

Ecosistema de Datos y la Competitividad



COORDINADORES

**JOSÉ SÁNCHEZ-GUTIÉRREZ
PAOLA IRENE MAYORGA-SALAMANCA**

Distribución RIICO 2020-Guadalajara, noviembre 2020
Red Internacional de Investigadores en Competitividad
Universidad de Guadalajara
Editado por: Sánchez-Gutiérrez José y
Mayorga-Salamanca Paola Irene

ISBN: 978-607-96203-0-9



INTRODUCCIÓN

Una de las consideraciones importantes que se han originado en este año 2020, es la presentación de una pandemia de covid-19, la cual ha originado que las organizaciones y todas las personas hayan tenido que buscar nuevas transformaciones en la forma de hacer las cosas, desde la impartición de clases, la forma de vender al público por medio de plataformas virtuales, por lo que el mundo se encuentra en un proceso de dirupción, lo cual lo cual propicia que la innovación y la creatividad sean una fuente primordial en la vida de todos, por la problemática que ha dejado esta pandemia, para lo cual, varios capítulos abordarán dicho tema por la importancia que reviste.

En este libro se presentan diversas aportaciones de diversos autores sobre la competitividad global, para ello, se inicia con un estudio del cambio organizacional en los comercios de Guadalajara, el estudio de los ecosistemas de datos agrícolas dentro de la horticultura de México, la competitividad de los negocios inclusivos, situación que refuerza la importancia de la eliminación de la exclusión; otros estudios realizan investigación sobre los impactos de la competitividad en la industria de la confección del vestido en México, por otra parte se realiza un estudio del aprendizaje organizacional y el impacto de la satisfacción en el turista michoacano, también se analiza la competitividad de las empresas cerveceras artesanales de México, además estudios e impactos del marketing digital en las pymes por el paradigma del COVID-19, así también se analizan las políticas de ciencia y tecnología en dentro de la 4T, el programa de pueblos mágicos y la influencia en la competitividad de Huachinango Puebla, finalmente se hace un análisis del clúster europeo hacia el clúster de turismo de salud en Tijuana, así como un análisis del clima laboral en una manufacturera automotriz de Piedras Negras.

Dentro de otro de los temas vitales es el de la innovación tecnológica y los datos, para ello, se empieza con el estudio de la compra de tecnología y la producción sustentable en empresas de México, después se analiza el sistema de evaluación LIFO para la gestión de talentos en las empresas, seguido del estudio de la competitividad en ciudades inteligentes, el uso de aplicaciones móviles en el transporte público en nuestro país, la creación de pymes de base tecnológica sustentada primordialmente en la innovación de productos, así como, la innovación tecnológica en el sector dermatológico. Dentro de este tema primordial también se analiza la acreditación de laboratorios de accesorios para baño y cocina como ventaja competitiva, la mejora de productividad en la industria del vestido en Tehuacán por medio del Lean Manufacturing, la situación competitiva de la industria cervecera mexicana por el período 2013-2018, un estudio acerca de los impactos del COVID-19 en la economía mundial, por otro lado, se estudia el modelo de calidad de voz como estrategia competitiva centrada en las personas, la influencia de los aspectos productivos en la competitividad de la pyme manufacturera de

Aguascalientes, análisis econométrico de la inversión extranjera directa en México y economías del APEC durante el periodo 1990-2019, el estudio del clúster en la fabricación de guitarras en municipio de Paracho, la ventaja competitiva por medio de la gestión ambiental, impactos de la competitividad de los productos agrícolas de México para América del Norte. En otro contexto, se realizan estudios sobre el abatimiento de la pobreza y la competitividad en la agroindustria latinoamericana, la reestructuración industrial y los efectos en la productividad del sector agrícola de Guanajuato, las TICIs y sus impactos en la competitividad de las pymes exportadoras del país, así como los modelos de excelencia respecto a los indicadores de gestión de clúster, finalmente, se integran los trabajos de innovación y competitividad en el sector alimentario bajo condiciones de COVID-19, los factores para toma de decisión de compra en tiendas de conveniencia de Armería, la voz del consumidor como valor agregado en la productividad, y la problemática de la apicultura y su impacto en la competitividad en Altamirano Chiapas.

En relación con uno de los temas importantes sobre la educación, gestión de conocimiento y creación de valor, se inicia con una investigación respecto a la representación social de alumnos de la escuela superior de turismo del IPN, enseguida se realiza un modelo de planeación estratégica para lograr competitividad en las pymes del sector manufacturero en el sector de telecomunicaciones, se estudian las causas de los fracasos en las empresas familiares de Monclova, por otro lado se observn los factores de influencia de percepción de los estudiantes universitarios en la construcción de paz en el sur de Colombia, la formación para la investigación buscando la creación del conocimiento, la propuesta de evaluación, diseño y equipamiento en los laboratorios de cómputo en secundaria para la asignatura de informática, la gestión del conocimiento y estilos de liderazgo dentro de una cultura competitiva en empresas rurales. En otro orden de ideas, se estudian los impactos de los proyectos de física en las relaciones interpersonales de estudiantes de bachillerato, la identificación de competencias profesionales en el sector turismo de Tijuana, las líneas de investigación de las industrias culturales y creativas, además, las investigaciones sobre el fomento de una cultura de ahorro para el retiro competitivo, la competitividad de las IES públicas desde el punto de vista del personal académico, la innovación de los procesos educativos para fomentar la educación virtual y las tutorías dentro de la competitividad universitaria frente al COVID-19, el fomento de la cultura emprendedora de los estudiantes del CUCEA de la Universidad de Guadalajara, así como la relación entre valor percibido y lealtad en el cuidado de la piel del producto verde.

