

Este trabajo analiza también las consecuencias en términos de intenciones comportamentales por parte del alumnado. Se han considerado tres posibles repercusiones o consecuencias derivadas de dicha participación: la intención de seguir participando en juegos de simulación en el futuro, en otros cursos o planes de estudio; la recomendación de la asignatura a otros estudiantes del Grado; y, las oportunidades de aprendizaje que la asignatura ha supuesto para su propia formación. Estas variables permitirán confirmar si los individuos han considerado el juego de simulación como una tecnología adecuada para mejorar el rendimiento de su aprendizaje. Las intenciones de comportamiento hacia el uso de la tecnología hacen referencia a la verdadera intención de los individuos a adoptar una tecnología similar en el futuro (Venkatesh y Davis, 2000). Por otro lado, el boca-a-oído se define como aquellas "comunicaciones informales dirigidas a otras personas acerca de la propiedad, el uso o de las características particulares de bienes y servicios y/o sus vendedores" (Westbrook, 1987, p. 261). En el contexto de nuestro estudio, el boca-a-oído puede ser entendido como aquellas comunicaciones informales entre los estudiantes relacionados con

la tecnología que han utilizado, es decir, el juego de simulación empresarial. Este concepto tiene un papel importante en la difusión de la información entre los individuos y puede generar intenciones futuras de comportamiento hacia el uso de una tecnología, en particular en otros individuos. Esta variable es clave en el panorama empresarial debido al nulo coste que supone para las empresas (las recomendaciones de los individuos son voluntarias y gratuitas), la interactividad que genera entre los individuos, la velocidad en la transmisión de información y su eficacia (Villanueva et al., 2008).

Por último, la variable "oportunidades de aprendizaje" de los estudiantes se considera clave de cara a confirmar el éxito o fracaso de la asignatura. Se define como el grado en que una persona cree que usar juegos de simulación en el aula puede ofrecerle oportunidades de aprender (Bourgonjon et al., 2010). Así, si el juego les permite aplicar los conocimientos teóricos adquiridos a un contexto empresarial, si pueden controlar mejor su propio proceso de aprendizaje, si pueden desarrollar un trabajo en equipo interactuando con otros compañeros, o si con el juego pueden desarrollar un pensamiento crítico, creerán que ha contribuido positivamente a su proceso de aprendizaje.

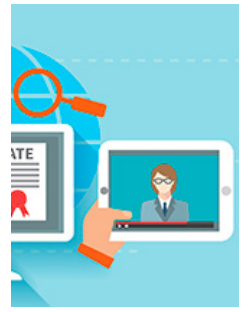
3. DESCRIPCIÓN DEL ESTUDIO

Este estudio analiza los datos recogidos directamente de los estudiantes universitarios que participaron en el juego de simulación empresarial RAD-MTK realizado en una asignatura optativa de cuarto curso del Grado de Administración y Dirección de Empresas de una importante universidad española.

Durante las primeras semanas los profesores explican las bases del juego y cómo manejar el software. Cada entorno competitivo estaba formado por 5 empresas y cada empresa estaba compuesta por aproximadamente cuatro o cinco estudiantes. De esta forma, cada equipo, a través del juego de simulación, tuvo que gestionar virtualmente la producción y distribución de una empresa de productos para el control climático en tres mercados diferentes (mercado local, mercado europeo y mercado latinoamericano). Además, los equipos de trabajo tuvieron que decidir sobre políticas financieras, de producción, de marketing, de recursos humanos y de precios, así como diseñar una estrategia logística óptima para abordar toda la distribución de la empresa. Todo ello se realizó

en un escenario altamente competitivo para hacer frente también a distintas condiciones de inflación, tasas de interés y tipos de cambio.

Al final del semestre, los estudiantes fueron preguntados a través de una encuesta auto-administrada acerca de las variables incluidas en el modelo conceptual propuesto y sobre algunas variables socio-demográficas, con el fin de conocer más aspectos de la muestra. Se usaron escalas Likert de siete puntos (1=totalmente en desacuerdo; 7=totalmente de acuerdo) procedentes de adaptaciones de estudios anteriores. Este proceso de recogida de datos se replicó durante dos años consecutivos (cursos 2013-2014 y 2014-2015). Para ello se tuvo en cuenta que el diseño del curso no varió de un año a otro. La participación en el estudio fue voluntaria y se aseguró a los estudiantes que esto no afectaría a sus calificaciones. Además, se garantizó el anonimato y la confidencialidad de los datos. Se obtuvieron 266 cuestionarios válidos. De la muestra el 53,4% eran hombres, mientras que el 46,6% eran mujeres. Además, se compararon los resultados obtenidos en función de los dos cursos analizados, no encontrado diferencias significativas entre un curso y otro.



4. RESULTADOS

4.1 Antecedentes de la experiencia del estudiante con el juego de simulación

4.1.1 Emociones del estudiante durante el juego de simulación empresarial

Con respecto a los sentimientos experimentados durante el juego de simulación, los resultados del estudio sugieren que el más común fue el de diversión. En concreto, la variable diversión presenta una de las puntuaciones más altas del estudio con una media de 5,82. Detrás se situaba el entusiasmo con una puntuación media de 5,42 sobre 7. En tercer lugar, se observa que los alumnos manifestaron haber alcanzado un estado de flow, ya que la media de esta variable se sitúa en un 5,21. En último lugar se situaba un sentimiento negativo, el estrés. Esta variable presenta una media de 4,14. Hay que señalar que si bien se trata de la puntuación más baja, los alumnos sí admiten que han experimentado un cierto

estado de ansiedad durante la toma de decisiones. Éste puede venir provocado por la presión en la toma de decisiones, en un tiempo limitado, o por la alta competitividad inherente al propio juego.

Tabla 1. **Estadísticos descriptivos para las emociones del estudiante**

ESCALAS UTILIZADAS	MEDIA	DESVIACIÓN TÍPICA
DIVERSIÓN con el juego de simulación empresarial	5.82	1.06
Jugar al juego de simulación fue divertido	5.69	1.23
Disfruté participando en este juego de simulación	5.80	1.11
Esta actividad me entretuvo	5.97	1.06
ENTUSIASMO hacia el juego de simulación empresarial	5.42	1.21
Mientras jugaba a este juego de simulación me sentí emocionado	5.34	1.28
Me sentí entusiasmado jugando a este juego de simulación	5.33	1.27
Me encantó participar en este juego de simulación	5.61	1.30
"FLOW" experimentado en el juego de simulación empresarial	5.21	1.05
Sentí que el tiempo volaba mientras jugaba al juego de simulación	5.40	1.19
Creo que experimenté la sensación de "flow" durante el juego de simulación	5.21	1.31
¿Con qué frecuencia alcanzaste esta sensación de "flow" jugando al juego de simulación? (1: nunca; 7: muy frecuentemente)	4.83	1.31
La mayor parte del tiempo que pasé jugando al juego de simulación empresarial me sentí inmerso y concentrado en el juego	5.41	1.13
Nivel de ESTRÉS con el juego de simulación empresarial	4.14	1.53
Jugar al juego de simulación me generó un estado de tensión	4.39	1.64
Me sentí nervioso mientras participaba en este juego de simulación	4.15	1.67
Considero que es difícil relajarse durante el juego de simulación	3.90	1.76

4.1.2 Personalidad del estudiante

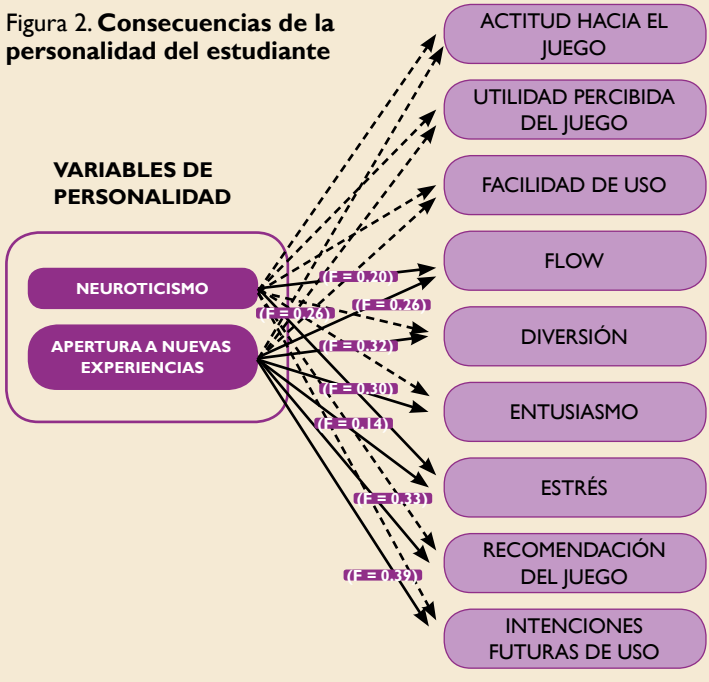
Respecto al neuroticismo, los resultados del estudio muestran que el grupo de estudiantes que compone la muestra es altamente heterogéneo, ya que las elevadas desviaciones típicas indican que hay una alta dispersión en las respuestas. Los participantes se consideran más impulsivos y nerviosos, que pesimistas y bipolares. La variable predisposición a nuevas experiencias obtiene puntuaciones más elevadas, una media de 5,13, lo cual parece indicar que los estudiantes manifiestan tener una predisposición positiva a probar nuevas experiencias tecnológicas. Este resultado favorecerá una adaptación rápida de los estudiantes hacia el *software* utilizado en el juego de simulación RAD-MTK.

Tabla 2. **Estadísticos descriptivos para la personalidad del estudiante**

ESCALAS UTILIZADAS	MEDIA	DESVIACIÓN TÍPICA
RASGOS DE TU PERSONALIDAD (neuroticismo). Por favor, valora tu grado de acuerdo o desacuerdo con las siguientes afirmaciones sobre tu forma de ser	3.92	1.03
Mi estado de ánimo varía a menudo	3.62	1.60
Me considero una persona muy nerviosa	4.18	1.69
Soy, en general, pesimista	2.99	1.68
Me podría definir como una persona impulsiva	4.25	1.56
Me preocupo demasiado tiempo, después de una experiencia embarazosa	4.55	1.66
APERTURA A NUEVAS EXPERIENCIAS	5.13	1.27
Si me entero de la existencia de una nueva tecnología me gusta probarla	5.56	1.32
Entre mis compañeros y amigos, normalmente soy uno de los primeros en probar nuevas tecnologías	4.56	1.48
Me gusta experimentar y probar nuevas tecnologías	5.27	1.38

Para conocer cómo el neuroticismo y la apertura a nuevas experiencias pueden influir en las percepciones y actitudes de los estudiantes, se ha realizado un análisis de correlaciones (**Figura 2**)[2].

Figura 2. **Consecuencias de la personalidad del estudiante**



Los resultados sugieren que la personalidad no afecta a cómo el individuo percibe el juego en términos de utilidad y facilidad. Por tanto, la actitud no varía en función de la personalidad del estudiante. No obstante, sí se percibe que la personalidad afecta a los sentimientos experimentados durante el juego y al comportamiento futuro que el estudiante adoptará respecto al mismo. Curiosamente los estudiantes más neuróticos experimentan un mayor nivel de *flow* (f = 0.20) quizás porque su percepción sobre el control de los tiempos es menor que la de los estudiantes que se muestran más confiados. De hecho, mayores niveles de neuroticismo se asocian positivamente con mayores niveles de estrés (f = 0.26). Con respecto a la apertura a nuevas experiencias, los resultados del estudio sugieren que los estudiantes más predispuestos a adoptar innovaciones experimentan sentimientos más positivos en términos de *flow* (f = 0,17), diversión (f = 0,32) y entusiasmo (f = 0,30). Asimismo, estos alumnos experimentan un menor nivel de estrés (f = -0,14). Debido a que su experiencia durante el juego activa emociones más positivas, los jugadores con una personalidad más abierta a las nuevas experiencias, también se muestran más proclives a adoptar comportamientos favorables hacia el juego. En concreto, estarían más dispuestos a recomendarlo (f = 0,33) y a seguir usando juegos de simulación en otras asignaturas de éste u otros grados (f = 0,39).

4.1.3 3 Condiciones facilitadoras del aprendizaje

Otro de los objetivos de este estudio se centra en el análisis de las condiciones facilitadoras que afectan a la actitud de los estudiantes hacia el juego de simulación. El estudio se ha centrado en tres variables como son el papel del profesorado, le valoración de los recursos de apoyo y la calidad percibida del software.

La implicación del profesorado ha sido la variable que mayor puntuación ha obtenido en el estudio con una media de 6,09. Los alumnos destacan especialmente el papel motivador del profesorado de la asignatura y su grado de implicación con la explicación del juego de simulación. Por el contrario, la calidad del software presenta una de las valoraciones medias más bajas del estudio (5,02). Conviene señalar que, si bien este resultado no es bajo, algunos aspectos del software pueden ser mejorables. Respecto a la valoración de los recursos de aprendizaje, los alumnos consideran que los recursos que más han contribuido a su formación ha sido el “Manual del juego” con una media de 5,83.

Tabla 3. **Estadísticos descriptivos para las condiciones facilitadoras del aprendizaje**

ESCALAS UTILIZADAS	MEDIA	DESVIACIÓN TÍPICA
IMPLICACIÓN O APOYO del profesorado de la asignatura	6.09	0.92
El profesor de la asignatura está muy informado sobre el juego de simulación	5.97	1.13
El profesor de la asignatura se involucró activamente en la explicación del juego	6.14	1.03
El profesorado motivó a los estudiantes para que nos esforzáramos en el juego	6.15	1.02
CALIDAD percibida del software del juego de simulación	5.02	1.05
Creo que tiene un diseño intuitivo	4.88	1.19
La organización de la información es clara	5.18	1.21
Es fácil y rápido navegar a través de la aplicación	5.21	1.34
Está bien diseñado	4.83	1.34
RECURSOS DE APRENDIZAJE. He recibido la información y formación requerida para jugar al juego de simulación a través de:	4.83	1.03
Las clases teóricas	5.02	1.59
El Anillo Docente Digital (Moodle)	4.28	1.67
El manual del juego	5.83	1.16
Otros compañeros de clase	4.19	1.74

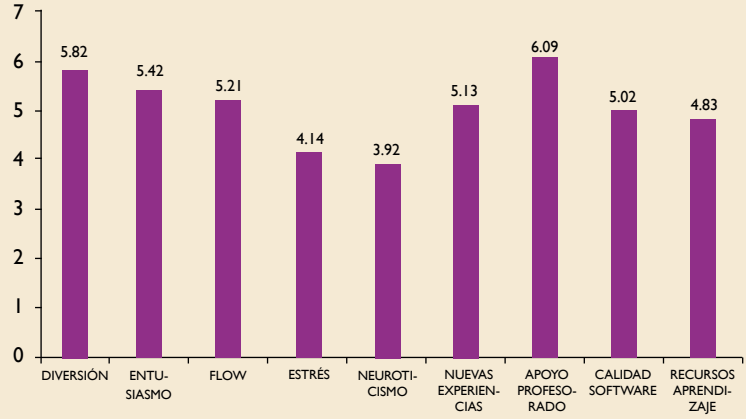
En definitiva, de las variables emocionales, de personalidad y facilitadoras del aprendizaje que pueden incidir en la experiencia de los estudiantes con el juego de simulación, los resultados obtenidos permiten destacar que el apoyo percibido por parte del profesorado, la diversión del estudiante y un alto nivel de entusiasmo experimentado con el juego de simulación contribuirán de forma especialmente positiva a la opinión de los estudiantes sobre esta herramienta pedagógica innovadora (**Figura 3**).

4.2 Consecuencias de la experiencia del estudiante con el juego de simulación

4.2.1 Actitud del estudiante hacia el juego de simulación empresarial

Los resultados del estudio cuantitativo demuestran que los estudiantes poseen una actitud positiva hacia el juego. La media total de la variable actitud es de un 5,72 sobre 7. Destaca el indicador "Creo que utilizar este juego de simulación es una idea acertada" con una valoración de 5,86. Dicha actitud puede venir motivada por la utilidad percibida del mismo, que presenta

Figura 3. **Gráfico sobre los antecedentes de la experiencia del estudiante**



una media total de 5,29. Ello sugiere que la mayor parte de los estudiantes consideran que el juego de simulación que se imparte en la asignatura "Decisiones comerciales" ha sido útil para su formación y ha mejorado su experiencia de aprendizaje. La facilidad de uso obtiene una puntuación media de 5,4. El alumno percibe que la aplicación es sencilla de usar aunque, tal y como el segundo indicador revela, encuentra más dificultades a la hora de comprender el funcionamiento general del juego.

Tabla 4. **Estadísticos descriptivos para la actitud del estudiante**

ESCALAS UTILIZADAS	MEDIA	DESVIA-CIÓN TÍPICA
ACTITUD hacia el juego de simulación empresarial	5.72	1.09
Tengo una opinión positiva acerca de este juego de simulación	5.65	1.17
Me gusta este juego de simulación	5.66	1.18
Creo que utilizar este juego de simulación es una idea acertada	5.86	1.15
UTILIDAD percibida del juego de simulación empresarial	5.29	1.17
Me ha permitido aprender de una forma más eficaz	5.30	1.26
Ha mejorado el resultado de mi aprendizaje	5.22	1.21
Ha sido útil para mi formación	5.35	1.29
FACILIDAD DE USO del juego de simulación empresarial	5.40	1.06
Resulta fácil de usar	5.44	1.17
El funcionamiento del juego ha sido fácil de entender		1.32
Manejar la aplicación ha sido sencillo	5.55	1.12

4.2.2 Intenciones comportamentales del estudiante

Otro aspecto relevante analizado en el estudio cuantitativo ha sido el análisis de las consecuencias de la participación de los estudiantes en el juego de simulación empresarial. La consecuencia que ha obtenido una mayor media es la difusión-recomendación a otros estudiantes con un valor de 5,9. Con un valor similar, la media de la variable intenciones de uso es de un 5,86. Estos resultados sugieren que los estudiantes han quedado satisfechos con esta experiencia de aprendizaje y, como consecuencia de esta valoración, estarían dispuestos a repetirla en otras asignaturas de éste u otros grados, o en estudios de postgrado, y a recomendarla a otros compañeros. Con respecto a la variable oportunidades de aprendizaje, ésta presenta una media de 5,43. Conviene, no obstante, analizar los seis indicadores que componen la misma ya que su naturaleza es diferente y también existe variabilidad en las percepciones de los estudiantes. Los dos ítems que mayor puntuación obtienen son la "Motivación del estudiante" (5,74) y la

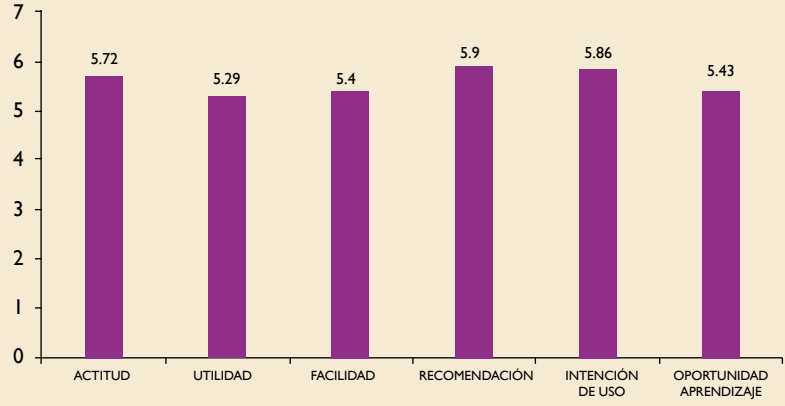
Tabla 5. **Estadísticos descriptivos para las intenciones comportamentales por parte del alumnado**

ESCALAS UTILIZADAS	MEDIA	DESVIACIÓN TÍPICA
DIFUSIÓN del juego de simulación	5.90	1.06
En general, hablo bien de este juego de simulación a otros compañeros	5.68	1.21
Recomendaría cursar este juego de simulación a otros estudiantes	6	1.10
Si un compañero me pidiese consejo, le animaría a cursar este juego de simulación	6.03	1.11
INTENCIÓN DE USO de juegos de simulación en otras asignaturas	5.86	1.08
Si en otras asignaturas se ofrecieran juegos de simulación las elegiría	5.91	1.18
Me gustaría seguir utilizando juegos de simulación para completar mi formación	5.80	1.17
Si me matriculase en un plan de estudios diferente al actual (otro Grado, Universidad, Máster, Erasmus, etc.) me gustaría poder seguir utilizando juegos de simulación	5.86	1.17
OPORTUNIDAD de aprendizaje, el juego ofrece oportunidades para:	5.43	0.90
Aplicar mis conocimientos teóricos	5.28	1.25
Controlar mi propio aprendizaje	5.15	1.08
Interactuar con otros estudiantes	5.66	1.17
Aplicar conocimientos adquiridos en otras asignaturas del Grado	5.24	1.25
Desarrollar un pensamiento crítico	5.48	1.13
Motivar a los estudiantes	5.74	1.11

"Interacción con otros estudiantes" (5,66). También obtiene una puntuación alta el "Desarrollo de un pensamiento crítico" (5,48).