Respecto a la responsabilidad social y equidad de género, se presentan los estudios respecto a la rentabilidad de las empresas mexicanas con una mayor participación de las mujeres en la alta dirección, la sustentabilidad de los negocios en el sector comercial aéreo en Latinoamérica, el

encuadramiento femenino y la publicidad, la sustentabilidad y pobreza con las estrategias para su mejora, los acuerdos internacionales como facilitadores de la producción orgánica y sustentable, la responsabilidad social de los alumnos de la FCA de la UAC, así como estudios sobre la responsabilidad social universitaria de la JUMSNH, y finalmente los impactos de responsable social corporativa en la industria manufacturera de la ZMG.

Concerniente con el tópico de las estrategias financieras emprendimiento y cadena de suministro, se inicia con el trabajo de investigación sobre la gestión de proveedores como ventaja competitiva de las mipymes en Chilapa, después se analiza la evaluación de proyectos de inversión y sus opciones reales, el crowdfunding como alternativa en la recuperación económica post COVID-19, el impacto del crecimiento de la rentabilidad en el sector de transformación en México, para finalmente estudiar la cadena de suministro como factor clave en la competitividad de las pymes en Aguascalientes.

Dr. José Sánchez Gutiérrez

Presidente de RIICO

INDICE

COMPETITIVIDAD GLOBAL

Influencia del diseño organizacional en un cambio organizacional en comercios de la ZMG <i>Luis Alberto Bellon-Álvarez, Margarita Isabel Islas-Villanueva y Francisco Javier López-Cerpa</i>	1
Ecosistema de datos agrícolas: sector hortícola mexicano <i>Alejandra Rosales-Soto, Ricardo Arechavala-Vargas y Bernardo Jaen-Jimenez</i>	21
Competitividad en los Negocios inclusivos, desde la Teoría de la Base de la Pirámide <i>Zyanya Alejandra Soriano-Pérez y Alma Delia Torres-Rivera</i>	41
Análisis de la tendencia en la investigación de la competitividad de la industria de la confección del vestido en México (1996-2018) <i>Patricia Zavala-Villagómez, Dora Aguilasoch-Montoya y Evaristo Galeana-Figueroa</i>	56
Aprendizaje organizacional y satisfacción del turista en Michoacán <i>Yuselim Angélica Villa-Hernández, Virginia Hernández-Silva y Salvador Madrigal-Moreno</i>	74
Retos de la competitividad en las empresas cerveceras artesanales de México <i>Araceli Rendón-Trejo, Irene Juana Guillén-Mondragón y Andrés Morales-Alquicira</i>	85
Estrategias de marketing digital en las pymes como nuevo paradigma de los negocios después del COVID-19 <i>Marco Alberto Valenzoso-Jiménez, Víctor Béjar-Tinoco y Jaime Apolinario Martínez-Arroyo</i>	105
Las políticas en ciencia y tecnología ¿todos son lo mismo? Gobiernos anteriores y la propuesta de la 4 ^a transformación <i>Hugo Martín Moreno-Zacarías, Renato Francisco González-Sánchez y Martha Beatriz Santa Ana-Escobar</i>	120
El Programa Pueblos Mágicos como favorecedor de la competitividad en Huachinango, Puebla <i>Avelina García-Sánchez, Emma Biviano-Pérez y Evelyn Sosa-Larraínzar</i>	141
Análisis de requerimientos de la secretaría europea para el análisis del clúster (esca) hacia el distintivo plata del clúster de turismo de salud de Tijuana <i>Karen Isabel Zavala-Rodríguez y Mario Alberto Castillo-Greiner</i>	156

Análisis de las variables que influyen en el clima laboral en una manufacturera automotriz 172
en Piedras Negras Coah.

Clara Patricia Buentello-Martínez, Nemecio Lorenzo Valenzuela-Salazar y Lilia Alanís-Gómez

INNOVACIÓN Y TECNOLOGÍA Y DATOS

El proceso de negociación de compra de tecnología y la operación efectiva de producción 188
sustentable en empresas mexicanas

Daniel Pineda-Domínguez, Amalia Clara Torres-Márquez y Fátima del Rosario Rodríguez-Fuentes

Sistema de evaluación lifo en la gestión de talentos en la organización

Blanca Estela Montano-Pérez, Laura Leticia Gaona-Tamez y Rosa Hilda Hernández-Sandoval 209

Tendencias en torno a la competitividad de las ciudades inteligentes: aproximación desde 229
un análisis bibliométrico