En resumen, los resultados muestran cómo los estudiantes puntúan muy positivamente las variables intención de uso y difusión, manifestando su deseo de participar en nuevos juegos de simulación y afirmando que recomendarían este juego a otros compañeros (**Figura 4**).

Figura 4. **Gráfico sobre las consecuencias de la experiencia del estudiante**



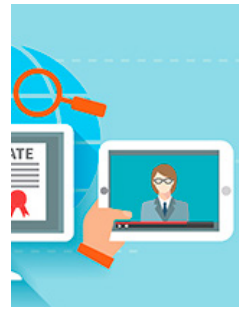
5. CONCLUSIONES, IMPLICACIONES Y FUTURAS LÍNEAS

Este estudio obedece por un lado a la necesidad de ofrecer alternativas de aprendizaje basadas en juegos de simulación empresarial, de tipo competitivo, y que integran nuevas tecnologías de la información; y, por otro lado, a la de analizar los factores del entorno, las características del propio de juego y la personalidad del propio alumno que, en definitiva, pueden determinar el éxito o fracaso de esta experiencia docente.

Los resultados indican que los alumnos consideran que la utilización de juegos de simulación empresarial de carácter competitivo es divertida. Por este motivo, durante el transcurso del juego éstos han experimentado emociones positivas, como un alto nivel de entusiasmo y un estado de flow. Este estado de flow confirma un alto grado de inmersión y concentración del alumno durante las clases dedicadas a

la toma de decisiones. Por otra parte, los resultados también sugieren la existencia de un cierto grado de estrés que puede venir provocado por la competitividad de la asignatura, por la falta de tiempo en el proceso de toma de decisiones o por la incertidumbre que genera el desconocimiento de las consecuencias que pueden tener las decisiones empresariales tomadas durante el mismo.

Se puede apreciar como la personalidad no afecta a cómo el individuo percibe el juego en términos de utilidad y facilidad, aunque sí se nota su influencia en los sentimientos experimentados durante el juego y en el comportamiento futuro que el estudiante adoptará respecto al mismo. Los estudiantes más neuróticos alcanzan un mayor estado de flow pero también de estrés. Por otro lado, los estudiantes más abiertos a nuevas experiencias son más proclives a desarrollar emociones positivas (diversión, entusiasmo y estado de flow) que negativas; de hecho experimentan un menor nivel de estrés, y también son más proclives a adoptar comportamientos favorables hacia el juego como recomendarlo o querer seguir participando en juegos de simulación en el futuro.



Aunque la valoración de los recursos de aprendizaje también ha sido óptima, en este caso, conviene señalar diversos puntos susceptibles de mejoras. En particular, debería plantearse la posibilidad de utilizar un software más intuitivo, visual y, en general, mejor diseñado. De manera similar, convendría mejorar la experiencia del alumnado con el Moodle de la asignatura.

En general, este juego de simulación empresarial posee una gran valoración por parte del alumno ya que éste considera que es fácil y útil para su formación. La actitud positiva hacia el juego también se plasma en intenciones comportamentales por parte del alumno. Los alumnos que han participado en la asignatura parecen estar dispuestos a seguir matriculándose en asignaturas que utilicen estas metodologías docentes. De manera similar, expresan su interés por recomendar la asignatura a otros compañeros del grado. Finalmente, con respecto a las oportunidades de aprendizaje, los alumnos afirman que cursar la asignatura del juego de simulación les ha permitido alcanzar una serie de resultados de aprendizaje específicos. En concreto, han destacado la motivación, la interacción con otros compañeros, o el desarrollo de un pensamiento crítico.

Puede concluirse por tanto que el juego de simulación ha motivado a los estudiantes a adoptar un papel protagonista dentro de su aprendizaje y que ello ha favorecido la aparición de competencias

relacionadas con el trabajo en equipo. Además, el alumno percibe que al tratarse de un juego principalmente práctico contribuye a desarrollar un pensamiento crítico, puesto que la propia estructura del juego se concibe partiendo del objetivo de que sea el propio alumno quien evalúe las decisiones tomadas en el pasado para no cometer los mismos errores en el futuro. Asimismo, el juego permite aplicar conocimientos teóricos no sólo de asignaturas de marketing, sino de otras áreas de conocimiento presentes en el Grado de Administración y Dirección de Empresas.

En definitiva, el juego de simulación empresarial permite al alumnado alcanzar una serie de competencias de una forma más eficaz que otras metodologías docentes más clásicas. Características como la competitividad, la interactividad, la discrecionalidad del alumno en la toma de decisiones, la imposición de restricciones temporales que modifican las condiciones en las que deben tomarse las decisiones o la posibilidad de que el mismo desarrolle sus propias herramientas, hacen que el estudiante asimile de una forma más rápida los conceptos clave que esta materia pretende transmitir. Los alumnos han alcanzado las competencias específicas y transversales de la asignatura conforme avanzaba su experiencia en el juego de simulación de una forma mucho más eficiente. Cabe destacar que especialmente se ha contribuido a fomentarles la autonomía en la toma de decisiones, el trabajo en equipo y la capacidad de argumentación. Por todo ello, esperamos que las conclusiones de este estudio animen a otros equipos docentes universitarios, pero también en el ámbito de la formación empresarial, a implantar dichos juegos de simulación empresarial para poder optimizar el proceso de aprendizaje de sus estudiantes y la adquisición de competencia específicas entre los trabajadores.

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NOTAS

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2. El valor que aparece sobre las flechas en negrita representa el coeficiente de correlación bivariada entre las variables relacionadas solamente de aquellos valores significativos.

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From Beijing to Madrid: Profiles of Chinese investors in Spain[1]

De Pekín a Madrid: Perfiles de inversores chinos en España

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I. INTRODUCTION

Over the last few decades, China has become the "factory of the whole world". More recently, Chinese Outward Foreign Direct Investment (OFDI) has increased significantly, leading China to occupy the third place in the ranking of economies investing abroad (FDI flows) (UNCTAD, 2015). Chinese multinational enterprises (MNEs) are becoming global players and leading another phase of Chinese international integration. The presence of Yingli Solar in the advertisements of all the 2014 World Cup matches in Brazil symbolizes this recent phenomenon.

Chinese OFDI in Spain has also grown fast over the last decade, and this trend is expected to continue. Several important Chinese MNEs like Huawei, Lenovo and Yingli Solar are positioned in Spain. Additionally, some iconic Spanish firms like Telefónica, Campofrío or NH Hotels have Chinese capital in their ownership. Chinese investors are interested in some strategic sectors, like the transport or energy sectors. Some examples are the development and management of a new container terminal in the Port of Barcelona by Hutchinson Port Holdings or the recent acquisition of a wind farm from Gamesa by China Huadian Corporation. Furthermore, some Chinese acquisitions rescued firms that were going through financial problems. Examples of such opportunistic investments are the acquisition of Cubigel Compressors by Huayi Compressor and the purchase of the "Edificio

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EXECUTIVE SUMMARY

We study the profiles of Chinese investors in Spain. To this end, we rely on firm-level data and on primary data obtained through a questionnaire. We focus on projects in manufacturing, renewable energy and wholesale and retail trade. Chinese firms investing in manufacturing aim to acquire and develop new capabilities and to access not only the Spanish market but also other markets inside and outside the EU. Chinese investors in renewables are also export-oriented but, unlike firms in other sectors, they particularly appreciate the qualifications of Spanish workers. In wholesale, Chinese firms are more attracted by Spanish consumers: their main interests consist in acquiring new capabilities, making their brand known and supporting their exports to Spain. The present study might be useful for practitioners seeking to better understand the strategy, opportunities and risks of these new players in the Spanish market.

RESUMEN DEL ARTÍCULO

Estudiamos el perfil de los inversores chinos en España. Utilizamos datos a nivel empresa y datos primarios obtenidos mediante un cuestionario. Nos centramos en el sector de manufacturas, energía renovable y distribución. En el sector manufacturero, las empresas chinas buscan adquirir y desarrollar nuevas capacidades y acceder, no sólo al mercado español, pero también a mercados dentro y fuera de la UE. En energía renovable, también están orientados hacia la exportación pero, a diferencia de los demás, valoran especialmente la cualificación de la mano de obra española. Las empresas chinas dedicadas a la distribución están más atraídas por la demanda interna nacional: quieren adquirir nuevas capacidades, dar a conocer su marca y servir de apoyo a sus exportaciones a España. Este estudio puede ser de utilidad para aquellos que busquen entender la estrategia de estos nuevos inversores en el mercado español y los riesgos y las oportunidades que plantean.

España" by Dalian Wanda Group. Other firms, less well known in the Western hemisphere, have also chosen to invest in Spain (Daxiong and Boer Power, for instance). In short, Chinese firms are now present in a wide variety of sectors within Spain.

Although China is constantly increasing its OFDI position in Spain, studies related to this phenomenon are scarce. Goy & Navarro (2008) and Sáez (2010), using official statistics from the Spanish and Chinese governments, provide detailed descriptions on the evolution of Chinese OFDI in Spain. In addition, Sáez (2010) gives insight into the policies developed by the governments of Spain and Catalonia to attract Chinese investments. More recently, Quer Ramón et al. (2015) provide a detailed description of Chinese OFDI in Spain until 2014. In contrast with previous works, the authors not only rely on aggregate figures, but also illustrate the main characteristics of Chinese MNEs located in Spain. ESADE (2014) analyses the determinants of Chinese OFDI in Spain based on a questionnaire answered by 22 firms with Chinese participation located in Spain. Results indicate that Chinese firms are mainly market-seeking and also attracted by Spanish workers. The report highlights three main limitations that Chinese firms face in Spain: lack of brand awareness, understanding of the local market and clarity of legal framework. Similar results are reached by ESADE (2015), while underlining the importance Chinese firms give to Spain as a doorway to Europe and Latin America[3].

The aim of this study is to draw up a "portrait" of Chinese investors located in Spain.

The aim of this study is to draw up a "portrait" of Chinese investors located in Spain. In particular, we examine their motivations for investing in Spain in order to provide a better understanding of the risk and opportunities these projects may represent for business, employment, and trade relations. To this end, we rely on information gathered through a questionnaire answered by Chinese subsidiaries located in Spain. These primary data are completed by information about the main characteristics of subsidiaries: sectors, type of activity, number of employees, localization, export and import, entry mode and information concerning ownership. In contrast with ESADE (2014 and 2015), the present work distinguishes several profiles depending on the sector: manufacturing, renewable energy and wholesale and retail trade. In addition, this study accounts for a longer list of FDI motivations and details subsidiaries' activities and motives for accepting Chinese capital.

Overall, results show that Chinese firms investing in manufacturing aim at acquiring and developing new capabilities and accessing not only the Spanish market but also other markets inside and outside the EU. Respondents from the renewable energy sector are more service and export oriented and attracted by the high qualifications of the Spanish labour force. Firms from the wholesale and retail trade appear to be more oriented toward the domestic market: their main interests consist in acquiring new capabilities and in supporting their exports to Spain. In most M&A cases, investees tend to accept Chinese capital as a tool toward a diversification of export destinations. Respondents also indicate in many cases that these projects are undertaken in the framework of strategic alliances and the beginning of a common project. In half of the cases, respondents confirm the existence of opportunistic acquisitions.

KEY WORDS
China, Spain, Multinationals, FDI determinants.

PALABRAS CLAVE
China, España, Multinacionales, determinantes de IDE.

2. EMERGING INVESTORS: THEIR MOTIVES

When investing abroad, firms may choose to open a new subsidiary (Greenfield investment) or to acquire an existing firm completely or partially (Merges or Acquisition -M&A-). Motivations for FDI related with firms' strategies are usually classified into Market, Resource or Efficiency seeking (Dunning, 1993). Characteristics of the domestic and receptor countries may also influence these decisions. Motivations are therefore quite heterogeneous, making an eclectic approach essential.

Market seeking is related to an MNE's attempt to penetrate or to improve its position in a foreign market. Hymer (1976) states that firms may also decide to invest abroad instead of exporting if they have a non-transferable competitive advantage that needs to be exploited directly. This advantage may rely on managerial capabilities, provision of services requiring proximity to customers, or a specific way to commercialize the product. However, this theory does not appear to fully apply to Emerging countries' Multinational Enterprises (EMNEs): they are new players in the market and their competitive advantages are not usually related with their own capabilities but with their home-country characteristics (Buckley et al., 2007). For instance, access to cheap labour force, or ease of financing their project in the case of State-owned enterprises (SOEs), may constitute competitive advantages for all Chinese firms and by themselves do not justify MNEs' investments abroad.

Market seeking also arises from the trade-off faced by firms between exporting with the associated transport and trade costs and investing abroad with important fixed costs (Horstmann & Markusen, 1987). Trade restrictions may be a relevant motivation for EMNE. Additionally, firms may invest abroad to support exports from their home country to the host country, or to create an export platform in order to access third countries by using existing networks (Ekholm et al., 2007).

FDI may also be resource-seeking if firms intend to access natural resources that are not available, or are considerably more expensive, in their home market. Such an argument is not likely to be relevant in the case of Chinese FDI flowing to Spain since Spain is not a country abundant in natural resources. In contrast, firms investing in countries abundant in capital may seek capabilities like new technologies (Amighini et al., 2013). However, asset seeking has different meanings for MNEs from developed countries compared to those coming from emerging countries. The former aim to extend their assets in order to preserve their competitive advantage while the latter try to acquire new capabilities abroad to overcome their existing disadvantages (Amal et al., 2013). Amighini et al. (2013), Buckley et al. (2007), Child & Rodrigues (2005) and Luo & Tung (2007) present evidence that EMNEs aim to improve the quality of their products, accessing technology, qualified labour, management techniques, enhancing brand recognition and acquiring a recognized brand.

In relation to efficiency seeking, investments are performed in order to reduce firms' costs. Typically, this applies to FDI realized by MNE from developed countries in low-labour-cost countries but not usually considered as relevant to explaining OFDI from emerging countries whose labour costs are below the world average (Buckley et al., 2007). Nevertheless, Lemoine (2013) shows that wages have been increasing rapidly in China, even above productivity levels and for both low and highly qualified workers. At the same time, in Spain wages were decreasing while productivity was increasing, on average.

Besides these micro determinants, firms are also pushed and pulled to invest abroad by political or socio-economic factors. For firms from emerging countries like China, government policy at home may play a relevant role in fostering investments abroad (Gallagher & Irwin, 2014). Luo & Tung (2007) argue that institutional restrictions affecting economic activity may also push firms to invest abroad while

UNCTAD (2006) stresses that the rapid surge in competition in the home market may also motivate OFDI. Factors such as quality of institutions, political stability, legal framework or easiness of opening a business may attract investments (Bayraktar, 2013; Dunning, 1993).

Concerning M&As, firms' networks, previous commercial and investment links, as well as strategic alliances increase the probability of project success (Johanson & Vahlne, 1977). Additionally, investees may be interested in receiving FDI to improve their integration in international markets or to improve inputs access (Harrison, 1995). Finally, Krugman (2000) underlines that many MNEs bought Asian companies at fire-sale prices after the 1997 Asian financial crisis. Some M&As could be considered as opportunistic FDI when they are driven by the decrease of asset prices and/or financial restrictions faced by the investee prior to the investment.

3. IDENTIFYING CHINESE INVESTORS' MOTIVES

By combining several sources (SABI[4], the ESADE (2014) report, the Ministry of Foreign Commerce of China, Global Asia website and news), we first identified 96 Chinese investments projects realised in Spain up until 2014. The study focuses on 66 projects in the sectors in which most Chinese firms have invested: wholesale and retail trade, manufacturing, and renewable energy. Second, firms were contacted by telephone by a specialized survey company[5] and 22 responses were obtained.

We asked the companies to value the importance of a wide range of investment motivations. Participants are Directors and Managers from different departments, principally from Accounting and Financial departments. This information has been complemented with data from SABI. In line with the theoretical framework, we pay particular attention to the following aspects:

- Asset seeking.
- Efficiency seeking.
- Trade.
- Institutional and economic aspects in China and Spain.
- Motives for accepting Chinese investment.
- Opportunistic investment.

All the items firms had to value are displayed in **Table 1**: motivations are grouped according to the above typology. Firms were also asked

Table 1. **Questionnaire items**

ASSET SEEKING	Acquire a recognized brand, acquire management techniques; make the company's brand known in Spain/Europe; to access qualified workforce; to access new technologies; to adapt to the quality norms of the European market; to adapt to the quality norms of the Spanish market; to increase the quality of the firm's products.
EFFICIENCY SEEKING	Increased wage costs in China; Low wage costs and high qualification in Spain; Low wage costs in Spain; Lower taxes than other alternative countries where the same investment could had been realized; Produce goods/services in a more efficient way.
TRADE	Reduce export costs; To avoid anti-dumping measures from the European Union; To avoid tariff barriers set by the European Union
INSTITUTIONAL AND ECONOMIC ASPECTS IN CHINA (PUSH FACTORS)	Competition from other companies in the home country; Fiscal incentives from the origin country; Institutional restrictions on parent firm's activity in the home country; Reduce the risk associated with the economic activity of the Company.
INSTITUTIONAL AND ECONOMIC ASPECTS IN CHINA (PULL FACTORS)	Easiness to access to finance; Easiness to open a Company; Economic situation in Spain; Investor protection; Legal framework; Legal framework of the labour market; Political stability; Private property protection; Quality of infrastructures in Spain; Spanish fiscal incentives for foreign investment; Transport infrastructure to access other markets.
OPPORTUNISTIC INVESTMENT	Financial restrictions; The investment represented an opportunity due to the low price of the acquired assets; Economic problems; Increase in capital.
ACTIVITY	Produce goods; Produce services; Export; Import; Marketing; Costumer service; Merchandising; Research & Development (R&D); Product design.

to value how their activities match with the indicated ones (Production, Export, etc.). The main characteristics, motivations and activities of the 66 respondents are summarized in **Table 2**. For each group of motivations, we provide the average values of responses obtained across items and respondents where responses range from 0 (not important) to 4 (very important). We also indicate how respondents value specific questions on average and we highlight items highly valued. For instance, firms investing in manufacturing valued, on average, Asset-seeking questions with 2.7/4. Within asset-seeking motivations, "To acquire a recognised brand" receives the highest value among the respondents of this sector.

4. MANUFACTURING: CHINESE FACTORIES IN SPAIN

According to our database, 17 investments from China have been realized in the Spanish manufacturing sector, accounting for 5,464 employees. Half of them took place in 2011 and 2012; 13 were M&A and 10 came from private Chinese firms. Most are wholly owned subsidiaries while Chinese participation ranges from 20% to 49%

Table 2. **Firms' main characteristics**

	MANUFACTURING	RENEWABLE ENERGY	WHOLESALE & RETAIL TRADE
Main characteristics (Number of firms)			
Total investments (surveyed)	17 (7)	10 (3)	39 (12)
Location	Madrid (5), Cataluña (3), Galicia (3), Andalucía (2), Castilla and León (2), Asturias (1) & Castilla- La Mancha (1)	Madrid (4) Cataluña (3) Andalucía (1) Castilla-La Mancha (1)	Cataluña (18), Madrid (16), Andalucía (1), Aragón (1), Canarias (1), Castilla-La Mancha (1) & Comunidad Valenciana (1)
Total jobs	5,464	77	2,331
Size	Small (6), Medium (7) & Large (4)	Small (8)	Small (28), Medium (3) & Large (3)
Greenfield investment/ M&A	4/13	8/2	21/12
Private/SOEs/Mix	10/5/1	7/1/1	18/10/4
Main characteristics (share of all respondents)			
Percentage of wholly owned subsidiaries	64.7%	80%	78.8%
Percentage of exporters	82.3%	71%	64.9%
Percentage of importers	76.5%	57%	86.8%
Main Motivations (Average of responses' values)			
Asset seeking	2.8	2.3	2.9
Main motivation	Acquire a recognized brand (3.6)	To access qualified workforce (3.7)	Acquire a recognized brand (3.4)
Efficiency seeking	1.5	1.93	2
Main motivation	Produce goods/services in a more efficient way (2.3)	Low wage costs and high qualification in Spain (3)	Produce goods/services in a more efficient way (3.2)
Trade	1.5	1.9	1.9
Main motivation	Reduce export costs (1.6)	To avoid tariff barriers set by the European Union (2.3)	Reduce export costs (2.2)
Export to countries outside the EU	Yes (2.7)	Yes (4)	No (1.9)
Produce products in Spain to export them to China	1.57	0	1.1
Institutional & Economic aspects in China	1.5	2.4	2
Main push factor	Competition from other companies in the home country (2)	Reduce the risk associated with the economic activity of the company (3.7)	Competition from other companies in the home country (2.7)

Institutional & Economic aspects in Spain	1.5	2.3	1.6
Main pull factor	Legal framework & Private property protection (2.3)	Economic situation in Spain (3.3)	Quality of infrastructures in Spain (2)
Evidence of opportunistic M&A	Yes	No	Yes
Activities (Average of responses' values)			
Three most valued activities	Export (4), Produce goods (3.7) & Marketing (3.4)	Produce services (4), Export (4) & Merchandising (2.7)	Merchandising (3), Costumer service (2.5), Marketing & Produce services (2.3)
Three least valued activities	Costumer service (2.4), Import (2) & Produce services (0.9)	Product design (0.7), Marketing (0.7) & Produce goods (0)	Product design (1.6), Produce goods (1.5) & Export (1.4)
R&D	2.7	2.3	1.8
Product design	3	0.7	1.6

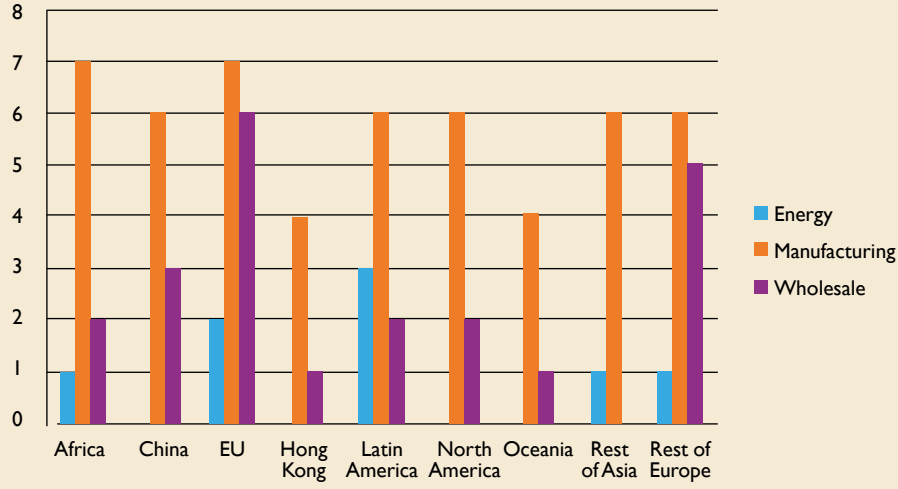
when ownership is shared. In terms of workers, 23.5% are large firms, and 35.3% are small sized firms. They develop a wide range of products like distilling, food, chemicals, metals, pharmaceutical products or generators.

We obtained responses from 7 of the 17 investments. For all of the respondents' firms, exports represent a high share of their sales. Accordingly, they value highly the possibility to access markets outside the EU and two of them consider it important to avoid trade barriers set by the EU. Their main export markets are within the EU, as illustrated in **Graph 1**. For all firms except one, the main motivations for investing in Spain come from asset-seeking considerations. In particular, they aim to acquire a recognized brand and adapt their products' quality to EU standards. Additionally, all firms give a medium or high importance to R&D and all firms, except one, give a similar value to Products design. The majority make considerable efforts to develop a closer relationship with their customers, as most give a high grade to marketing, merchandising and customer services.

Only four firms are concerned by efficiency-seeking considerations, while low wages and high qualification of labour in Spain appear attractive to several respondents.

High competition faced at home pushes several Chinese firms to invest abroad. In turn, the Spanish market characteristics that appear more attractive are private property protection and legal framework, whereas the fiscal incentives for FDI have the lowest attraction.

Graph 1. **Export destinations level**



The investee motivations for accepting such an investment are related with strategic alliances, diversification of export markets and starting a common project. We identify three potential cases of opportunistic investments.

5. ENERGY: GREEN INVESTMENTS

In the renewable energy sector, we identify 10 Chinese investments realized in Spain after 2010. Eight of them consisted of Greenfield investment with full participation of the Chinese investor. Solar energy is the economic activity that receives the highest number of Chinese investments in Spain, as noted by Quer Ramón et al. (2015). In addition, ESADE (2015) posits that Chinese investments in solar and wind energy are likely to increase in the near future. According to the report, it is among the most attractive Spanish sectors for Chinese investors. We find that 71% of these subsidiaries export and 57% import. These are mainly small firms and only account for 77 jobs, and the majority are private.

We obtained responses for three firms that produce services (and not goods) and are strongly export oriented: two of them run R&D activities. One respondent indicates that they mainly develop and promote solar panels in South America. According to this manager, one of the main motives for investing in Spain is to use this country as

a platform to access markets outside the EU. This manager highlights the importance of the Spanish labour force's specialization in this sector, together with the cultural and language ties between Spain and Latin America. This firm exports to Argentina, Brazil, Chile, Panama and Uruguay. These beliefs are shared by the other two respondents: all of them give a high importance to labour force qualifications and to the ease of access to markets outside the EU (see Graph 1). The other two firms export 70% of their sales to Romania, Germany and Senegal. For them, avoiding anti-dumping measures and tariffs is extremely important, while only one of the firms is concerned about the reduction of export costs.

Firms have other asset-seeking motives like making their brand known and improving the quality of their products. They do not only appreciate Spanish workers' qualification but also consider their cost as a way to improve their efficiency.

High competition at home has pushed these firms to invest abroad. But they also indicate that these investments are a way to reduce the risk associated with their economic activity. What Chinese investors appear to appreciate about Spain are characteristics such as the quality of infrastructures, political stability, the protection of private property, the transport infrastructure to access other markets and the economic situation. However, the ease of access to finance, investor protection and the legal framework are not considered relevant.

6. WHOLESALE: SUPPLYING SPANISH CUSTOMERS

In 1999, Chinese firms started to enter the Spanish market in order to distribute their products and the number of projects has increased continuously, in particular since 2008: 40.6% of the projects recorded in our database are carried out in the wholesale and retail trade sector. According to the available information, around two thirds have entered through Greenfield investment. Additionally, around 78% are wholly owned subsidiaries. The weight of private investors is lower in this sector (56.3%). In terms of trade, 64.9% do export and, as expected, nearly all of them are importers. These firms employ approximately 2,331 people, more than 80% of these firms being small. They distribute a wide range of products like food, telecommunications equipment, computers, chemicals, metals, textiles or vehicles.

In this sector, 12 firms out of 39 identified in our database answered the questionnaire. Overall, these firms are strongly motivated by asset-

seeking considerations, while efficiency-seeking considerations and the home-country characteristics play a relevant but secondary role. These firms are trying to build brand reputation; and they import products from China to support exports from investors.

Asset seeking is the principal motivation for investing in Spain in the wholesale sector. Acquiring a recognized brand appears as the most valued incentive, closely followed by accessing the highly qualified workforce, making the company's brand known in Europe and adapting the firm's products to the EU quality standards. Most firms are also interested in improving the efficiency of the services they deliver. In this line, the increase of wage costs in China significantly influences their decision.

High competition at home is a major concern behind these investment decisions. They also invest to reduce the risk associated with their economic activity. Half of these firms were also pushed by the institutional restrictions at home and/or the incentives to invest abroad.

Reducing export costs, and avoiding tariffs and non-tariff barriers, appear as relevant motivations for investing in Spain for half of them while they are not important at all for the others. Additionally, for 7 firms, the ease of access to markets outside the EU is a relevant factor. This is in harmony with the fact that only 8 of the surveyed firms do export.

Consequently, 7 firms value the institutional and economic Spanish context highly, with the quality of Spanish infrastructures the highest rated aspect. We detect 5 possible cases of opportunistic acquisitions out of the 8 surveyed M&As. Nevertheless, most firms are also motivated to accept Chinese capital due to previous investment and commercial relationships, the start of a common project, strategic alliances and diversification of export markets.

7. DIFFERENT PROFILES

Despite some similarities across sectors, we also find interesting differences in the strategies and activities followed by Chinese investors. Concerning location, subsidiaries operating in manufacturing are more widely distributed across Spain, while firms from wholesale are heavily concentrated in Catalonia and Madrid. Since these firms aim to sell their products in the Spanish market, they concentrate in areas with high consumer density like Barcelona

and Madrid, and distribute their products from there to other regions. Investments in manufacturing, however, are more distributed throughout Spanish regions. As illustrated in **Table 2**, most of these investments consisted of M&A. In consequence, location is not so important as the opportunity to acquire a firm that offers the capacity to adapt the investors' products to the local market, to access new technologies and experienced workers. Firms in manufacturing are mostly medium and large firms that previously existed. In contrast, subsidiaries in renewable energy and wholesale sectors are mainly small, and mostly consist of Greenfield investments. The majority of Chinese investments comprised wholly owned subsidiaries except for M&A in manufacturing. Moreover, Chinese subsidiaries are strongly integrated in international markets via exports and imports.

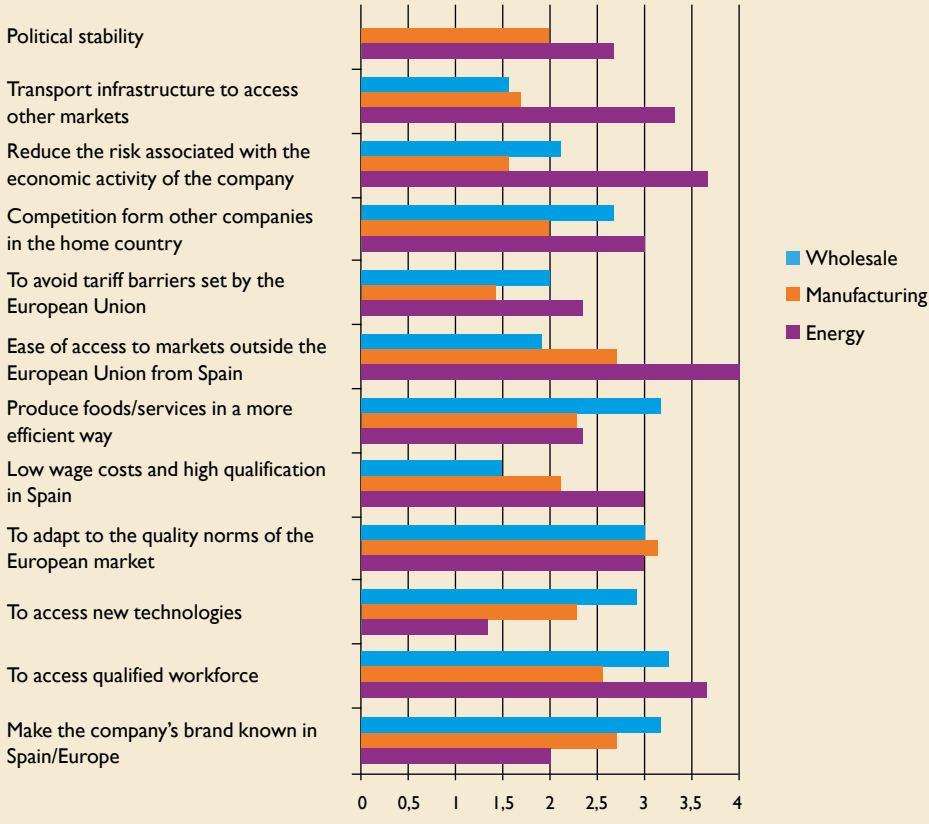
Chinese projects are mainly performed by private firms, but the presence of SOEs or mixed ownership firms is higher in wholesale. The heterogeneity of products covered by this sector may explain the heterogeneity of the investors. Moreover, the Chinese government strongly promoted the internationalization of domestic firms through commercial expansion and SOEs have especially benefited from the "go global" policy.

Graphs 2 and 3 illustrate the main differences across sectors, drawing three different profiles. Manufacturing firms are motivated by acquiring and developing new capabilities. This explains why manufacturing is probably the sector most likely to receive opportunistic M&As. These projects not only target the Spanish market but also other markets inside and outside the EU. Other trade considerations, trade barriers or export costs are on average less important in comparison with the other two sectors because they do not distribute Chinese products. Additionally, firms in manufacturing are less sensitive to home and host country characteristics. These findings go in line with most Chinese firms investing through M&As in order to access new capabilities and probably to take advantage of the already developed commercial links of the acquired firms. Moreover, as shown in Table 2, this sector has the lowest presence of wholly owned subsidiaries. Shared ownership is likely to increase the rate of success of this kind of project.

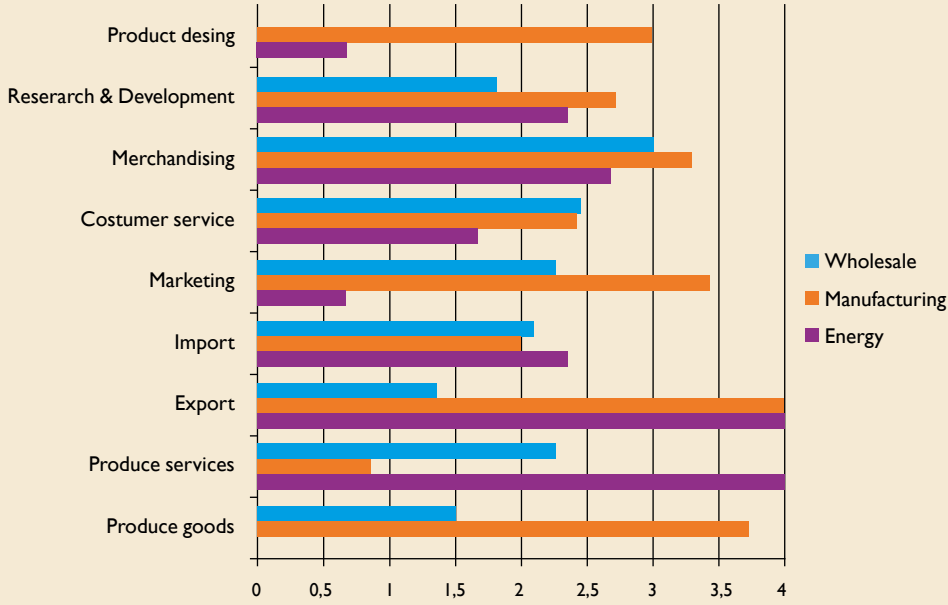
Renewable energy firms are also motivated by acquiring and developing new capabilities and to provide services inside and outside the EU. Unlike manufacturing firms, firms in renewables internationalise mainly through greenfield expansion, which is the

expected strategy for firms aiming to support exports from the parent company. Greenfield investments maximize managerial control and ensure that adjustment to local market needs and tastes will become a differentiation advantage for the firm (Child and Rodriguez, 2005). As pointed out by ESADE (2015), China is seeking to foster renewable energies and Spain has cutting-edge technology in this sector. Unlike M&A, greenfield acquisitions do not allow access to superior technology controlled by a firm in order to overcome their existing disadvantage. Respondents are especially interested in the assets embodied by Spanish workers. Accessing the Spanish workforce may guarantee the transfer of tacit knowledge to make good use of technology and to establish contact with European and Latin American markets. Spain is a unique location for firms in renewables since they highly value two intangible Spanish assets:

Graph 2. **Main differences in FDI motivations**



Graph 3. **Differences in economic activity**



the cultural closeness to the Latin American countries and the qualification of Spanish workers. Responses also reveal their efforts to develop their own capabilities through R&D. In China, this sector has been expanding rapidly over recent years. Chinese firms face highly competitive environment and value highly the opportunity Spain represents to reduce risks. For these reasons, M&A projects are expected to increase in this sector in the near future.

Finally, firms from wholesale and retail trade are naturally more concerned with the Spanish market as they provide services or commercialize Chinese products. In contrast, efficiency seeking and exports to other markets play a secondary role. In this case, subsidiaries are more devoted to support Chinese exports to Spain and improving their brand awareness. Investments in this sector are pushed out by some home-country factors: again, respondents highlight the intensive competition faced in China. These results go in line with pure market-seeking considerations pushed by high competition at home. Low brand awareness of Chinese firms' brands represents a barrier to this purpose (ESADE, 2014 and 2015). In this sector, acquiring a recognized brand appears as the main asset-seeking motivation (**Table 2**). They also wish to adapt their products'

quality to the European norms. Results also indicate that firms give high importance to customer service, making considerable internal and external efforts to improve their market position in Spain and probably in Europe.

Overall, asset seeking seems to be a common objective across sectors and is particularly highly valued in manufacturing and wholesale. In this aspect, it is worth highlighting how all three sectors give almost the same importance to adapting their products' quality to the European standards. Efficiency considerations are more relevant for wholesale, while the cost of labour receives a higher valuation in renewable energy. In the first case, firms probably consider their capacity to be closer to their final customers as an efficiency gain. But in the second case, Spanish labour qualification and culture are probably more valuable assets in order to access the Latin American market. Regarding home and host factors that push and pull FDI, we find that competition at home is a relevant push factor across sectors, but results indicate that the energy sector is more sensitive to these aspects.

8. CONCLUSIONS

Recent trends in OFDI indicate that Chinese OFDI will continue growing[6]. This is also likely to be true for the Spanish case. For business practitioners in the Spanish markets, better knowledge of these new players will help them to detect possible opportunities and risks. The near future is difficult to predict since the current economic deceleration in China might either slow down or push its international expansion: OFDI might slow down as long as financial resources and domestic demand diminish. Additionally, the government might stop encouraging Chinese firms to go abroad as it may be more interested in domestic investment. However, Chinese firms will need to substitute their domestic demand and find new markets. Their survival might depend on their capacity to expand abroad.