Carlos Estrada-Zamora y Antonio de Jesús-Vizcaíno

Use of mobile applications in individual public transportation in Mexico 245

Claudia Leticia Preciado-Ortiz

Oportunidades para la Creación de Pequeños Negocios de Base Tecnológica Sustentada en 266
la Innovación de Producto

Emma Frida Galicia-Haro, Ana Lilia Coria-Páez e Irma Cecilia Ortega-Moreno

La importancia de la administración de la innovación tecnológica para empresas del sector 279
dermatológico (cosmético) a nivel internacional

Irma Cecilia Ortega-Moreno, Emma Frida Galicia-Haro y Ana Lilia Coria-Páez

VENTAJA COMPETITIVA Y DESARROLLO ECONÓMICO

Modelo basado en el factor humano para la acreditación de laboratorios de ensayos de 296
accesorios para baño y cocina para la generación de ventajas competitivas

Nallely Maricruz Frias-Oropeza y J. Jesús Ceja-Pizano

Mejora de la productividad de la industria del vestido de la región de Tehuacán, con el uso 319
de herramientas Lean Manufacturing

Ramón García-González, Senén Juárez-León e Iniria Guevara-Ramírez

Posición competitiva de la industria cervecera mexicana. 2013-2018 336

Andrés Morales-Alquicira, Yareli Morales-Rendón e Irene Juana Guillén-Mondragón

Impacto del COVID-19 en la economía mundial <i>Rodolfo Mendoza-Pinto, Ignacio Almaraz-Rodríguez y Michael Demmler</i>	357
La interpretación del modelo de calidad en voz de los trabajadores: una estrategia competitiva centrada en las personas <i>Irene Juana Guillén-Mondragón, Araceli Rendón-Trejo y Andrés Morales-Alquicira</i>	373
La Influencia de los Aspectos Productivos en la Competitividad de la Pyme Manufacturera en Aguascalientes <i>Octavio Hernández-Castorena, Alba Rocío Carvajal-Sandoval y Braulio Adriano-Rodríguez</i>	394
La Inversión Extranjera Directa en México y Economías del APEC, 1990-2019: Un análisis econométrico de sus determinantes <i>Francisco Javier Ayvar-Campos, José César Lenin Navarro-Chávez y Enrique Armas-Arévalos</i>	409
Clúster industrial en la fabricación de Guitarras para desarrollar económicamente el Municipio de Paracho, Michoacán <i>Juan Carlos Jerónimo-Niniz, Gabriel Salvador Fregoso-Jasso y Dalia Guadalupe Aguilar-Maya</i>	430
Ventaja competitiva a través de la gestión ambiental <i>Jaime Apolinario Martínez-Arroyo, Marco Alberto Valenzuela-Jiménez y Angélica Guadalupe Zamudio-de la Cruz</i>	443
Competitividad de los productos agrícolas estratégicos de México en América del Norte <i>Zoe T. Infante-Jiménez, Priscila Ortega-Gómez y Alejandro Javier López-Villaseñor</i>	462
De la internacionalización a los mercados locales: abatimiento de la pobreza y competitividad en el sector agroindustrial latinoamericano <i>Tania Elena González-Alvarado, Renata Kubus y José Sánchez-Gutiérrez</i>	481
Reestructuración industrial y su impacto en la productividad del sector agrícola en Guanajuato <i>Martín Vargas-Hernández, María Mercedes León-Sánchez y Osvaldo Rodríguez-Villalón</i>	498
Las Tecnologías de la Información y Comunicación y la Innovación en la Competitividad de las Micro, Pequeñas y Medianas Empresas Exportadoras de México <i>Cristina Antonieta Sandoval-Ochoa y Joel Bonales-Valencia</i>	516
Comparativo de modelos de excelencia con los indicadores de gestión de clúster (ECEI) <i>Mariha Alicia Rodríguez-Medellín, Mario Alberto Castillo-Greiner y Dayam Guerrero-Pulido</i>	535
Innovación y competitividad en el sector alimentario en tiempos de COVID-19: Alimentos funcionales nuevas oportunidades de negocio <i>Ana Lilia Coria-Páez, Emma Frida Galicia-Haro e Irma Cecilia Ortega-Moreno</i>	553

Factores que influyen la toma de decisión de compra entre tiendas de conveniencia y abarroteras del municipio de Armería, Colima
Innovación de Producto
Alfredo Salvador Cárdenas-Villalpando, Oscar Mares-Bañuelos y Víctor Aparicio-Rosas

Análisis del impacto de la promoción turística del estado de colima 2016 – 2019 587
Enrique Macías-Calleros, Arquímedes Arcega-Ponce y Hugo Martín Moreno-Zacarías

Voice of customer: Fuente del valor agregado de la productividad humana 603
Nancy Tass-Salinas, Enrique Macias-Calleros y Alfredo Salvador Cárdenas-Villalpando

Problemática de la apicultura en el municipio de Altamirano, Chiapas: su efecto en la competitividad 620
Miguel Ángel Bautista-Hernández, Elá Jiménez-Hernández y Joel Bonales-Valencia