Western entrepreneurs have to be aware that new players are entering their markets. As the present work indicates, most Chinese MNEs are still making significant efforts to overcome their disadvantages and build on solid competitive advantages, although there are those like Huawei already capable of competing with firms that are well established internationally. Altogether, Chinese firms may be formidable competitors. They are already operating in

large, complex and competitive markets. Recently, their rapid and successful expansion has provided many of them with large financial resources that allow them to continue growing.

Investments from China also provide new business opportunities. Most investors are motivated by asset-seeking considerations, in order to overcome their weaknesses. In this line, Spanish firms can provide services to Chinese firms, such as consultancy, solutions, and appropriate marketing strategies for the Spanish and European market or technologies of interest. Offering high value-added services may be of mutual interest. Moreover, Chinese firms are interested in accessing markets commercially and culturally close to Spain, like Latin America. Again, domestic firms have valuable information and experience to offer to Chinese firms.

The increasing presence of Chinese firms in Spain provides opportunities to forge alliances that can benefit both parties. In this line, our results indicate that strategic alliances play a relevant role in M&As. On one hand, such alliances may facilitate Spanish firms' access to the Chinese market. Perea & Ripoll i Alcon (2014) show that many Spanish firms still have significant problems in this aspect. On the other hand, Chinese firms can also greatly benefit from alliances to overcome cultural or legal barriers, and to access the local market. As showed, they wish to improve their recognition in the European market and to take advantage of the assets available in Spain.

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NOTES

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2. Contact Author: Department of Economic Theory and History. Facultad de Ciencias Económicas y Empresariales; Universidad de Granada; Campus Cartuja, s/n; E-18071 Granada; Spain.
3. In ESADE (2015) 24 companies answered the questionnaire.
4. SABI (Sistema de Análisis de Balances Ibéricos) is a Spanish firm level database from Bureau van Dijk which reports all the information available from the commercial register.
5. Named TMSystem
6. Although China is at the moment the third largest World investor, Chinese OFDI still has huge potential. The UNCTAD database shows that Chinese OFDI over GDP during the period 2011-2014 has been systematically lower than both developing and developed countries’ average. In 2014, China’s OFDI represented 1.15% of GDP, while OFDI represents 1.86% and 1.80% of developing and developed countries’ GDP respectively.

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If you can't beat them, join them: Analysis of mergers in european mobile telecommunications[1]

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Si no puedes con tu enemigo, únete a él: Análisis de las fusiones en el sector europeo de la telefonía móvil

"Mobile is a vibrant and evolving industry at the heart of everyday life for billions of people around the world"

Anne Bouverot, director general of GSMA (2011-2015)

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1. INTRODUCTION

On 12th May 2016 the European Commission announced its negative decision to the domestic merger between O2 (Telefónica Group) and Three (Hutchison Group) in the United Kingdom with the aim of preserving competition in this market (El País, 2016). This decision might create a precedent in Europe to prevent domestic mergers in the European mobile industry that imply a reduction in the number of competitors in a national market from four to three (Expansión, 2016). The close vigilance of European institutions on this sector is explained because this industry is one of the most prosperous and with the highest economic and social impact in the world. As an example, in 2015, the industry generated more than one trillion dollars worldwide – the equivalent to 4.2% of global GDP – and created 17 million jobs (The Mobile Economy, 2016). Moreover, the social impact of this industry is evident when penetration rates have

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EXECUTIVE SUMMARY

Industry maturity usually involves concentration processes as natural reactions towards competition intensification. This is the case of the mobile telecommunications industry. Domestic mergers have increased during the last years. Although existing literature has analyzed concentration processes in other older industries, the more recent industry of mobile telecommunications has received less attention. This study aims to analyze the role of domestic mergers as a competitive mechanism in the long term. We have reviewed all domestic mergers between mobile operators in 43 European markets from 2000 to 2015. After identifying 26 domestic mergers, this study observes that they not only have immediate effects in the market power of participants, domestic mergers also influence the evolution of rivalry in the long term. We observe that domestic mergers slow down the increase of competition that has taken place from 2000 to 2015 as a consequence of factors such as the entry of new competitors and regulators' intervention.

RESUMEN DEL ARTÍCULO

Las etapas de madurez en las industrias suelen llevar aparejados procesos de concentración, como una reacción natural a la intensificación de la competencia. Este es el caso del sector de la telefonía móvil, donde una vez alcanzada la madurez, hemos asistido a un número no desdeñable de fusiones domésticas en los últimos años. A pesar de que la literatura existente ha documentado procesos de concentración en otros sectores de mayor tradición, la todavía incipiente historia de las telecomunicaciones móviles ha implicado que son menos numerosos los trabajos que analizan el fenómeno en esta industria. En este estudio se pretende arrojar luz en esta dirección, valorando el potencial de las fusiones domésticas como herramienta competitiva de las operadoras en el largo plazo. Para ello, se han revisado la totalidad de las operaciones de fusión domésticas llevadas a cabo en la industria en 43 países europeos y se han detectado 26 fusiones domésticas entre 2000 y 2015. Este trabajo observa que las operaciones de fusión domésticas han tenido, además de los efectos inmediatos en el poder de mercado de las empresas implicadas, un claro efecto en la evolución de la competencia a largo plazo. Así, se observa que las fusiones ralentizan el incremento de la competencia que ha tenido lugar desde 2000 a 2015 fruto, entre otros factores, de la entrada de nuevos competidores y de los esfuerzos del regulador en esta dirección.

increased by 500% in the last decade and are currently above 100% in the European context (GSMA, 2016).

Previous to this situation that corresponds to a mature industry, the European mobile telecommunications had a slow start in the 1980s. This slow introduction was mainly motivated because of the existence of different technological standards among European countries. Each country developed its own mobile technology, which hindered the take-off of the industry. The introduction of GSM as a common standard in the European market was critical to initiate a new stage of exponential growth in the industry. The existence of a common technological standard in a region of increasing political and economic integration encouraged a rapid diffusion of mobile telephony in Europe (Gruber, 2005).

This analysis shows that the industry is moving towards an intensification of competition.

The maturity of the European mobile industry has meant a slowdown in the growth of new users and revenues per user. This is a consequence of the more aggressive behavior of mobile operators in their pricing and recruitment of new users (Navío & Solórzano, 2013). As has happened in other mature industries, e.g. banking and pharmaceuticals, mobile companies have reacted to the increasing competition by domestic mergers to gain market power (Andini & Cabral, 2011; Ballarín, Fernández & Canals, 1994). The potential damage to consumers resulting from this market power explains the close vigilance of public competition regulators towards these operations, even to the extent of blocking them, as in the United Kingdom. It should be noted that competition in the mobile telecommunications industry takes place at national level from the consumer viewpoint.[4] Thus, domestic mergers have a direct impact on the competitive intensity perceived by customers.[5]

The immediate consequence of a domestic merger is an increase in the level of concentration in a market and, then, the higher market power of the resulting company. However, the medium- and long-term effects of domestic mergers in the evolution of competition have not been previously analyzed in this industry. The objective of this study is twofold. First, we aim to describe the process of domestic mergers that has taken place in European mobile telecommunications from 2000 to 2015. We develop a map of domestic mergers that allows us to identify the concentration process in each country where these operations have occurred and their participants. Second, we aim to analyze the extent to which domestic mergers have

reduced competitive pressure in European markets. In doing so, we observe the variation in the level of concentration for each market before and after the merger.

This analysis shows that the industry is moving towards an intensification of competition. This can be explained by the entry of new competitors that have pushed to reduce prices and gain users, with the subsequent decline in industry revenues (Expansión, 2015). Domestic mergers have become useful mechanisms to consolidate operations and gain market power, as they imply an immediate increase in the level of concentration in a market. However, this study shows that domestic mergers do not only have effects in the short term, but also in the medium and long term. Mergers have slowed the rhythm of intensification of competition.

Several managerial and policy implications can be derived from this analysis. From a managerial viewpoint, the analysis shows that domestic mergers serve to consolidate positions in the markets where they take place because of the long-term effects. From a policy viewpoint, it is recommended that public competition regulators anticipate the consequences of domestic mergers that persist over time when authorizing this kind of corporate operation.

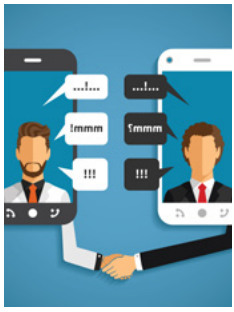
KEY WORDS
Domestic merger, concentration, competition, mobile telecommunications, Europe.

PALABRAS CLAVE
Fusión doméstica, concentración, rivalidad, telecomunicaciones móviles, Europa.

2. MERGERS IN MOBILE TELECOMMUNICATIONS: CONCEPT AND MOTIVATION

Mergers are defined as the combining of assets of two or more companies into a single company (Guerras & Navas, 2015). Three types of mergers can be observed: pure mergers – the merged companies are dissolved and their assets are combined into a single new company, mergers by absorption – one company continues to exist and absorbs the other companies, that are dissolved, and mergers by partial transfer of assets – a company cedes part of its assets to another company (new or existing) but continues in the market.

Previous studies have analyzed several reasons to explain why companies merge. First, mergers can increase the economic efficiency of an organization because of the achievement of economies of scale, scope and/or experience (Guerras & Navas, 2015).[6] Moreover, mergers serve to obtain new resources and capabilities that another company possesses, and to make profitable use of available financial resources that exceed the financial needs of the



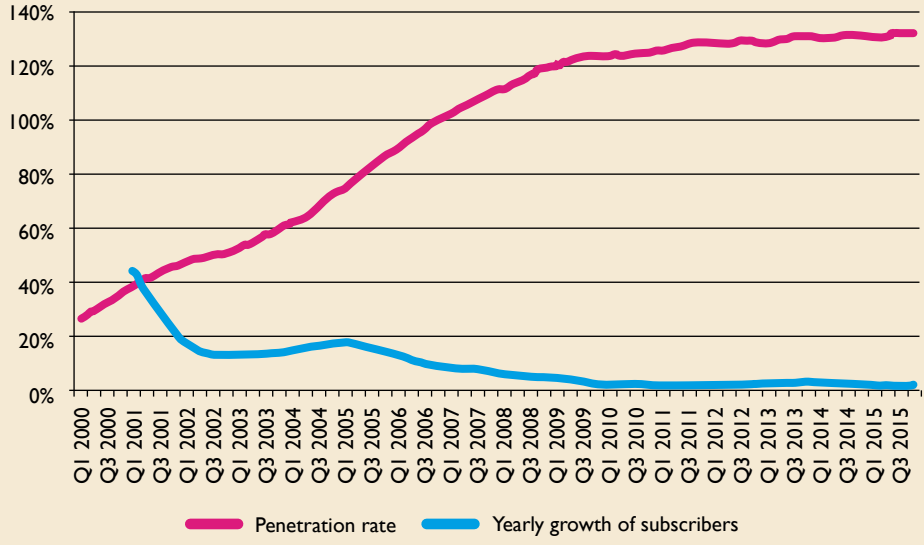
company (Grant, 2004). Second, mergers sometimes try to satisfy managerial interests, such as social recognition and the acquisition of power (Manne, 1965; Weston, Chung & Hoag, 1990). Finally, mergers are mechanisms to increase market power. Furthermore, mergers can be the only way, and also the most effective, of overcoming entry barriers in an industry or market (Navío & Solórzano, 2013). Consequently, when mergers take place between direct competitors – horizontal mergers, they imply the increase in market power of the resulting company and the immediate reduction in competition in a market (Trautwein, 1990). Thus, the level of concentration increases, competitive pressures on prices decrease and the expected profitability of companies rises (Grant, 2004). Moreover, the growth of firms through mergers is immediate because of the instant incorporation of the productive capacity of another company and, in most of cases, its client portfolio (Guerras & Navas, 2015).

In the European context of mobile telecommunications, mergers have been frequent in the last decade and have caused a restructuring of the industry (Li & Whalley, 2002; Trillas, 2002). Mergers have been a consequence of the evolution of competition in this industry. As telecommunications were liberalized at the beginning of the 1990s, mobile telephony started to increase its rapid penetration among the population. This has allowed mobile operators to achieve a constant growth during the last two decades (Curwen & Whalley, 2008).

Most markets have experienced an increase in the level of competition derived from the increasing number of companies that have entered the industry after achieving a new governmental license (Gruber, 2005). Moreover, in the last ten years the growth in mobile subscribers has slowed down in Europe because of the high penetration rate in this mature industry. As can be observed in **Figure 1**, the penetration rate of mobile telecommunications[7] was higher than 100% at the beginning of 2007 until achieving 132% at the end of 2015. The yearly growth in subscribers has decreased in the last years, being only 1.96% in the last quarter of 2015.

As a reaction to the previous situation, mobile operators have

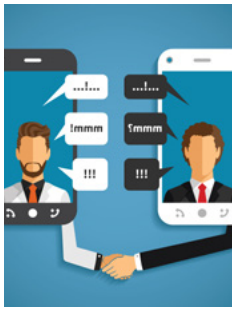
Figure 1. **Evolution of penetration rate and growth of new subscribers in Europe (2000-2015)**



participated in two types of corporate actions. First, companies have grown through internationalization strategies. This has resulted in the creation of big multinationals, such as Telefónica, Vodafone, América Móvil and Hutchison Whampooa. These companies have expanded to new markets by creating new firms from scratch and by acquiring and merging with existing companies that have been integrated into their structure (inter-country mergers and acquisitions).[8] Second, firms have grown within national markets by merging with existing competitors (intra-country or domestic mergers). As we have noted previously, this study focuses on this last type of merger.

3. MAP OF MERGERS IN THE EUROPEAN MOBILE SECTOR

To establish an outline of the main domestic mergers that have taken place in Europe, and which, subsequently, will serve to determine how they have influenced competition within the industry, information was sourced from the database of GSMA Intelligence (www.gsmaintelligence.com). This database is the most exhaustive data source on the worldwide industry, providing firm-level information, market-level information and region-level information. It is important to highlight that the study is limited to European countries, compri-



sing a total of 43 countries, with quarterly data from 2000 to 2015. This period is particularly suitable because we consider that mergers, as growth strategies, take place as the industry consolidates. Thus, before 2000 the sector was still immersed in an early stage of growth, as evidenced by the fact that the average penetration rate of mobile telephony in European countries barely reached 30%.

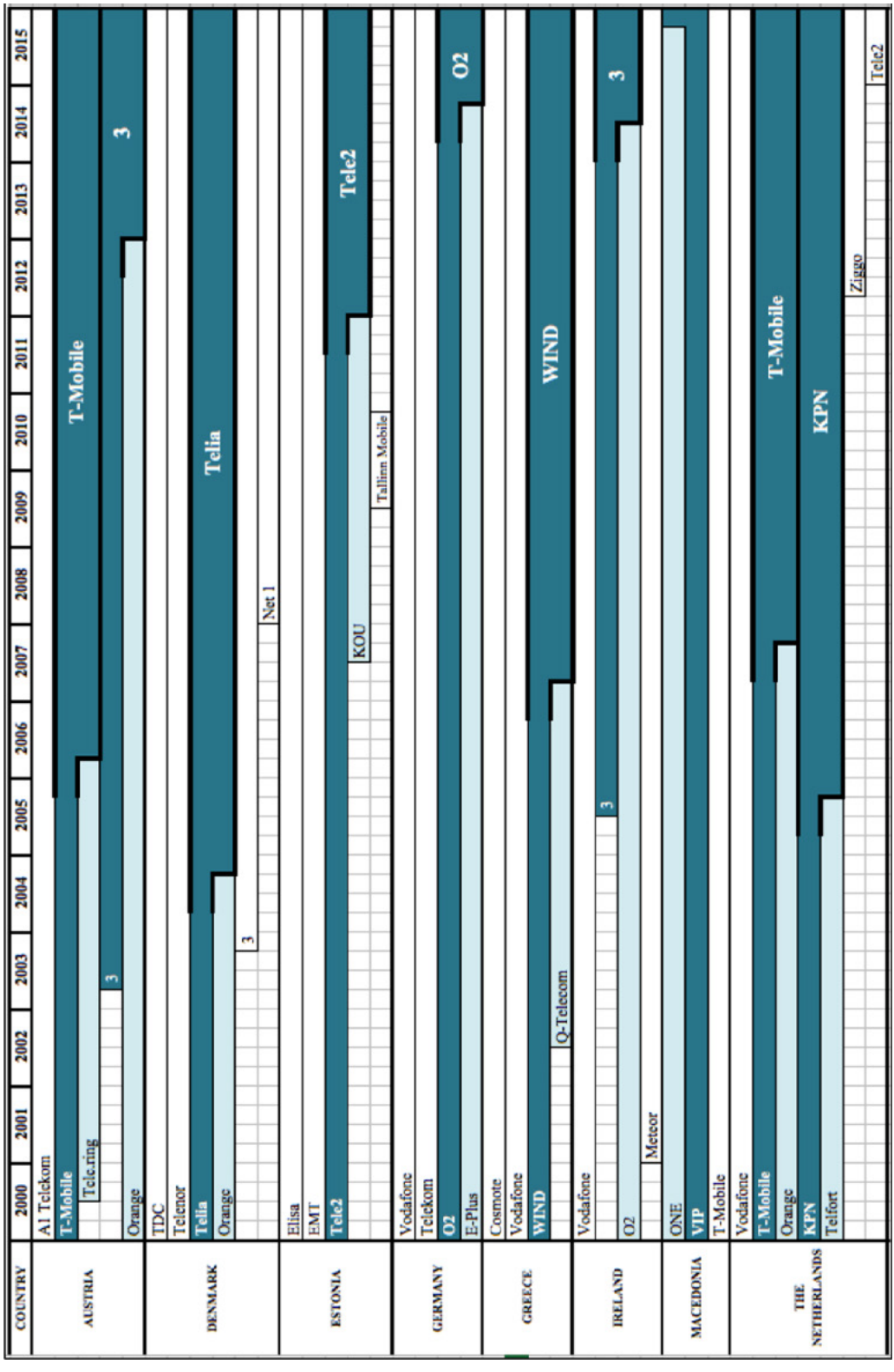
Table 1 presents in detail the mergers[9] that have taken place in 17 European markets[10] during the period 2000-2015. Within each market we have represented the presence of each operator through rectangles. The length of these rectangles corresponds to the time period for which the operators are present. The union of two rectangles into one indicates the existence of a merger. The color indicates the type of participation of firms in mergers, either pure or by absorption (see legend). For example, in Austria Tele.ring enters the market in the third quarter of 2000 and disappears in the second quarter of 2006 when it is absorbed by T-Mobile. In the case of a pure merger, as occurring in the United Kingdom, Deutsche Telekom and Orange exist in the first quarter of the observation period and merge in the second quarter of 2010 under the name of EE (Everything Everywhere). As can be seen, the most frequent type of merger is merger by absorption (23 out of 26 identified operations). Pure mergers only take place in the Russian Federation and the United Kingdom.