EDUCACIÓN, GESTIÓN DEL CONOCIMIENTO Y CREACIÓN DE VALOR

Representación social, desde una mirada de los alumnos de segundo semestre de la Escuela Superior de Turismo generación 2018-2022 637

Liliana Abascal-Gaytán, Rosa Patricia Abascal-Gaytán y Manuela Badillo-Gaona

Modelo de Planeación Estratégica que coadyuve a que las PyMES sean competitivas en el sector de Telecomunicaciones en México 656

Mario López-González, J. Jesús Ceja-Pizano y Nallely Maricruz Frias-Oropeza

Principales problemas que provocan el fracaso en las empresas familiares de Monclova, Coahuila 678

Laura Leticia Gaona-Tamez, Gabriel Aguilera-Mancilla y Blanca Estela Montano-Pérez

Factores de influencia desde la percepción de los estudiantes universitarios en la construcción de paz en el sur-Colombia 697

Parcival Peña-Torres, Octavio Hernández-Castorena y Claritza Marlés-Betancourt

Formación docente para la investigación un camino hacia la creación del conocimiento 718
Manuela Badillo-Gaona, Liliana Abascal-Gaytán y Elizabeth Genis-Pérez

Propuesta de evaluación diseño y equipamiento de los laboratorios de cómputo a nivel secundaria destinados a la asignatura de informática 737

María Fernanda Trejo-Carrillo y Rosa Amalia Gómez-Ortíz

Knowledge management and leadership styles in the competitive culture of rural enterprises 753

Sandra Gutierrez-Olvera, Gloria Silviana Montañez-Moya y Carlos Alberto Santamaría-Velasco

Cómo los proyectos de física influyen en las relaciones interpersonales en estudiantes de bachillerato <i>María del Carmen Molinero-Bárcenas, Ubaldo Chávez-Morales y Alberto Lara-Guevara</i>	771
Identificación de competencias profesionales en el sector turismo en Tijuana, B.C. <i>Ana Bertha Palafox-Ojeda y Martha Alicia Rodríguez-Medellín</i>	794
Visualización de las líneas de investigación de las industrias culturales y creativas basado en mapas bibliométricos <i>Cinthya Karina Camacho-Sotelo</i>	811
Educación Financiera Previsional: Requisito para el Fomento de una cultura de ahorro para el retiro competitivo <i>Gerardo Yáñez-Betancourt, Werner Horacio Varela-Castro y María de los Angeles Briceño-Santacruz</i>	829
Estudio comparativo de la competitividad institucional en IES públicas desde la perspectiva del personal académico <i>Antonio de Jesús-Vizcaíno, Omar Alejandro Olivares-Mojica y Juan Gaytán-Cortés</i>	850
Innovación de procesos educativos: educación virtual y tutorías para la competitividad universitaria ante el COVID-19 <i>Laura Angélica Guzmán-Cedillo, Werner Horacio Varela-Castro y María de los Angeles Briceño-Santacruz</i>	861
Estrategias para promover la cultura emprendedora en los estudiantes de la Universidad de Guadalajara: campus CUCEA <i>Elsa Georgina González-Uribe, Saray María Corzo-Sánchez y José Sánchez-Gutiérrez</i>	881
La relación entre el valor percibido y la lealtad en los consumidores de productos para el cuidado de la piel: producto verde vs convencional <i>Jorge Peñayo-Maciel y Juan Carlos Chau-Molina</i>	903

RESPONSABILIDAD SOCIAL, SUSTENTABILIDAD Y EQUIDAD DE GÉNERO

Cuantificación del beneficio en la rentabilidad de las empresas mexicanas, dada una mayor participación de la mujer en la alta dirección <i>Leticia Bollain-Parra, Oscar Valdemar De la Torre-Torres y Dora Aguilasoch-Montoya</i>	924
Business sustainability in the commercial air sector in Latin America <i>Hasbleidy Camila Parra-Méndez, Luis Rocha-Lona y Rosa Amalia Gómez-Ortiz</i>	945
Empoderamiento femenino y publicidad (Femvertising): Un análisis bibliométrico	965

Tania Marcela Hernández-Rodríguez y Irma Janett Sepúlveda-Ríos

Sustentabilidad y pobreza, acciones para mitigarla 986
Vianey Chávez-Ayecac, María Angélica Cruz-Reyes y Mary Xóchitl De Luna-Bonilla

Certificaciones y acuerdos internacionales como facilitadores de la producción orgánica y la sustentabilidad 1007
Priscila Ortega-Gómez, Zoe T. Infante-Jiménez y Carlos Francisco Ortiz-Paniagua

Análisis sobre la Responsabilidad Social de los alumnos de la Facultad de Contaduría y Administración UN de la UAdeC. 1028
Leonor Gutiérrez-González, Cesar Rolando Barboza-Lara y Moisés Sifuentes-Rodríguez

Desempeño de la Responsabilidad Social Universitaria en la Universidad Michoacana de San Nicolás de Hidalgo 1047
Araceli Flores-Esparza, Carlos Francisco Ortiz-Paniagua y Joel Bonales-Valencia

Retos de la Responsabilidad Social Corporativa (RSC) en la industria manufacturera de la ZMG 1067
Paola Irene Mayorga-Salamanca y José Sánchez-Gutiérrez

ESTRATEGIAS FINANCIERAS, EMPRENDIMIENTO, CADENA DE SUMINISTRO Y ERA DIGITAL

La gestión con los proveedores: ¿ventaja competitiva para las MIPyMES. Caso Chilapa de Álvarez Guerrero 1087

Migdalia Annel García-Villanueva, Octavio Hernández-Castorena y Mónica Colín-Salgado

Alternativa para la evaluación de proyectos de inversión: las opciones reales 1103
Humberto Banda-Ortiz, Gerardo Sosa-Cruz y Michael Demmler

Crowdfunding, una alternativa en el proceso de recuperación económica post- COVID-19 1121
Miguel Ángel González-Romero, Beatriz Martínez-Carreño y María Isabel Garrido-Lastra

El impacto del tamaño de crecimiento en la rentabilidad de las empresas de la transformación en México 1135
Juan Gaytán-Cortés, Antonio de Jesús-Vizcaíno y Juan Antonio Vargas-Barraza

La gestión de la cadena de suministro como factor influyente en la competitividad de las pymes del estado de Aguascalientes 1155
Silvia Mata-Zamores, Gonzalo Maldonado-Guzmán y Daniela Angélica Devesa-Hidalgo

COLOQUIO

Una perspectiva de la industria de la animación mexicana <i>Daniela Atayde-Regalado y Juan Antonio Vargas-Barraza</i>	1172
Análisis del efecto que tienen las exportaciones chinas de calzado sobre las de México en el mercado estadounidense <i>Erick Noé Cortes-Peña</i>	1193
Logística inversa implementada como innovación en cadenas de suministro en empresas mexicanas por medio de creatividad sustentable <i>Justine Marisela González-Mares y Oscar Alejandro Espinoza-Mercado</i>	1206
Industria 4.0: reestructura de la cadena de valor. Un vistazo al nuevo paradigma tecnológico <i>Betsabé Alfonzo-Costa y Juan Mejía-Trejo</i>	1222
La inclusión social y su impacto en el desarrollo y la competitividad de las empresas: sector LGBT <i>Eduardo Emmanuel Mejía-Benítez</i>	1241
¿Cómo ha enfrentado el liderazgo femenino al techo de cristal en América Latina? Temática: Equidad de género <i>Karen González-Padilla</i>	1257
La inversión extranjera directa en el sector agrícola: una medida para el desarrollo económico <i>Dania Ivette Arias-Acosta y Francisco Javier López-Cerpa</i>	1272
El e-commerce como medio de internacionalización de la industria joyera de la ZMG <i>Daniela Atayde-Regalado y Manuel Alfredo Ortiz-Barrera</i>	1284
Satisfacción de usuarios de la secretaría de movilidad jalisco respecto al sitio web <i>Omar Alejandro Olivares-Mojica y Antonio de Jesús-Vizcaíno</i>	1299
Normas de sustentabilidad empresarial en el sector de transporte Aéreo <i>Adriana Michelle Soto-Echavarría, Luis Rocha-Lona y José Arturo Garza-Reyes</i>	1308
Tendencia mundial turismo de los adultos mayores que ofrecen las Agencias de Viajes <i>Liliana Abascal-Gaytán, Manuela Badillo-Gaona y Rosa Patricia Abascal-Gaytán</i>	1329

Use of mobile applications in individual public transportation in Mexico

Claudia Leticia Preciado-Ortiz¹

Abstract

Objective: The main objective of this research work was to analyze the factors that influence satisfaction and the intention to continue with the use of transport mobile applications among young university students from Guadalajara, Jalisco, Mexico.

Design / Methodology / Approach: The approach was quantitative. 144 valid responses were used and data analysis is performed by multiple regression.

Results: The results indicate that information quality, system quality and perceived risk are influential predictors of satisfaction. At the same time, satisfaction and design quality were predictors for the continuity of the use of the app.

Originality / Value: Companies that offer individual passenger transport through a mobile application have increased in recent years, generating intense competition both between existing brands and with established traditional taxis. This study provides new and recent information for marketing managers and academics on application user behavior in the transportation industry.

Keywords: mobile app, public transport, satisfaction, intention to continue use.

Resumen

Objetivo: El presente trabajo de investigación tuvo como principal objetivo analizar los factores que influyen en la satisfacción y la intención de continuar con el uso de aplicaciones móviles para las empresas en red de transporte particular entre los jóvenes universitarios de Guadalajara, Jalisco.

Diseño / Metodología / Enfoque: El enfoque fue cuantitativo. Se utilizaron 144 respuestas válidas y el análisis de los datos se realizó mediante regresión múltiple.

Resultados: Los resultados indican que la calidad de la información, calidad del sistema y riesgo percibido son predictores influyentes en la satisfacción. Mientras que la satisfacción y la calidad del diseño fueron predictores para la continuidad del uso de la app.

Originalidad / Valor: Las empresas que ofrecen transporte individual de pasajeros mediante una app móvil han aumentado en los últimos años generando una fuerte competencia tanto entre las marcas existentes como con los taxis tradicionales establecidos. Este estudio aporta información nueva y reciente para los directores de marketing y académicos sobre el comportamiento del usuario de apps en la industria del transporte.