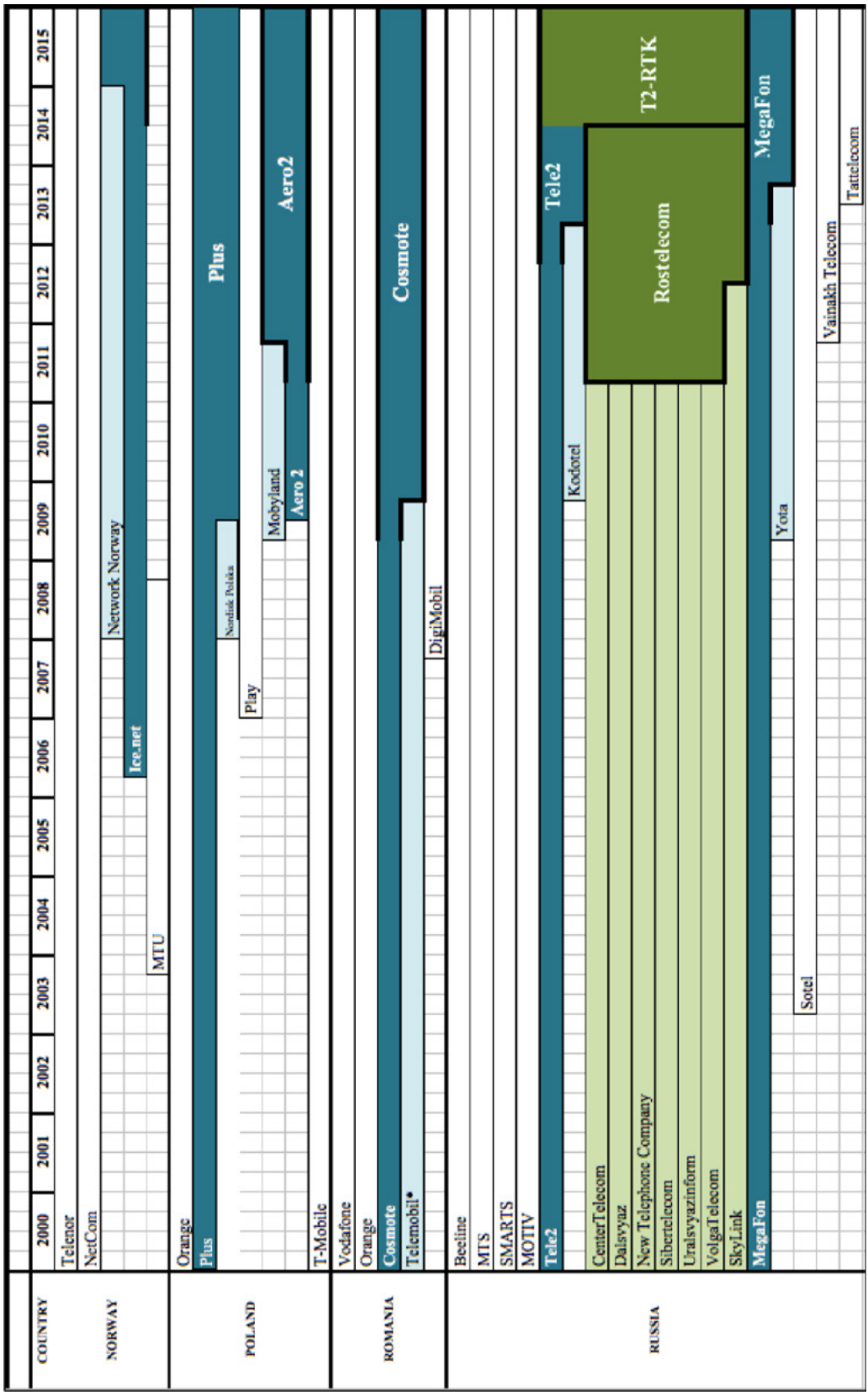
Table 1 also shows operators that have not been involved in mergers, making it easy to observe the number of existing operators at all times in each market. For example, in the first quarter of 2005 there were five companies in Austria but after the two mergers by absorption in 2006 and 2013, the Austrian market reaches 2015 with three operators.

Several mergers have significantly changed the number of compe-

	Absorbed company
	Absorbing company in a merger by absorption
	Resulting company of a pure merger
	Company involved in a pure merger

Table 1. **Map of mergers in the European mobile telecommunications industry (2000-2015)**

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Orange
Cosmote
Telemobil*
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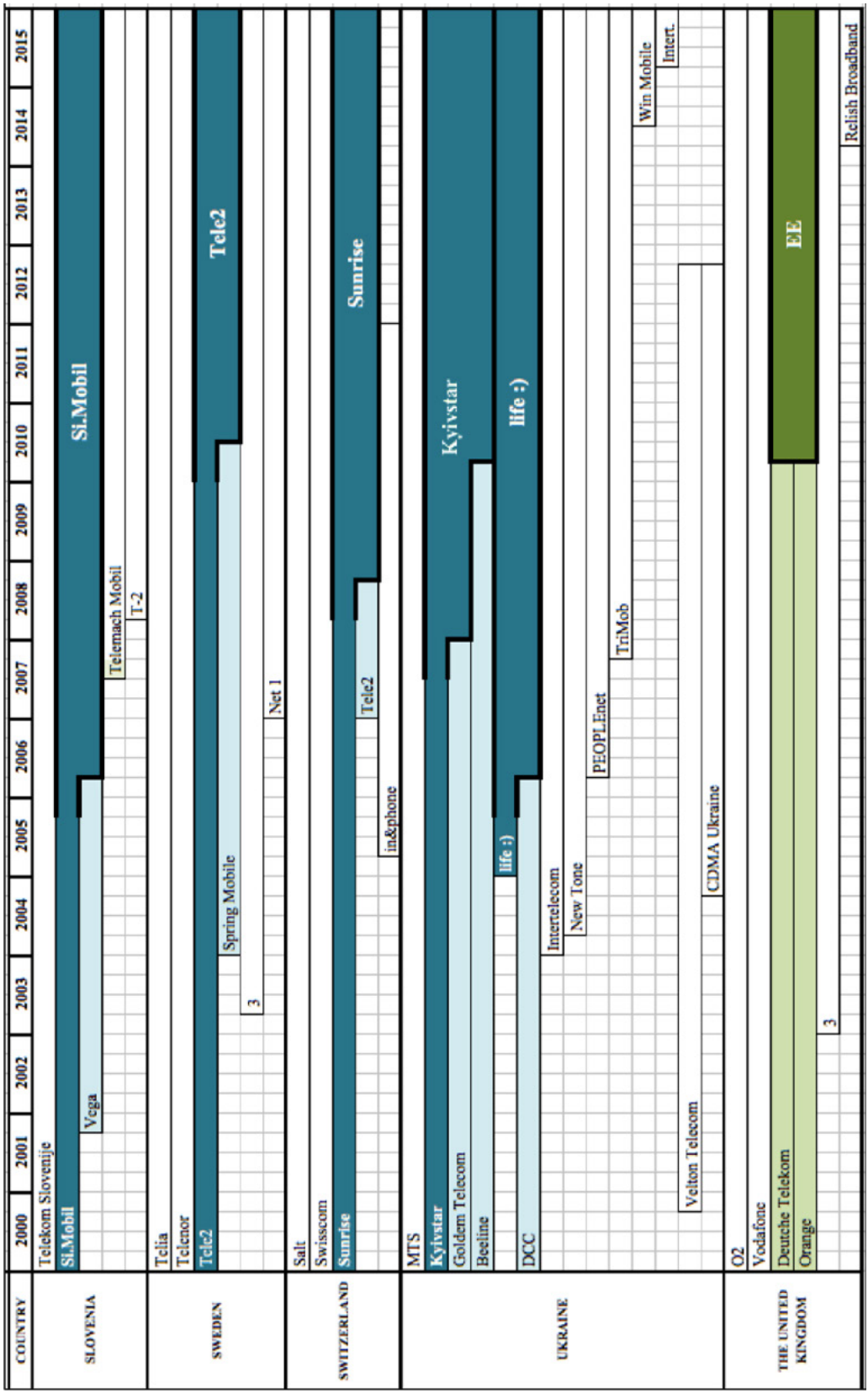
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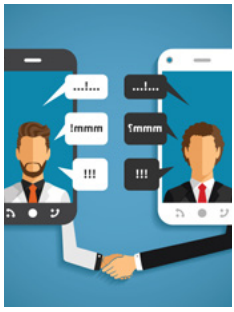
Vodafone
Deutche Telekom
Orange
3
Relish Broadband

titors. For instance, in Austria and in The Netherlands the number of rivals changed from five to three after two mergers. The Macedonian market became a duopoly after one merger. In Russia the current Tele2-RTK covers 11 former operators. As a result of these changes, the market power of the companies resulting from the merger has immediately increased. Besides this immediate effect on the market power of the merged firm, in this study we aim to know to what extent these operations have had an impact on competitive intensity in the long term.



4. THE IMPACT OF MERGERS ON THE DEGREE OF CONCENTRATION OF THE INDUSTRY

In order to analyze in some detail how these mergers have reduced competition in the industry, Table 2 presents some data that will guide us in explaining the evolution of competition in the European markets where these operations have taken place. This table shows, first, for each of the national markets, the market shares of the merged companies (previously identified in **Table 1**) in the quarter preceding the merger and the market share of the resulting company in the subsequent quarter. Usually the merger implies the addition of the previous market shares of the companies that have participated in the merger in the market share of the resulting company. We have not observed a significant migration of customers to other competitors as a result of the uncertainty that this type of market operation may cause.[11] The only exception occurs in Norway, when Ice.net acquires Tele2 in the last quarter of 2014 and thereby loses 15% market share to other Norwegian operators.[12]

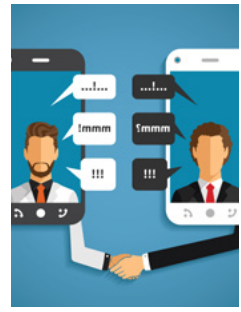
When analyzing the impact of these mergers in the degree of competition in the industry we use the Herfindahl index (H)[13], whose calculation is:

$$H = \sum_{i=1}^{N} s_i^2$$

where s_i represents the market share of firm i in the market and N represents the number of existing companies in that market. This index is used to determine the degree of concentration in an industry. The index value can range from 0 (when there are many companies with very small market shares, that is, a situation very close to perfect

competition) to 1 (when a single company has 100% of market share, that is, monopoly). The index increases with the degree of concentration that exists in the industry. It is interesting not only because of the value it takes, but by comparing its value between periods, markets and industries in order to determine which of them have a greater degree of concentration. Given the way it is calculated, the index increases immediately after a merger (to the extent that the number of existing firms, N, is reduced and the market share of one of them increases, s_i).[14]

Returning to **Table 2**, the next columns show the value of the Herfindahl index in each of the markets at the beginning and at the end of the reporting period. We can see that the degree of concentration in all the markets where mergers have taken place has decreased or maintained from 2000 to 2015[15], as in other European markets where these operations have not taken place. That is, despite the mergers, the degree of competition in the markets has increased. In this period of sixteen years the industry has become more competitive. This is due to, among other factors, the entry of new companies in the markets and the efforts of the regulator to defend the position of consumers with measures that have tried to limit the market power of the big operators to benefit the rest of the players.[16]



Does this mean that mergers have not had any effect on the degree of concentration of the industry beyond the immediate effect? To answer this question, Table 2 provides additional data that show that these operations have been able to slow down the trend of the industry towards greater competition. We have calculated the change in the index of industry concentration for each of the quarters from 2000 to 2015 over the previous quarter. Then, for each of the markets where there has been a merger, we have obtained the average change in the Herfindahl index for two periods: from 2000 to the prior quarter to the merger and from the next quarter to the merger until 2015. These two averages appear in the last two columns of **Table 2**. A negative value indicates that, on average, the degree of concentration in the industry has declined quarter to quarter. A positive value indicates, however, that the market power of the operators has increased, on average, quarter to quarter. As can be seen in Table 2, most values have a negative sign before and after the merger. That is, the general trend has been the reduction in the concentration index in all markets (supporting the trend towards more competitive markets previously mentioned).

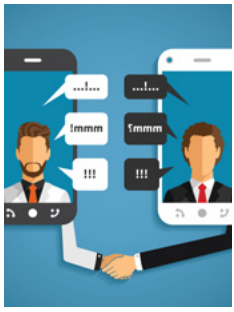
Table 2. **Market share and evolution of the concentration before and after the merger**

			MARKET SHARE		CONCENTRATION LEVEL (HERFINDAHL)		QUARTERLY CHANGE IN THE LEVEL OF CONCENTRATION	
Country	Participating firms	Year-Quarter of the merger	Quarter before the merger	Quarter after the merger	2000	2015	2000 - Merger	Merger - 2015
AUSTRIA	T- Mobile	2006-2	25.16%	35.41%	0.40	0.34	-1.61%	0.15%
	Tele.Ring		11.90%					
	3 (CK Hutchison)	2013-1	11.06%	25.28%			-0.57%	-0.31%
	Orange		17.28%					
DENMARK	Telia (TeliaSonera)	2004-3	7.83%	20.41%	0.32	0.24	-0.43%	-0.40%
	Orange		9.56%					
ESTONIA	Tele2	2012-1	27.70%	27.43%	0.47	0.34	-0.65%	-0.07%
	KOU (Televork)		1.09%					
GERMANY	O2 (Telefónica)	2014-4	17.19%	38.68%	0.35	0.34	-0.47%	0.13%
	E-Plus (KPN)		22.21%					
GREECE	WIND (Largo)	2007-2	19.52%	28.24%	0.34	0.35	-0.43%	0.08%
	Q Telecom		7.51%					
IRELAND	3 (CK Hutchison)	2014-3	10.80%	36.98%	0.53	0.35	-1.00%	-0.19%
	O2 (Telefónica)		26.39%					
MACEDONIA	VIP (Telekom Austria)	2015-4	26.16%	48.62%	1.00	0.50	-1.86%	-
	ONE		23.48%					
THE NETHER-LANDS	KPN	2005-4	38.95%	49.74%	0.35	0.35	-1.66%	0.14%
	Telfort		11.84%					
	T- Mobile	2007-4	15.00%	27.97%			0.16%	-0.20%
	Orange		12.07%					
NORWAY	Ice.net	2014-4	1.75%	3.20%	0.53	0.39	-0.80%	4.71%
	Tele2		17.28%					
POLAND	Aero2	2011-4	0.32%	1.18%	0.37	0.24	-0.74%	-0.48%
	Mobyland		0.38%					
	Plus	2009-3	32.56%	31.76%			-0.59%	-0.78%
	Nordisk Polska		0.01%					
ROMANIA	Cosmote (OTE)	2009-4	21.11%	23.90%	0.48	0.29	-1.24%	-0.15%
	Zapp		1.47%					

Absorbed company
Absorbing company in a merger by absorption
Resulting company of a pure merger
Company involved in a pure merger

RUSSIA	MegaFon	2013-4	27.23%	29.00%	0.24	0.26	0.16%	0.27%
	Yota (Scartel)		0.29%					
	Rostelecom	2011-2		5.62%			0.06%	0.40%
	Centertelecom		0.10%					
	Dalsvyaz		0.03%					
	New Telephone-Company		0.65%					
	Sibirtelecom		2.52%					
	Uralsvyazinform		2.58%					
	Volga Telecom		1.89%					
	Rostelecom	2012-3	5.62%	5.91%			0.05%	0.59%
	SkyLink (Svyazinvest)		0.59%					
	Tele2	2013-3	9.52%	10.18%			0.03%	0.98%
	Kodotel		0.06%					
	T2-RTK	2014-3		14.76%			0.04%	1.02%
	Tele2		10.18%					
	Rostelecom		6.05%					
SLOVENIA	Si.Mobil	2006-2	20.43%	24.13%	0.81	0.39	-1.05%	-1.31%
	Vega		4.68%					
SWEDEN	Tele2	2010-3	27.71%	27.69%	0.40	0.28	-0.56%	-0.53%
	Spring Mobil		0.18%					
SWITZER-LAND	Sunrise	2008-4	18.80%	20.62%	0.57	0.44	-0.73%	-0.10%
	Tele2		0.80%					
UKRAINE	Lifecell (Turkcell)	2006-2	2.53%	11.79%	0.49	0.31	-0.79%	-0.59%
	DCC		0.20%					
	Kyivstar (VimpelCom)	2008-1	43.19%	42.09%			-2.06%	-0.27%
	Goldem Telecom		0.09%					
	Kyivstar (VimpelCom)	2010-2	40.40%	45.50%			-1.20%	-0.37%
	Beeline (VimpelCom)		3.52%					
THE UNITED KINGDOM	EE	2010-2		37.06%	0.26	0.27	-0.37%	-0.38%
	T-Mobile		22%					
	Orange		21%					

	Absorbed company
	Absorbing company in a merger by obsorption
	Resulting company of a pure merger
	Company involved in a pure merger



However, and here is the key point, the average reduction in the degree of concentration is usually lower in the period after the merger in comparison with the period before the merger. In **Table 2**, those cases in which the average reduction in the concentration rate is lower for the period after the merger than for the period before the merger are shaded. From the 26 operations identified in **Table 2**, in 21 cases the quarterly reduction in the Herfindahl index in the subsequent period of the merger is less than in the previous period.[17] Moreover, in 10 out of 21 cases the change in the Herfindahl index shows a positive trend in the second period, showing that mergers have served to increase the market power of the companies involved. Even if the industry moves towards greater competition, mergers have served to slow down that trend not only in the immediate post-merger period. These operations, therefore, have a visible impact on the structure of the industry in a longer period of time.

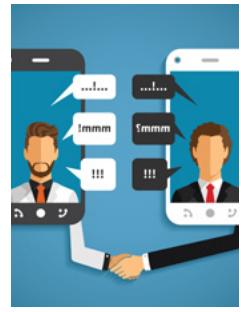
5. CONCLUSIONS

The aim of this work was to check to what extent domestic mergers help companies to consolidate their market power, a reason that has traditionally been used to justify the execution of such operations. To achieve this objective, our analysis has focused not only on the immediate implications of mergers, but also on the consequences of mergers in the levels of competition in the long term.

Domestic mergers are a common phenomenon in industries that have reached maturity, as the mobile telecommunications industry in Europe where penetration rates exceeded 100% some years ago. The results of our study show that rivalry has grown in recent years due to the entry of new competitors and the reduction in the imbalance in the market power of existing companies. Nevertheless, mergers, beyond the immediate increase in the market power of the company involved in the operation, have an impact on the degree of competition in the medium and long term. In this sense, the data show that after the merger takes place the competition growth rate slows. Although that fact could also be explained by the inclusion of new competitors in the market after the merger (as in Denmark or The Netherlands), even in markets where the number of competitors has been maintained this slow down is observed.

The study of mergers in the European industry of mobile telecommunications has significant implications for the management of the op-

erators. This type of operation is revealed as a competitive tool that allows companies to not only recover their positions in the markets involved, but also to reduce the long-term competition in them. As a consequence, it is important to analyze domestic mergers from the perspective of competition policy. Our results show that these operations have implications on the competitive pressure levels in the medium and long term. For this reason, antitrust agencies should have particular caution in monitoring domestic mergers and enable the necessary mechanisms to balance competition in the markets concerned. In addition, the regulator should not conduct an analysis of mergers by only considering the implications for the market where they take place. The fact that many of the players are present in multiple markets could imply that movements in one market will have a simultaneous impact in other markets where they are present. This is the idea that lies behind the multimarket competition and that is clearly a feature of mobile telecommunications.



Although this work helps to identify domestic mergers that have been carried out at European level and their impacts on the evolution of competition in the medium and long term, some future lines are opened due to some limitations. First, the Herfindahl index has been used to approximate the level of competition in the market. In order to analyze the effects of mergers in more detail, it could be interesting to use not only measures based on market shares but also complementary information such as changes in prices charged to consumers and in profitability obtained by the participating companies. Second, we have analyzed domestic mergers, but not inter-country mergers and acquisitions. The effects of the latter on competition are not immediate – unlike the former – but it would be interesting to analyze their long-term effects on competition in each market.

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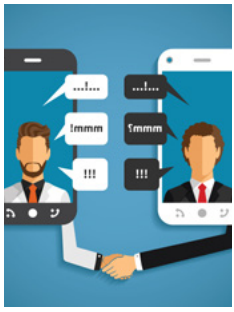
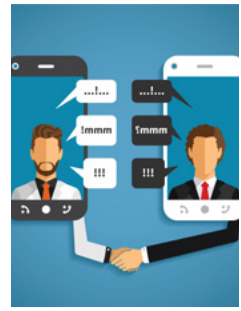


NOTES

1. Acknowledgements: We acknowledge financial support from the Spanish Ministry of the Economy and Competitiveness and FEDER (project ECO2014-53904-R), and the Government of Aragón, as the authors are members of the research group Generés. Bernal is also grateful to the Government of Aragon FPI Program. We thank the editor and two anonymous referees for their comments and suggestions.
2. Authors by alphabetical order
3. Contact author: Departamento de Dirección y Organización de Empresas; Facultad de Economía y Empresa; Universidad de Zaragoza; Gran Vía 2; 50005, Zaragoza; Spain
4. A consumer can only choose mobile operators that have a presence in his/her national market. In some countries outside Europe competition even takes place at subregional level, with different operators in different subregions of the same country (e.g. India, the United States and Brazil).
5. A domestic merger (merger between operators of the same country) differs from inter-country mergers (merger between operators of different countries). In the case of inter-country mergers the number of companies that are available to be chosen by a consumer does not change, but it does change in the case of domestic mergers.
6. The article by Expansión (2015) argues that recent mergers among telecom companies in European countries might be motivated because of the need to reduce costs as revenues have decreased. This drop in revenues is mainly explained by the price reduction after the entry of new low-cost competitors and the change in consumer preferences. Consumers have reduced the use of voice and SMS message services (pillars of the traditional structure of revenues) towards data services.

7. The penetration rate has been calculated as active connections at the end of the period, expressed as a percentage share of the total market population (GSMA Mobile, 2016). Market penetration can be higher than 100% because one person can have two or more mobile connections and there are mobile connections only used by organizations (e.g., firms).
8. Because of the special interest that the Spanish market has for Universia Business Review readers, it should be noted that mergers and acquisitions in the mobile telecommunications industry in Spain have been inter-country actions. In 1999 Vodafone (from the United Kingdom) acquired Airtel (the second entrant in the Spanish market that was owned by foreign and Spanish investors, mainly from the banking industry). The brand change to Vodafone took place in 2001. In 2006 France Telecom acquired Amena (the third entrant that was owned by Retevisión). The same year Amena changed its name to Orange. Domestic mergers have not taken place in Spain, so that the number of operators continues to be four (from the entry in 2006 of Yoigo, owned by the Swedish group Telia). It should be noted that in June 2016 the Spanish group MasMóvil, specializing in virtual mobile services, acquired Yoigo (El País, 2016).
9. Since the database contains data on the number of subscribers per operator, mergers have been identified when in the same quarter an operator disappears and there is a subsequent increase in subscribers in another operator (merger by absorption) or two operators have disappeared and their subscribers have been transferred to a new operator (pure merger). Once we identified these operations on the GSMA database, we carried out a search for information in specialized publications of the industry and in corporate reports to ensure that these changes in the number of operators and subscribers were the consequence of mergers.
10. Although the study includes the review of operations in 43 countries, Table 1 shows only those 17 countries that have hosted mergers. Therefore, other countries not listed in the table have been reviewed such as Albania, Andorra, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Finland, France, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Monaco, Montenegro, Portugal, San Marino, Serbia, Slovakia and Spain.
11. As an example, the merger between O2 and E-Plus in Germany has meant that following the merger O2 has a market share of 38.68%, a very similar figure to that obtained if we add the market shares that O2 and E-Plus had before the merger (17.19% + 22.21% = 37.4%).
12. In this case, the merger between Ice.net and Tele2 in Norway has meant that Ice.net obtained a market share of 3.20% following the merger, although the sum of the market shares which Ice .net and Tele2 has before the merger is much higher (1.75% + 17.28% = 19.03%). That is, Ice.net lost 15.83% of market share with the merger. One possible explanation for this result may be found in that prior to the merger, Ice.net had focused on Internet mobile services. The merger served to introduce voice services to its product range. Thus, the fact of not being known by consumers prior to the merger as a usual voice service provider could be the cause of the migration of customers to other competitors.
13. Although the index has some limitations – for example, in a market with a large firm and two small firms, the merger between the small firms will increase the concentration index but could really result in a more competitive behavior and the index is not able to reflect this situation (García-Alba, 1994), it has been used in previous studies with similar purposes (Chang & Rosenzweig, 2001; Hoberg & Phillips, 2010; Krishnan, Joshi & Krishnan, 2004).
14. Table 2 does not show the immediate change in the Herfindahl index in the subsequent period of the merger for reasons of space. The information may be requested from the authors.
15. The only increases in the concentration level occur in Greece (from 0.34 to 0.35), Russia (from 0.24 to 0.26) and the UK (from 0.26 to 0.27). They are not, therefore, very significant increases. It implies that concentration level in these markets is maintained from 2000 to 2015 even though the mergers take place.
16. These measures have affected key questions regarding competition such as the portability of numbers, or the recent abolition of roaming tariffs.
17. The only exceptions are Slovenia (the Herfindahl index is reduced by 1.05% before the merger quarterly and by 1.31% after it), the United Kingdom (the Herfindahl index is reduced, respectively, by 0.37% and by 0.38% before and after the merger), The Netherlands, in the case of the merger between T-Mobile and Orange (the Herfindahl index increases before the merger by 0.16% and reduced after merger by -0.20%) and Poland, only in the case of the merger between Plus and Nordisk Polska (the Herfindahl index is reduced by 0.59% for the quarter before the merger and by 0.78% after this). In the case of Macedonia, we have not been able to calculate the post-merger variation in the last quarter of 2015.



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Si no puedes con tu enemigo, únete a él: Análisis de las fusiones en el sector europeo de la telefonía móvil[1]

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If you can't beat them, join them: Analysis of mergers in european mobile telecommunications

"Mobile is a vibrant and evolving industry at the heart of everyday life for billions of people around the world"

Anne Bouverot, director general of GSMA (2011-2015)

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1. INTRODUCCIÓN

El 12 mayo de 2016 la Comisión Europea anunciaba su negativa a la fusión en Reino Unido entre O2 (del grupo Telefónica) y 3 (de Hutchison) con el fin de preservar el nivel de competencia en mercado (El País, 2016). Esta decisión podría crear un precedente en Europa para impedir actividades de fusión a nivel doméstico en la industria de las telecomunicaciones móviles que supongan la reducción de las empresas competidoras de cuatro a tres en un mercado (Expansión, 2016). La estrecha vigilancia que las instituciones europeas observan sobre este sector se debe, entre otros factores, a que esta industria es una de las más prósperas y con mayor incidencia económica y social a nivel mundial. Por ofrecer solo algunas cifras que respalden lo anterior, en 2015 esta industria generó más de un trillón

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RESUMEN DEL ARTÍCULO

Las etapas de madurez en las industrias suelen llevar aparejados procesos de concentración, como una reacción natural a la intensificación de la competencia. Este es el caso del sector de la telefonía móvil, donde una vez alcanzada la madurez, hemos asistido a un número no desdeñable de fusiones domésticas en los últimos años. A pesar de que la literatura existente ha documentado procesos de concentración en otros sectores de mayor tradición, la todavía incipiente historia de las telecomunicaciones móviles ha implicado que son menos numerosos los trabajos que analizan el fenómeno en esta industria. En este estudio se pretende arrojar luz en esta dirección, valorando el potencial de las fusiones domésticas como herramienta competitiva de las operadoras en el largo plazo. Para ello, se han revisado la totalidad de las operaciones de fusión domésticas llevadas a cabo en la industria en 43 países europeos y se han detectado 26 fusiones domésticas entre 2000 y 2015. Este trabajo observa que las operaciones de fusión domésticas han tenido, además de los efectos inmediatos en el poder de mercado de las empresas implicadas, un claro efecto en la evolución de la competencia a largo plazo. Así, se observa que las fusiones ralentizan el incremento de la competencia que ha tenido lugar desde 2000 a 2015 fruto, entre otros factores, de la entrada de nuevos competidores y de los esfuerzos del regulador en esta dirección.

EXECUTIVE SUMMARY

Industry maturity usually involves concentration processes as natural reactions towards competition intensification. This is the case of the mobile telecommunications industry. Domestic mergers have increased during the last years. Although existing literature has analyzed concentration processes in other older industries, the more recent industry of mobile telecommunications has received less attention. This study aims to analyze the role of domestic mergers as a competitive mechanism in the long term. We have reviewed all domestic mergers between mobile operators in 43 European markets from 2000 to 2015. After identifying 26 domestic mergers, this study observes that they not only have immediate effects in the market power of participants, domestic mergers also influence the evolution of rivalry in the long term. We observe that domestic mergers slow down the increase of competition that has taken place from 2000 to 2015 as a consequence of factors such as the entry of new competitors and regulators' intervention.

de dólares a nivel mundial, lo que supuso el 4,2% del producto interior bruto, e influyó directamente en la creación de 17 millones de puestos de trabajo (The Mobile Economy, 2016). Asimismo, su trascendencia en nuestra sociedad queda patente cuando observamos tasas de penetración que superan en la actualidad el 100% en países del entorno europeo, habiéndose visto aumentadas dichas tasas en un 500% en la última década (GSMA, 2016).

Hasta llegar a la situación descrita, propia de una industria madura, el sector de las telecomunicaciones móviles tuvo una primera etapa de lenta introducción en los años 80. Ésta vino motivada especialmente por la diferencia de estándares tecnológicos entre los países, que fueron desarrollando su propia tecnología móvil sin que la industria llegase a despegar. La introducción del estándar GSM en el marco europeo representó uno de los resortes que explican el inicio de una etapa de crecimiento exponencial en la industria. Un mismo estándar tecnológico en una región cada vez más unida a nivel político y económico propició una rápida difusión de la telefonía móvil en Europa hasta llegar a la situación de madurez actual (Gruber, 2005).

El análisis realizado muestra que la tendencia en el sector ha sido la intensificación progresiva de la competencia.

La entrada en la etapa de madurez de la industria móvil europea ha supuesto una ralentización no solo del crecimiento de nuevos suscriptores, sino también de los ingresos por cliente. Esto es así fruto del cada vez más agresivo comportamiento de las operadoras móviles en sus políticas de precios y captación de nuevos clientes (Navío y Solórzano, 2013). Al igual que ha ocurrido en otras industrias maduras, como la banca o la farmacéutica, las empresas de telefonía móvil han reaccionado a la creciente competencia con operaciones de fusiones domésticas para ganar poder de mercado (Andini y Cabral, 2011; Ballarín, Fernández y Canals, 1994). Ello explica el control que sobre estas operaciones llevan a cabo los organismos de defensa de la competencia en Europa y que han llevado a frenar la fusión en el mercado británico. Es importante recalcar que la competencia en la industria de telecomunicaciones móviles, desde el punto de vista del consumidor, tiene lugar a nivel nacional.[4] Por ello, las operaciones de fusión a nivel doméstico cobran especial importancia al suponer un impacto directo sobre la intensidad competitiva percibida por los clientes.[5]

La consecuencia a corto plazo de una fusión doméstica es el incremento en el grado de concentración del mercado y, por tanto, el logro de un mayor poder de mercado de las empresas implicadas. Sin

PALABRAS CLAVE
Fusión doméstica, concentración, rivalidad, telecomunicaciones móviles, Europa.

KEY WORDS
Domestic merger, concentration, competition, mobile telecommunications, Europe.

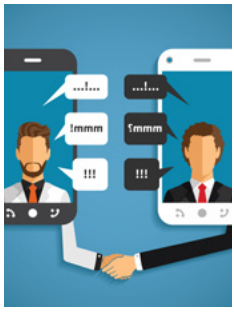
embargo, los efectos en el medio y largo plazo de estas operaciones sobre la evolución de la competencia no han sido analizados con anterioridad en este sector. Por esa razón, el objetivo de este artículo es doble. En primer lugar, se pretende describir el proceso de fusiones domésticas acaecido en la industria de telecomunicaciones móviles europea en el periodo comprendido entre 2000 y 2015. A tal efecto, se confecciona un mapa de fusiones que permite identificar las operaciones de concentración llevadas a cabo en cada mercado europeo y las operadoras involucradas. En segundo lugar, se pretende observar en qué medida estas operaciones de fusión han supuesto una reducción de la presión competitiva en dichos mercados. Para ello, se analiza la tasa de variación del nivel de concentración de los mercados antes y después de realizar una operación de fusión.

El análisis realizado muestra que la tendencia en el sector ha sido la intensificación progresiva de la competencia. Ello puede deberse a la entrada de nuevos competidores que han impulsado los precios a la baja y a la caída de los ingresos en el sector (Expansión, 2015). Como un instrumento para conseguir poder de mercado y consolidar operaciones, las fusiones domésticas se traducen en un incremento inmediato en el nivel de concentración de un mercado. Sin embargo, el análisis propuesto muestra que también tienen consecuencias en el medio y largo plazo. Así, las fusiones han supuesto una ralentización en esa tendencia de incremento progresivo de la competencia.

De este análisis pueden extraerse interesantes implicaciones para gestores privados y públicos. Desde el punto de vista de la gestión de empresas, la evidencia mostrada pone de manifiesto que las operaciones de fusión sirven como instrumento para asentar posiciones en los mercados donde están presentes. Desde el punto de vista del gestor público, se recomienda a los organismos de defensa de la competencia que, a la hora de autorizar este tipo de operaciones, sean capaces de prever que los efectos de las mismas persisten en el largo plazo.

2. FUSIONES EN EL SECTOR DE TELEFONÍA MÓVIL: CONCEPTO Y MOTIVACIÓN

Los procesos de fusión se definen como la combinación de los activos de dos o más empresas que se integran en una sola, dejando de existir como mínimo una de ellas (Guerras y Navas,



2015). Dentro de las fusiones pueden distinguirse tres variantes: la fusión pura, en la que las dos empresas partícipes desaparecen y dan lugar a una nueva entidad; la fusión por absorción, donde una empresa se mantiene y la otra desaparece y la fusión con aportación parcial del activo, que implica que una empresa cede parte de su patrimonio, ya sea a la otra empresa o a una nueva que se crea, pero continúa existiendo.

A la hora de explicar por qué se llevan a cabo fusiones entre empresas, existen varias razones que han sido previamente analizadas. En primer lugar, se considera que las fusiones pueden incrementar la eficiencia económica de una organización gracias a la posible obtención de economías de escala, alcance y/o aprendizaje (Guerras y Navas, 2015).[6] Además, las fusiones pueden servir tanto para obtener nuevos recursos y capacidades pertenecientes a otra empresa como para rentabilizar fondos excedentarios disponibles que superen las necesidades de financiación de la empresa (Grant, 2004). En segundo lugar, las operaciones de fusión se realizan con el fin de satisfacer intereses de los directivos, como reconocimiento social e incremento del poder, entre otros (Manne, 1965; Weston, Chung y Hoag, 1990). Finalmente, la realización de fusiones persigue conseguir poder de mercado. En tal sentido, las fusiones pueden ser la única manera, o la más eficaz, para superar una barrera a la entrada a una industria o país (Navío y Solórzano, 2013).

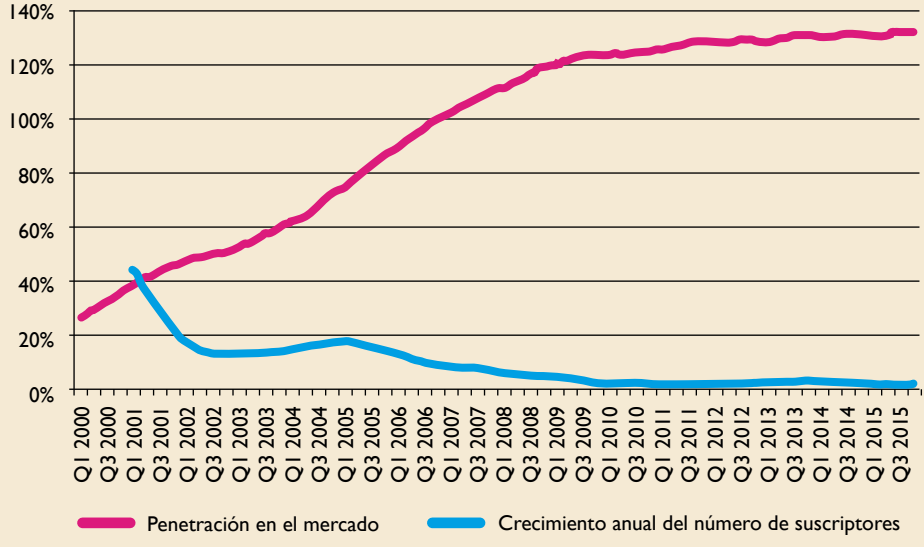
En sintonía con este último argumento, en la medida que esas operaciones se realicen entre competidores directos –nivel horizontal– las fusiones conllevan un aumento del poder de mercado de la empresa resultante y, por lo tanto, una disminución inmediata del nivel de competencia en el sector (Trautwein, 1990). Por lo tanto, la concentración se incrementa y las presiones sobre los precios disminuyen, permitiendo a las empresas conseguir una mayor rentabilidad esperada (Grant, 2004). Sobre la base de esta idea, el crecimiento de la organización a través de fusiones es inmediato, debido a la incorporación instantánea de la capacidad productiva de otra empresa y, en muchos casos, de su cartera de clientes (Guerras y Navas, 2015).

En el sector europeo de las telecomunicaciones móviles, las operaciones de fusión han sido frecuentes en los últimos años y han supuesto una reestructuración de la industria (Li y Whalley, 2002; Trillas, 2002). Estas operaciones son consecuencia de la

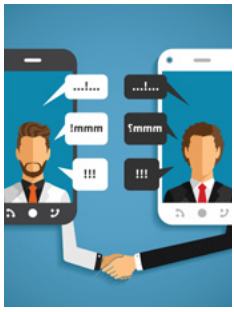
evolución en la competencia de este sector. Coincidiendo con el proceso de liberalización europeo de las telecomunicaciones a principios de los noventa, la telefonía móvil comenzó a penetrar rápidamente permitiendo a las operadoras móviles crecer de forma constante durante dos décadas (Curwen y Whalley, 2008).

La mayor parte de mercados han ido asistiendo paulatinamente a un incremento de los niveles de competencia producto del número creciente de operadoras que se han ido incorporando en cada país gracias al lanzamiento de nuevas licencias por parte de los gobiernos europeos (Gruber, 2005). A este hecho habría que añadir que en los últimos diez años se ha observado una progresiva ralentización del crecimiento de subscriptores en Europa, fruto de las altas tasas de penetración ya alcanzadas. Como puede observarse en la **Figura 1**, la tasa de penetración del número de conexiones móviles[7] superaba ya el 100% a principios de 2007, llegando al 132% a finales de 2015. Consecuentemente, el crecimiento anual de suscriptores ha ido disminuyendo, siendo solo el 1,96% en el último trimestre de 2015.

Figura 1. **Evolución de la tasa de penetración y crecimiento de nuevos suscriptores en Europa (2000-2015)**



Fuente: GSMA Intelligence (2016)



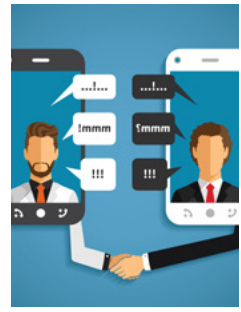
Como reacción a la situación descrita, las operadoras han venido realizando dos tipos de operaciones a nivel corporativo. En primer lugar, las que tienen que ver con operaciones de internacionalización a través de la adquisición de operadoras en otros mercados, que han dado lugar al surgimiento de grandes multinacionales dentro de la industria como, por ejemplo, Telefónica, Vodafone, América Móvil o Hutchison Whampooa. Estas empresas han crecido entrando en nuevos mercados, bien a través de la instalación de nuevas empresas, bien adquiriendo operadoras ya existentes que han integrado en su estructura.[8] Frente a estas operaciones corporativas inter-país, nos encontramos en segundo lugar con otra respuesta a la madurez de los mercados a través del crecimiento de movimientos corporativos intra-país. Es decir, operaciones de fusión de carácter doméstico entre operadoras del mismo mercado. Como se ha comentado en la introducción, en este artículo ponemos el foco de atención en estas últimas.