Palabras clave: app móviles, transporte público, satisfacción, intención de continuar el uso.

¹ Doctorado en Ciencias Administrativas – CONACYT. Universidad de Guadalajara

Introduction

Mobile applications (apps) currently occupy an important place in daily life (Jain, Kumar and Singla, 2014), even becoming indispensable in daily activities (Soemantadiredia, Vitayala & Hermadi, 2015), and changing the ways of life of many ways (Chan, Chang, Lau, Law & Lei, 2016). o mention an example are the applications to stay related to other people in the personal or work environment (Whatsapp, Facebook, Messenger, Zoom, Google Meet, among others), or to communicate and perform basic activities (such as remembering the time to wake up, take medicine or a meeting) or even applications that are in the form of financial services, airline reservation services, shopping, games, health applications, food and fitness and a new service in ordering taxis (Keong, 2016).

The taxi sector has recently had a phase of disruption generated by social, cultural and economic changes through the introduction of the internet and new technologies (Akbulaev, 2020). Emerging mobile transport based on complementary or independent technological platforms that act as intermediaries between passengers and drivers, through the use of applications appearing in countries around the world (Agyeman, Kwarteng, & Zurkalmaine, 2019). This new taxi ordering service is called Mobile Booking Taxi Application (MBTA) (Kanti, Anandya & Rahardja, 2018), where the user makes the point-to-point service request from a mobile device at any time and from anywhere (Harding, Kandlikar, & Gulati, 2016; Kanti et al. 2018; Mohamed, Rye, & Fonzone, 2020). For example, Uber, Hailo, Curb and Lyft in the USA, Uber and Cabify in Europe and Latin America, App Chiflea in Ecuador, Easy taxi and 99 taxis in Brazil, Little and Mondo in Africa, or Grab, Go-Jek, Didache, Kuaidi Dache, Didi, Meru, Ola, and Hailing in Asia. This innovation has generated new direct competition to taxis, since in the beginning the absence of legislation to operate in this sector, previously exclusively for taxis, caused problems in public transport policies, such as monopoly or protests in different countries, especially the poorest, that they were not prepared for this (Harding et al. 2016; Akimova, Arana-Landín, & Heras-Saizarbitoria, 2020; Cetin & Deakin, 2017; Paronda, Regido, & Napalang, 2016; Ye, Cen, Chen, & Zhen, 2018; Contreras & Paz, 2018; Agyeman et al. 2019; Mohamed et al. 2020; Sánchez-Torres, Correa & Gómez, 2020).

In various parts of the world, the individual public passenger service (taxis) had been presenting problems related to asymmetries of information and coordination between client and driver, as it was not known precisely where to take a taxi, service hours, and driver reliability, safety, cleanliness and vehicle quality, knowledge of the city by the driver and the price to pay for the service offered, among others, reflecting on uncomfortable trips for the consumer (Balachandran &

Bin, 2017). To address these problems, different work schemes and their regulation have been adopted with varying degrees of success, implementing the MTBAs to provide better quality services to passengers and entirely in tune with market changes (Hamzah et al. 2018; Weng, Zailani, Iranmanesh, & Hyun, 2017) being proposed for their applicability in taxis in many countries (Ge et al. 2020; Nguyen-Phuoc, Su, Tran, Le, & Johnson, 2020; Wang, He, Yang, & Oliver Gao, 2016; Ye et al. 2018; Zhang, Honnappa, & Ukkusuri, 2020). The advantages it provides is that by using the MTBAs users keep informed at all times about the time, price, route and driver data of the vehicle (Weng et al. 2017). Users can fix the departure and destination location by GPS or by typing the location that drivers can easily reach (Chan et al. 2016). This type of application motivates the user to change their habit of using private transport to public transport (Kanti et al. 2018). In the literature, some research can be found on the factors that influence the intention to use, consumer satisfaction, quality of service, loyalty, among other aspects regarding public or private transport in different countries of the world, such as in Indonesia (Sumaedi, Bakti & Yarmen, 2012); South Africa (Govender, 2014); United States (Rayle, 2014 and Hong & Zhang, 2017); Vietnam (Khuong & Dai, 2016); and Malaysia (Balachandran & Bin, 2017), however, it can be identified by the recentness of the subject, that there is still a significant gap in the literature regarding the taxi industry, the use of apps in this sector and the consumer. In light of the foregoing, the purpose of this document is to identify what factors affect satisfaction and the intention to continue using the apps of the so-called transportation network companies or ERT.

Mobile applications in individual public transport

Based on the development of smartphone technologies and global positioning systems, various companies have emerged dedicated to mediating the agreement between users and providers of individual public transport services through downloadable applications on mobile devices, which makes, on the one hand, the user demands point-to-point transport services and, on the other hand, a group of private drivers offers the service by using the same application and their vehicles. These companies "are called Transport Network Companies or ERT" (Federal Commission of Economic Competition, 2015, p. 2). According to the Mexican Institute of Transportation (IMT, 2007), the transportation service is classified as private and public, subdividing the latter into "collective public transportation and individual public transportation (point-to-point taxi and route or subject to itinerary)" (Federal Commission for Economic Competition, 2015, p. 1). Within the individual public transport of passengers, the traditional taxi, ridesharing and ERT can be identified.