3. MAPA DE FUSIONES EN EL SECTOR EUROPEO DE TELEFONÍA MÓVIL

Para confeccionar un esquema de las principales operaciones domésticas de fusión que han tenido lugar en un ámbito europeo y que, posteriormente, nos servirá para determinar cómo han influido en la rivalidad de la industria, se ha tomado como fuente de información la base de datos GSMA Intelligence (www.gsmaintelligence.com). Esta base constituye la fuente de datos más completa de la industria a nivel mundial con información a nivel empresa, mercado y región. Recordamos en este punto que nuestro estudio se circunscribe a un ámbito europeo, comprendiendo un total de 43 países, con datos trimestrales de 2000 a 2015. Este periodo resulta particularmente idóneo en la medida en que tomamos como referencia el hecho de que las fusiones como estrategia de crecimiento tienen lugar conforme la industria se consolida. Así pues, antes del 2000 el sector todavía se encontraba inmerso en una incipiente etapa de crecimiento, como pone de manifiesto el hecho de que las tasas de penetración media de la telefonía móvil en los países europeos apenas alcanzaba el 30%.

La **Tabla 1** presenta de manera pormenorizada las operaciones de fusión[9] que han tenido lugar en 17 mercados europeos[10] durante el periodo 2000-2015. Dentro de cada mercado, se ha representado

la presencia de las operadoras que compiten en el mismo a través de rectángulos. El largo de esos rectángulos se corresponde con el periodo de tiempo para el que las operadoras están presentes. La unión de dos rectángulos en uno solo indica la existencia de una fusión. El color indica el tipo de participación de las empresas en operaciones de fusión, ya sea pura o por absorción (véase leyenda). Por ejemplo, Tele.ring en Austria entra en el mercado en el tercer trimestre del año 2000 y desaparece en el segundo trimestre de 2006 al ser absorbida por T-Mobile. En el caso de una fusión pura, como la que se registra en el mercado británico, vemos que Deustche Telekom y Orange existían en el primer trimestre del periodo de observación y se fusionan en el segundo trimestre de 2010 bajo el nombre de EE (*Everything Everywhere*). Como puede observarse, el tipo de fusión que se realiza con más frecuencia es la fusión por absorción (23 de las 26 operaciones identificadas), produciéndose fusiones puras únicamente en los mercados ruso y británico.

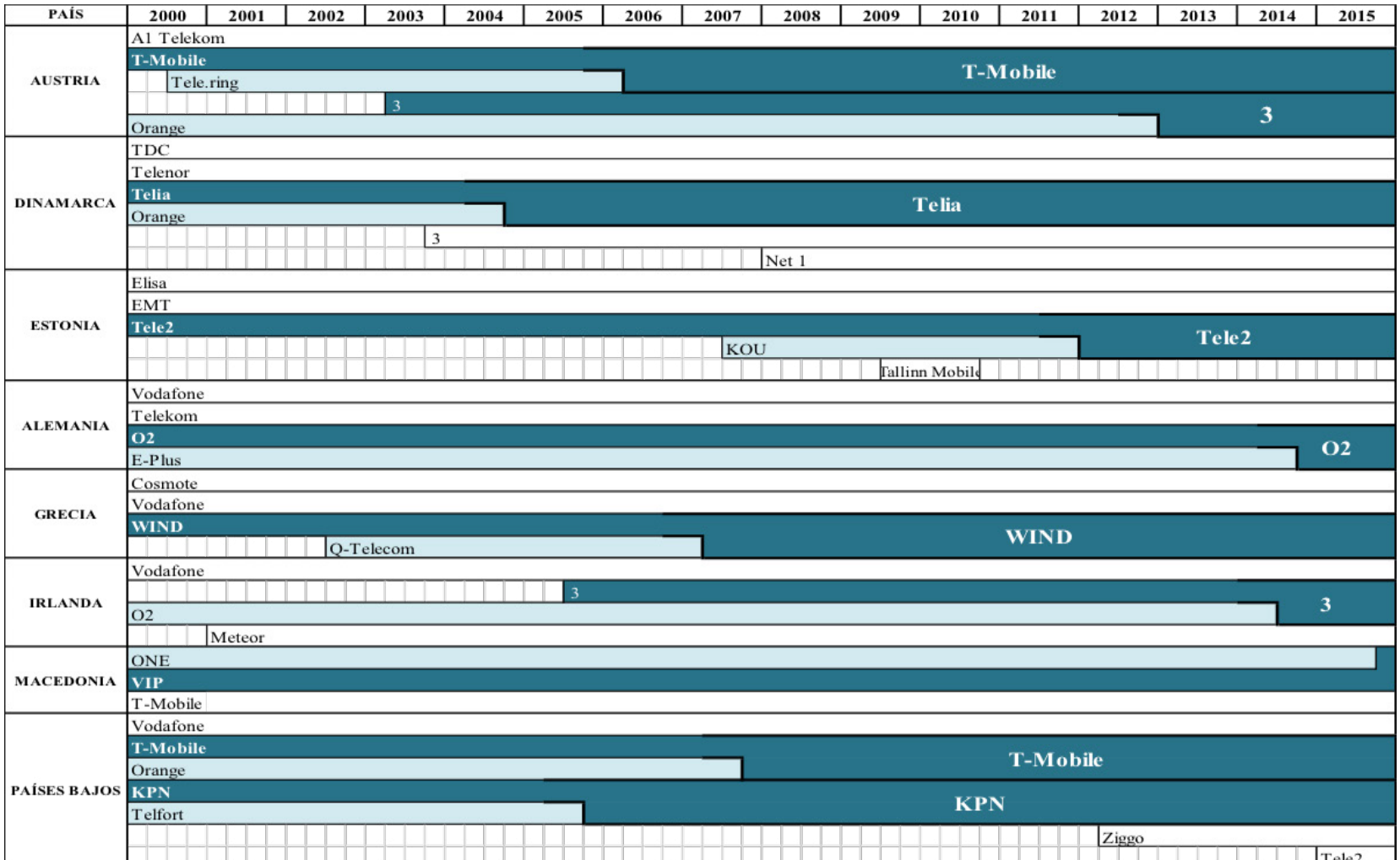


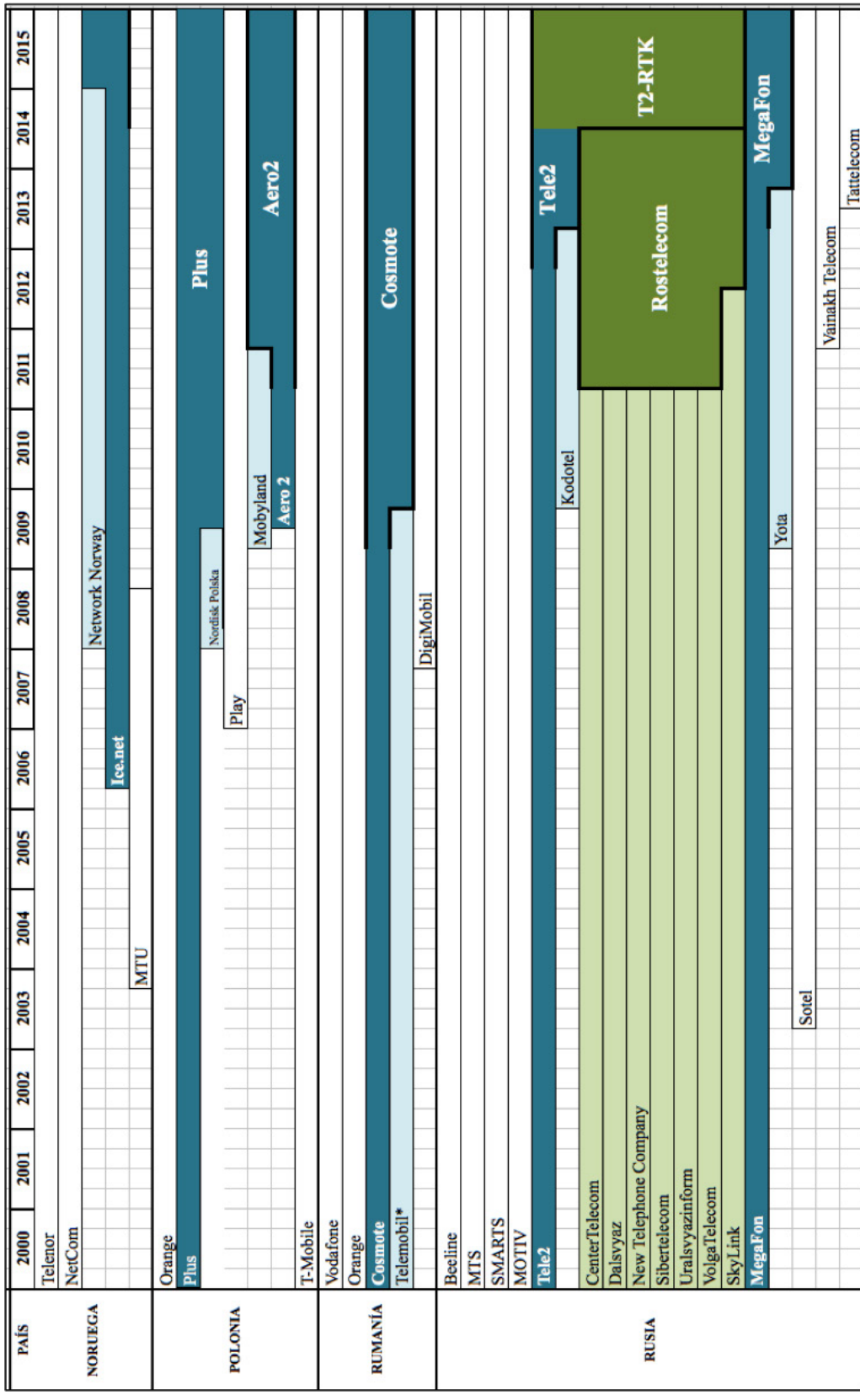
También aparecen en la **Tabla 1** las operadoras que no han participado en operaciones de fusión, lo que permite observar fácilmente el número de operadoras existentes en cada momento en cada mercado. Por ejemplo, en el primer trimestre de 2005 en Austria existían cinco empresas pero tras las dos fusiones por absorción de 2006 y 2013 el mercado austriaco llega a 2015 con tres operadoras.

Several mergers have significantly changed the number of competitors. For instance, in Austria and in The Netherlands the number of rivals changed from five to three after two mergers. The Macedonian market became a duopoly after one merger. In Russia the current Tele2-RTK covers 11 former operators. As a result of these changes, the market power of the companies resulting from the merger has immediately increased. Besides this immediate effect on the market power of the merged firm, in this study we aim to know to what extent these operations have had an impact on competitive intensity in the long term.

	Empresa absorbida
	Empresa absorbente en la fusión por absorción
	Empresa resultante de una fusión pura
	Empresa que particia en una fusión pura

Tabla 1. **Mapa de las fusiones en el sector europeo de telecomunicaciones móviles (2000-2015)**




PAÍS
2000
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2002
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2004
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2006
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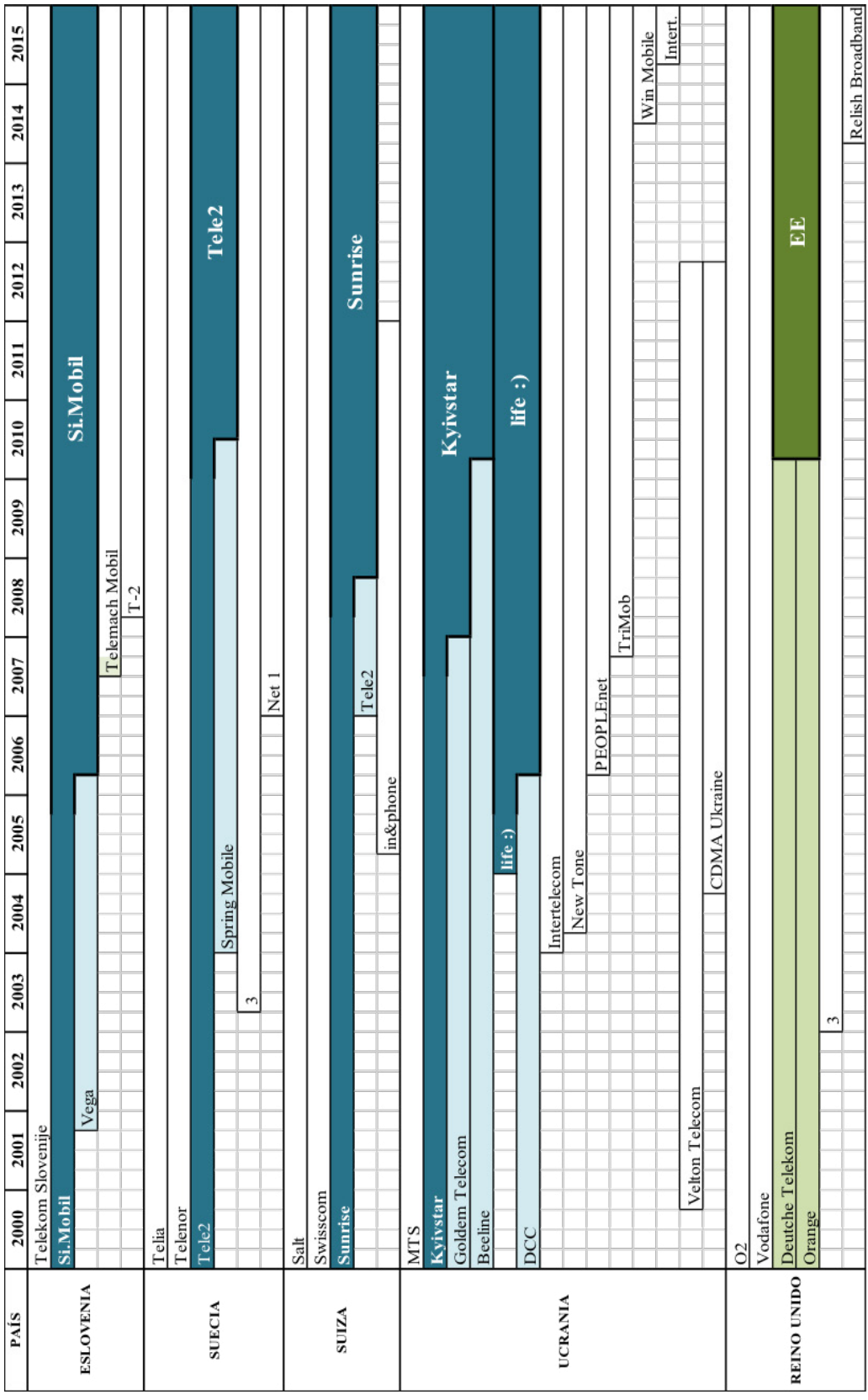
2008
2009
2010
2011
2012
2013
2014
2015
NORUEGA
Telenor
NetCom
Network Norway
Ice.net
MTU
POLONIA
Orange
Plus
Nordisk Polska
Play
Mobyland
Aero2
Aero 2
T-Mobile
RUMANÍA
Vodafone
Orange
Cosmote
Telemobil*
DigiMobil
RUSIA
Beeline
MTS
SMARTS
MOTIV
Tele2
Kodotel
CenterTelecom
Dalsvyaz
New Telephone Company
Sibertelecom
Uralsvyazinform
VolgaTelecom
SkyLink
MegaFon
Yota
Sotel
Vainakh Telecom
Tattelecom


PAÍS
2000
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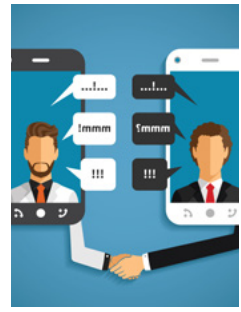
ESLOVENIA
Telekom Slovenije
Si.Mobil
Vega
Si.Mobil
Telemach Mobil
T-2
SUECIA
Telia
Telenor
Tele2
Spring Mobile
3
Tele2
Net 1
SUIZA
Salt
Swisscom
Sunrise
Tele2
in&phone
Sunrise
UCRANIA
MTS
Kyivstar
Goldem Telecom
Beeline
DCC
life :)
Intertelecom
New Tone
PEOPLEnet
TriMob
Velton Telecom
CDMA Ukraine
Kyivstar
life :)
Win Mobile
Intert.
REINO UNIDO
O2
Vodafone
Deutche Telekom
Orange
3
EE
Relish Broadband

4. REPERCUSIÓN DE LAS FUSIONES EN EL GRADO DE CONCENTRACIÓN DE LA INDUSTRIA

Con el propósito de analizar con cierto detalle en qué medida estos procesos de fusión han reducido la competencia en la industria, la Tabla 2 presenta algunos datos que nos guiarán en la explicación de la evolución de la rivalidad en los mercados europeos en los que se han producido estas operaciones. Dicha tabla muestra, en primer lugar, para cada uno de los mercados nacionales, la cuota de mercado de las empresas fusionadas (identificadas previamente en la Tabla 1) el trimestre anterior a la fusión y la cuota de mercado de la empresa resultante el trimestre posterior a la misma. Dicha operación ha supuesto aglutinar en una misma entidad las anteriores cuotas de mercado de las empresas partícipes, sin que se observe una migración significativa de los consumidores hacia otros competidores como consecuencia de la incertidumbre que pueda provocar este tipo de operaciones en el mercado[11]. La única excepción se produce en Noruega, cuando Ice.net adquiere Tele2 el último trimestre de 2014 y pierde con ello un 15% de cuota de mercado en beneficio del resto de operadores noruegos.[12]



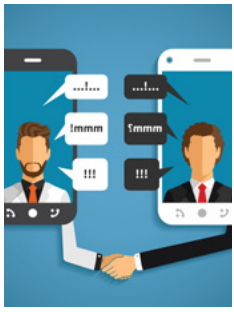
A la hora de analizar el impacto de estas fusiones en el grado de rivalidad de la industria, vamos a abordar el análisis tomando como indicador de referencia el índice Herfindahl (H)[13] , cuyo cálculo es el que sigue:

$$H = \sum_{i=1}^{N} s_i^2$$

siendo s_i la cuota de mercado de la empresa i en el mercado y N el número de empresas existentes en ese mercado. Este índice sirve para determinar el grado de concentración que existe en una industria. El valor del índice puede ir desde 0 (cuando existen muchas empresas con cuotas de mercado muy pequeñas, esto es, una situación cercana a competencia perfecta) a 1 (cuando una única empresa atesoraría el 100% de la cuota de mercado, esto es, monopolio). El índice se incrementa, por tanto, con el grado de concentración que existe en la industria. Es interesante no ya sólo por el valor que toma, sino por la comparación de su valor entre periodos, mercados e industrias de cara a determinar en cuál de ellos existe un mayor grado de concentración. Dada la forma en que se calcula, cuando en un mercado se produce una fusión el efecto inmediato sobre el índice Herfindahl es su incremento en el periodo

inmediatamente posterior a la fusión (en la medida que se reduce el número de empresas existentes, N, y se incrementa la cuota de mercado de una de ellas, s_i).[14]

Volviendo a la **Tabla 2**, las siguientes columnas a las cuotas de mercado de las empresas antes y después de la fusión muestran el índice Herfindahl en cada uno de los mercados al principio y final del periodo analizado. Podemos observar que el grado de concentración en todos los mercados en los que se han producido fusiones ha disminuido o mantenido desde 2000 a 2015[15], en consonancia con lo que ocurre con los otros mercados europeos en los que no han tenido todavía lugar estas operaciones. Es decir, pese a las fusiones, el grado de rivalidad en los mercados ha aumentado. Y es que en ese periodo de dieciséis años la industria se ha vuelto más competitiva. Esto es así debido, entre otros factores, a la entrada de nuevas empresas en los mercados y al esfuerzo del regulador por defender la posición de los consumidores con medidas que han tratado de limitar el poder de mercado de las grandes operadoras en beneficio del resto de jugadores.[16]



¿Quiere decir esto que las fusiones no han tenido ningún efecto en el grado de concentración de la industria más allá del meramente inmediato? Con el fin de responder a esta pregunta, la **Tabla 2** ofrece un dato adicional que revela que estas operaciones han sido capaces de ralentizar la inercia de la industria hacia una mayor competencia. Así, se ha calculado la variación en el índice de concentración de la industria para cada uno de los trimestres desde 2000 a 2015 con respecto al trimestre anterior. A continuación, para cada uno de los mercados en los que se ha producido una fusión, se ha calculado la variación promedio en el índice Herfindahl para los trimestres anteriores a la fusión desde 2000 y para los trimestres posteriores a la fusión hasta 2015. Dicho promedio es el que aparece en las dos últimas columnas de la **Tabla 2**. Un valor negativo indica que, en media, el grado de concentración en la industria se ha reducido trimestre a trimestre. Un valor positivo indica, por el contrario, que el poder de mercado de las operadoras se ha incrementado, en media, trimestre a trimestre. Tal y como puede observarse en la **Tabla 2**, tanto antes como después de la fusión, la gran mayoría de los valores tienen un signo negativo. Es decir, que la tónica general ha sido la reducción en el índice de concentración en todos los mercados tanto antes como después de la fusión (en concordancia con la tendencia hacia un mayor grado de competencia en los mercados descrita anteriormente).