"Traditional taxis are subject to specific regulation of passenger transport and imply the provision of public service in exchange for a regulated charge. Ridesharing consists of sharing a car without

an economic transaction involved and, it usually occurs between people who know each other. ERTs use technological platforms to communicate passengers with independent drivers" (Federal Commission of Economic Competition, 2015, p. 2).

ERTs have taken two different forms:

- Complementary platforms are those that connect consumers of point-to-point transport services with taxi drivers registered in the public service modality. In Mexico, an example of these systems is Easytaxi and Yaxi.
- Independent platforms, which are those that through an application connect drivers who offer particular services to consumers. Examples of these platforms are Uber and Cabify (Federal Commission for Economic Competition, 2015, p. 2 - 3).

According to the Global Mobile Consumer Survey (GMCS) 2017 Mexico chapter, on average there are 14 applications installed on most mobile devices, and that in terms of payments shows that paying for a taxi (54%) is the most performed activity by users through the use of smartphones.

According to Statista eTravel Report 2019, it is observed that the number of users of mobility apps in the world to request a driver service (taxi, uber, cabify), rent a car or bicycle for short trips or share vehicles is considerable. Of the 43,034 respondents from 52 countries, China, Russia, Spain and the US occupy the first positions (51%, 38%, 35% and 35%, respectively), followed by Brazil (33%), the United Kingdom (30 %), France (26%), India (23%), Italy (21%) and Germany (20%).

Although Mexico is not among the ten countries with the most users of this type of application, it has taken significant steps in this industry. According to The Competitive Intelligence Unit (CIU) (January 20, 2020), transportation platforms have increased their preference among consumers over traditional alternatives. In 2019, 59.6 million (71%) of Internet users in Mexico made payments through an app or website. Of this percentage, 16.2% corresponds to transport applications, only below the payment of audiovisual content platform services (22.1%) and the sale of electronic products (17.8%). Within the transport service, the five leading players are Uber (80%), Cabify (14%), DiDi (4%), Easy Taxi (1%) and Beat (1%).

It is important to mention that its growth in the market will depend on the standards of service quality, reputation and price level perceived by users in its horizontal comparison and compared to traditional substitutes. In the same way, the increase in payment options and greater security in the provision of the service.

Theoretical model and development of hypotheses

Mobile commerce is one of the most favored areas for companies that have been able to adapt. According to Rojas (2019), applications give the consumer the impression that the service is tailor-

made for them, which encourages brand identification. In this way, the company can take the user by the hand throughout the purchase process, facilitate the transaction and knowledge or exploration of the product or service offered in a close and immediate language.

Intention to continue use

Behavioral intentions can be seen as the signals shown if the client continues to use the services of one company or switch to a different provider (Zeithaml *et al.* 1988). Therefore, through a better understanding of passenger involvement, more appropriate marketing strategies can be developed and adapted to services (Lai & Chen, 2011).

Satisfaction

Satisfaction can be defined as the consumer's feeling that the consumption of a product delivers results against a standard of pleasure or displeasure. This definition mirrors on one side, satisfactions cognitive nature, i.e. comparison between expectations and performance while on the other side, it mirrors on the affective nature which is the related pleasure feeling (Moliner, Sánchez, Rodríguez & Callarisa, 2007 cited in Olubusola, 2015, p. 2).

Mobile consumer user satisfaction (MCUS) can be defined as "a summary affective response of varying intensity that follows mobile commerce activities and is stimulated by several focal aspects, such as information quality, system quality, and service quality" (Wang & Liao, 2007, p. 384). The more satisfied the users are, then the higher the probability that the users will continue to use the current application (Oghuma *et al.*, 2016; Kanti *et al.* 2018). In the same time, the results of several studies on satisfaction and intention to continue are positively accepted (Lai & Chen, 2011; Lee and Kwon, 2011; Kanti *et al.* 2018) including public transport services (Joewono and Kubota, 2007; Nathanail, 2008; Lai & Chen, 2011).

Perceived risk

The perceived risk was evaluated as an uncertainty about the possible negative effect of the use of products or services (Srivastava & Sharma, 2011) or also the degree of uncertainty of the consumer regarding the result of a purchase decision (Keong, 2016). The perceived risk plays an important role in the use or purchase online since it is related to the perceptions of the users (Currás-Pérez *et al.* 2013). In this context it is defined as the "uncertainty about the result of the use of innovation" (Ram and Sheth 1989; Miyazaki & Fernandez, 2001; Gerrard and Cunningham, 2003; Cruz, Barreto, Muñoz-Gallego & Laukkanen, 2010).

Research on technology adoption provides evidence that an individual's perception of risk is important when considering the acquisition of a new technology or service (Laforet and Li 2005, Yang 2005; Im *et al.* 2007; Sohail & Al-Jabri, 2014; Kanti *et al.* 2018).