Tabla 2. **Cuota de mercado y evolución de la concentración antes y después de la fusión**

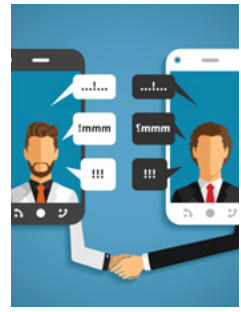
			CUOTA DE MERCADO		NIVEL DE CONCENTRACIÓN (HERFINDAHL)		VARIACIÓN TRIMESTRAL EN EL NIVEL DE CONCENTRACIÓN	
País	Empresas partícipes	Año-Trimestre de la Fusión	Trimestre anterior a la fusión	Trimestre posterior a la fusión	2000	2015	2000 - Fusión	Fusión - 2015
AUSTRIA	T- Mobile	2006-2	25.16%	35.41%	0.40	0.34	-1.61%	0.15%
	Tele.Ring		11.90%					
	3 (CK Hutchison)	2013-1	11.06%	25.28%			-0.57%	-0.31%
	Orange		17.28%					
DINAMARCA	Telia (TeliaSonera)	2004-3	7.83%	20.41%	0.32	0.24	-0.43%	-0.40%
	Orange		9.56%					
ESTONIA	Tele2	2012-1	27.70%	27.43%	0.47	0.34	-0.65%	-0.07%
	KOU (Televork)		1.09%					
ALEMANIA	O2 (Telefónica)	2014-4	17.19%	38.68%	0.35	0.34	-0.47%	0.13%
	E-Plus (KPN)		22.21%					
GRECIA	WIND (Largo)	2007-2	19.52%	28.24%	0.34	0.35	-0.43%	0.08%
	Q Telecom		7.51%					
IRLANDA	3 (CK Hutchison)	2014-3	10.80%	36.98%	0.53	0.35	-1.00%	-0.19%
	O2 (Telefónica)		26.39%					
MACEDONIA	VIP (Telekom Austria)	2015-4	26.16%	48.62%	1.00	0.50	-1.86%	-
	ONE		23.48%					
PAÍSES BAJOS	KPN	2005-4	38.95%	49.74%	0.35	0.35	-1.66%	0.14%
	Telfort		11.84%					
	T- Mobile	2007-4	15.00%	27.97%			0.16%	-0.20%
			12.07%					
NORUEGA	Ice.net	2014-4	1.75%	3.20%	0.53	0.39	-0.80%	4.71%
	Tele2		17.28%					
POLONIA	Aero2	2011-4	0.32%	1.18%	0.37	0.24	-0.74%	-0.48%
	Mobyland		0.38%					
	Plus	2009-3	32.56%	31.76%			-0.59%	-0.78%
	Nordisk Polska		0.01%					
RUMANÍA	Cosmote (OTE)	2009-4	21.11%	23.90%	0.48	0.29	-1.24%	-0.15%
	Zapp		1.47%					

Empresa absorbida
Empresa absorbente en la fusión por absorción
Empresa resultante de una fusión pura
Empresa que participa en una fusión pura

RUSIA	MegaFon	2013-4	27.23%	29.00%	0.24	0.26	0.16%	0.27%
	Yota (Scartel)		0.29%					
	Rostelecom	2011-2		5.62%			0.06%	0.40%
	Centertelecom		0.10%					
	Dalsvyaz		0.03%					
	New Telephone-Company		0.65%					
	Sibirtelecom		2.52%					
	Uralsvyazinform		2.58%					
	Volga Telecom		1.89%					
	Rostelecom	2012-3	5.62%	5.91%			0.05%	0.59%
	SkyLink (Svyazinvest)		0.59%					
	Tele2	2013-3	9.52%	10.18%			0.03%	0.98%
	Kodotel		0.06%					
	T2-RTK	2014-3		14.76%			0.04%	1.02%
	Tele2		10.18%					
	Rostelecom		6.05%					
ESLOVENIA	Si.Mobil	2006-2	20.43%	24.13%	0.81	0.39	-1.05%	-1.31%
	Vega		4.68%					
SUECIA	Tele2	2010-3	27.71%	27.69%	0.40	0.28	-0.56%	-0.53%
	Spring Mobil		0.18%					
SUIZA	Sunrise	2008-4	18.80%	20.62%	0.57	0.44	-0.73%	-0.10%
	Tele2		0.80%					
UCRANIA	Lifecell (Turkcell)	2006-2	2.53%	11.79%	0.49	0.31	-0.79%	-0.59%
	DCC		0.20%					
	Kyivstar (VimpelCom)	2008-1	43.19%	42.09%			-2.06%	-0.27%
	Goldem Telecom		0.09%					
	Kyivstar (VimpelCom)	2010-2	40.40%	45.50%			-1.20%	-0.37%
	Beeline (VimpelCom)		3.52%					
REINO UNIDO	EE	2010-2		37.06%	0.26	0.27	-0.37%	-0.38%
	T-Mobile		22%					
			21%					

	Empresa absorbida
	Empresa absorbente en la fusión por absorción
	Empresa resultante de una fusión pura
	Empresa que participa en una fusión pura

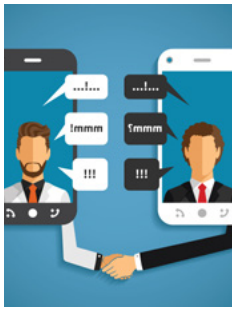
Sin embargo, y aquí el dato relevante, la reducción media del grado de concentración tiende a ser menor en el periodo posterior a la fusión que en el anterior. En la **Tabla 2** se han sombreado aquellos casos en los que la reducción media del índice de concentración es menor para el periodo posterior a la fusión que para el periodo anterior a la misma. De las 26 operaciones identificadas en la **Tabla 2**, en 21 casos la reducción trimestral en el índice Herfindahl en el periodo posterior a la fusión es menor que en el periodo anterior.[17] Incluso en 10 de esos 21 casos la variación en el índice Herfindahl muestra una tendencia positiva en el segundo periodo, mostrando que las operaciones de fusión han servido para incrementar el poder de mercado de las empresas implicadas. Aún cuando la industria se mueve hacia un mayor grado de competencia, las operaciones de fusión que han tenido lugar han conseguido ralentizar ese proceso no ya solo en el periodo inmediatamente posterior a la fusión. Estas operaciones, por lo tanto, tienen un impacto visible en la estructura de la industria en un plazo de tiempo más amplio.



5. CONCLUSIONES

Este trabajo ha tenido como pretensión fundamental comprobar en qué medida las operaciones de fusión contribuyen a que las empresas consoliden su poder de mercado, razón que se ha esgrimido tradicionalmente para justificar la realización de este tipo de operaciones. Para ello, nuestro análisis se ha centrado no solo en las implicaciones de las fusiones en los periodos inmediatamente posteriores a las mismas, sino también en los niveles de competencia a largo plazo.

Las fusiones domésticas son un fenómeno habitual en industrias que han alcanzado la madurez y éste es precisamente el caso de la industria de las telecomunicaciones móviles a nivel europeo, donde las tasas de penetración superaron el 100% hace ya algunos años. Los resultados de nuestro trabajo muestran que la rivalidad ha crecido en los últimos años dada la entrada de nuevos competidores y la reducción del desequilibrio en el poder de mercado de las empresas existentes. Pese a ello se observa que las operaciones de fusión, más allá del incremento inmediato del poder de mercado de la empresa implicada en la operación, tienen efectos en el grado de competencia a medio y largo plazo. En tal sentido, los datos analizados muestran que tras la fusión que tiene lugar en un mercado el

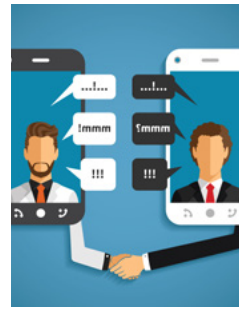


ritmo de crecimiento de la competencia se ralentiza. Aunque este hecho también puede venir explicado por la inclusión de nuevos competidores en los mercados con posterioridad a la fusión (como en Dinamarca o Países Bajos), incluso en mercados donde el número de competidores se ha mantenido se observa dicha ralentización.

El estudio de las fusiones en la industria de las telecomunicaciones móviles en el ámbito europeo tiene implicaciones significativas para la gestión de las propias operadoras. Este tipo de operaciones se revela como una herramienta competitiva que está permitiendo a las empresas que hacen uso de ellas no solo recuperar posiciones en los mercados en los que participan, sino también atenuar la competencia a largo plazo en los mismos. Como resultado de lo anterior, es importante hacer una lectura de las operaciones de fusión en la industria desde una perspectiva de política de la competencia. Nuestros resultados ofrecen evidencia de que estas operaciones presentan implicaciones notables en los niveles de presión competitiva en el medio y largo plazo. Por este motivo, los organismos de defensa de la competencia deben vigilar con especial cautela este tipo de operaciones y habilitar los mecanismos necesarios para equilibrar la competencia en los mercados afectados. Adicionalmente, el regulador no debería hacer un análisis de las fusiones acaecidas contemplando únicamente las implicaciones para el mercado donde se producen. El hecho de que muchos de los jugadores en la industria estén presentes en múltiples mercados simultáneamente puede implicar que los movimientos en un mercado tengan consecuencias en algunos o en todos los mercados donde las operadoras están presentes. Esta es la idea que se encuentra detrás de la competencia multimercado y que claramente es una característica de las telecomunicaciones móviles.

Pese a que este trabajo contribuye a identificar los procesos domésticos de fusión que se han llevado a cabo a nivel europeo y su impacto en el medio y largo plazo sobre la evolución de la competencia, algunas futuras líneas de investigación se abren a la vista de algunas limitaciones. En primer lugar, se ha utilizado para aproximar el nivel de rivalidad en los mercados el índice de Herfindahl. De cara a analizar con más detalle los efectos de las fusiones en el medio y largo plazo sería interesante atender no sólo a medidas basadas en cuota de mercado, sino a otras medidas complementarias como la evolución en los precios cargados a los consumidores y

en la rentabilidad obtenida por las empresas partícipes. En segundo lugar, se han analizado las operaciones domésticas de fusión, pero no aquellas que tienen carácter inter-país y que han sido numerosas en la última década. Sus efectos sobre la competencia no son inmediatos –a diferencia de las operaciones domésticas- pero sería interesante analizar su ulterior efecto sobre la competencia en cada mercado.



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NOTAS

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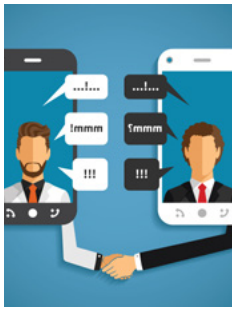
2. El orden de los autores es alfabético
3. Autora de contacto: Departamento de Dirección y Organización de Empresas; Facultad de Economía y Empresa (Campus Paraíso); Universidad de Zaragoza; Gran Vía 2; 50005, Zaragoza; Spain
4. Los consumidores solo pueden elegir a las operadoras que se encuentran en su propio país, no van a elegir a una empresa de un mercado nacional distinto al de su país de origen. Existen otros países fuera del marco europeo, como India, Estados Unidos o Brasil donde la competencia se produce incluso a nivel regional, con diferentes operadoras en diferentes regiones del mismo país.
5. A diferencia de las fusiones inter-país que, desde el punto de vista del consumidor, no modifican el número de empresas entre las que tienen que elegir en el mercado nacional de referencia.
6. El artículo de Expansión (2015) mencionado con anterioridad justifica las recientes operaciones de fusiones domésticas que han tenido lugar en países europeos en la necesidad de reducir los costes conforme se están desplomando los ingresos. Esta caída en los ingresos se ha debido principalmente a la bajada de los precios, especialmente por la aparición de nuevos competidores de bajo coste y el abandono de los consumidores de los servicios tradicionales de voz y mensajería, pilares importantes en la estructura tradicional de ingresos de las operadoras.
7. La tasa de penetración se ha calculado como el número total de conexiones móviles al final de cada periodo sobre la población total del mercado. La tasa de penetración puede ser superior al 100% como consecuencia de que una misma persona física tenga dos o más conexiones móviles, así como por la existencia de conexiones móviles asociadas a personas jurídicas (como empresas).
8. En el caso de España, por el especial interés que puede tener para los lectores de Universia Business Review, cabe destacar que las únicas operaciones de fusiones y adquisiciones que se han producido hasta 2015 tienen carácter inter-país. En 1999 el grupo inglés Vodafone adquirió el control de Airtel (segundo entrante en el mercado español, hasta entonces en propiedad de inversores extranjeros y nacionales, principalmente del sector bancario). El cambio de nombre a Vodafone tuvo lugar en 2001. En 2006 France Telecom adquirió Amena (tercer entrante hasta entonces propiedad de Retevisión), con lo que el grupo francés incorporó la empresa española a su cartera de negocios internacional. Ese mismo año se produce el cambio de nombre de Amena a Orange. No se han producido operaciones de fusión a nivel doméstico, de forma que en el mercado español se ha mantenido en cuatro el número de operadoras móviles (tras la entrada en 2006 de Yoigo, entonces propiedad del grupo sueco Telia). Cabe mencionar que, recientemente, en junio de 2016, la propiedad de Yoigo ha pasado a MásMóvil, grupo internacional de origen español especializado en servicios móviles virtuales (El País, 2016).
9. Dado que la base ofrece datos sobre el número de suscriptores por operador, se han identificado estas operaciones de fusión cuando en el mismo trimestre desaparece una operadora y se produce un consecuente incremento de subscriptores en otra operadora (fusión por absorción) o han desaparecido dos operadoras y sus suscriptores se han transferido a una nueva operadora (fusión pura). Una vez identificadas estas operaciones en la base GSMA, se ha realizado una búsqueda de información en publicaciones especializadas en la industria y en los propios informes corporativos de las operadoras, para comprobar que estas opera-



ciones pueden ser caracterizadas como fusiones y no se trata, por ejemplo, del abandono del mercado de una operadora con la siguiente positiva repercusión en otro competidor del mercado.

10. Aunque el estudio comprende la revisión de las operaciones realizadas en 43 países, la Tabla 1 recoge únicamente aquellos 17 países en los que se han llevado a cabo operaciones de fusión. Por tanto, han sido revisados otros países que no aparecen en la tabla como Albania, Andorra, Bielorrusia, Bélgica, Bosnia and Herzegovina, Bulgaria, Croacia, República Checa, Finlandia, Francia, Hungría, Islandia, Italia, Liechtenstein, Letonia, Lituania, Luxemburgo, Malta, Moldavia, Mónaco, Montenegro, Portugal, Serbia, San Marino, Eslovaquia y España.

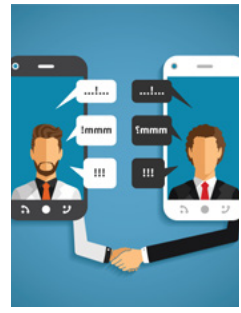
11. A modo de ejemplo, la fusión entre O2 y E-Plus en Alemania ha supuesto que O2 cuente, tras la misma, con una cuota de mercado de 38,68%, cifra muy similar a la que obtenemos si sumamos las cuotas de mercado que tenían O2 y E-Plus antes de la fusión (17,19% + 22,21% = 37,4%).

12. En este caso, la fusión entre Ice.net y Tele2 en Noruega ha supuesto que Ice.net obtenga una cuota de mercado tras la fusión de 3,20%, a pesar de que la suma de las cuotas de mercado con las que contaban Ice.net y Tele2 antes de la fusión es muy superior (1,75% + 17,28% = 19,03%). Es decir, Ice.net ha perdido con la fusión un 15,83% de cuota de mercado. Una posible explicación a este resultado puede encontrarse en que, con anterioridad a la fusión, Ice.net se había centrado en servicios de Internet en el móvil. La fusión le sirvió para introducir los servicios de voz en su gama de productos. Así, el hecho de no ser conocido por los consumidores con anterioridad a la fusión como proveedor habitual de servicios de voz pudo ser la causa de la migración de clientes hacia otros competidores

13. Pese a que el índice tiene algunas limitaciones – p.ej., en un mercado con una empresa grande y dos pequeñas la fusión entre empresas pequeñas incrementaría el índice de concentración aunque pudiese derivar en realidad en un comportamiento más competitivo, situación que el índice por sí solo no refleja (García-Alba, 1994)- ha sido utilizado en estudios anteriores con objetivos similares (Chang y Rosenzweig, 2001; Krishnan, Joshi y Krishnan, 2004; Hoberg y Phillips, 2010).

14. En la Tabla 2 no se muestra el cambio inmediato en el índice Herfindahl en el momento inmediatamente posterior a la fusión por motivos de espacio. La información puede solicitarse a los autores.

15. Los únicos incrementos en el nivel de concentración tienen lugar en Grecia (de 0,34 a 0,35), Rusia (de 0,24 a 0,26) y Reino Unido (de 0,26 a 0,27). Son, por tanto, incrementos muy poco significativos que indican unos guarismos similares en el nivel de concentración en 2000 y 2015 pese a las fusiones que tienen lugar.

16. Estas medidas han afectado a cuestiones clave para competir como la portabilidad numérica, o la reciente supresión de las tarifas roaming.

17. Las únicas excepciones son Eslovenia (el índice de Herfindahl se reduce en un 1,05% trimestral antes de la fusión y en un 1,31% tras la misma), Reino Unido (el índice Herfindahl se reduce, respectivamente, en un 0,37% y 0,38 antes y después de la fusión), Países Bajos, en el caso de la fusión entre T-Mobile y Orange (el índice de Herfindahl aumenta antes de la fusión en un 0,16% y se reduce después de la fusión en un -0,20%) y Polonia, únicamente en el caso de la fusión entre Plus y Nordisk Polska (el índice Herfindahl se reduce en un 0,59% trimestral antes de la fusión y en un 0,78% tras esta). Para Macedonia no se ha podido calcular la variación posterior a la fusión al tener ésta lugar en el último trimestre de 2015.