In the context of mobile apps, the perception of risk is even more important due to the threat of privacy and security concerns (Luarn and Lin 2005; Reid & Levy, 2008). For example, fear of losing confidential information (Kuisma *et al.* 2007), hackers who can access your bank account by making unauthorized charges (Poon 2008), or fear to the loss or theft of a mobile device with stored data (Coursaris *et al.* 2003; Kwame, 2013).

System quality

Degree to which individuals perceive that the system is satisfying, in terms of transfer speed and reliability (Kleijnen, et al., 2004 cited in Kumar & Ravindran, 2012).

Quality information

Ding and Straub (2008) define information quality as “the ability to provide information to benefit users in terms of accuracy, completeness and up-to-date” (Kumar & Ravindran, 2012).

Information is one of the important aspects for the client when making the decision to use and pay for a service. In matters of mobile apps, it is not the exception, and it could be said that the quality of the information presented acquires major importance. Having sufficient information guides consumers to make better decisions and allows them to more easily accept and continue using a product or service (Sripalawat *et al.* 2011).

Information is essential in any innovation diffusion process (Cruz *et al.* 2010) and plays a crucial role in reducing consumer resistance (Jun and Cai, 2001; Rogers, 2003; Cruz *et al.*, 2010; Kwame, 2013).

Design quality

The quality of the design of the transport mobile app is another important aspect to consider. Some authors associate this characteristic as the device barrier, inappropriate device (Cruz *et al.* 2010; Sripalawat *et al.* 2011), design (Lee and Chung, 2009; Poey and Arffin, 2015) or interface design (Yu and Fang, 2009). In the mobile context, it can be defined as “the relative importance in the attributes of the services (screen size, keyboard, location, response time” (Laukkanen, 2007; Yang, 2009).

Table 1 shows some studies that have been carried out in the mobile context, specifying authors, hypotheses, context and country in which the study was carried out.

Table 1. Previous studies

Source (Type of study and Country)	Hypotheses	Context
Weng et al. 2017 (Empirical, Malaysia)	Confirmation → Satisfaction Confirmation → Perceived usefulness Perceived usefulness → Satisfaction Perceived usefulness → Attitude Perceived usefulness → Taxi apps continuance intention Perceived ease of use → Perceived usefulness Perceived ease of use → Attitude Perceived risk → Attitude Subjective norm → Attitude Subjective norm → Taxi apps continuance intention Satisfaction → Attitude Satisfaction → Taxi apps continuance intention Attitude → Taxi apps continuance intention	Mobile booking taxi application
Wang & Liao, 2007 (Empirical, Taiwan)	MCUS → Intention to reuse the m-commerce systems MCUS → Extend of good Word-of-mouth	MCUS
Vallejo, 2019 (Empirical, Ecuador)	Ease to use → “Taxi Verify” mobile app adoption Perceived usefulness → “Taxi Verify” mobile app adoption	Taxi verify (app)
Balachandran & Bin, 2017 (Empirical, Malaysia)	Tangible → Ride-sharing user satisfaction Reliability → Ride-sharing user satisfaction Price → Ride-sharing user satisfaction Promotion and coupon redemption → Ride-sharing user satisfaction Confort → Ride-sharing user satisfaction	Mobile apps of ride-sharing services
Justitia, Semiaty & Ramadhini, 2019 (Empirical, Indonesia)	Route detection quality → Customer satisfaction Connection quality → Customer satisfaction Interaction quality → Customer satisfaction Content quality → Customer satisfaction Service quality → Customer satisfaction Customer satisfaction → Customer complaint Customer satisfaction → Customer loyalty	Online taxi mobile apps
Kumar & Kumar, 2016 (Empirical, India)	Innovativeness → Selection of Cab Services Price consciousness → Selection of Cab Services Coupon redemption → Selection of Cab Services	Taxi mobile apps
Olubusola, 2015 (Conceptual, NA)	Perceived ease of use → User satisfaction Perceived usefulness → User satisfaction User's expectation → User satisfaction Perceived value → User satisfaction Screen size → User satisfaction Battery life → User satisfaction Context → User satisfaction Interruption → User satisfaction Privacy → User satisfaction	Mobile apps

	Wireless connectivity → User satisfaction User satisfaction → Addiction User satisfaction → Laziness	
Yang, Ye, Xie, Yan, Lu, Yang, Wang & Chen, 2020 (Empirical, China)	Perceived usefulness → Intention to accept parking App Perceived ease of use → Perceived usefulness Perceived ease of use → Intention to accept parking App Parking App attributes → Intention to accept parking App Trust → Intention to accept parking App Sociodemographic → Intention to accept parking App	Parking App
Yang, 2005 (Empirical, Singapore)	Innovativeness → Perceived usefulness Past adoption behavior → Perceived usefulness Knowledge → Perceived usefulness Technology cluster → Perceived usefulness Age → Perceived usefulness Gender → Perceived usefulness Specialization → Perceived usefulness Innovativeness → Perceived ease to use Past adoption behavior → Perceived ease to use Knowledge → Perceived ease to use Technology cluster → Perceived ease to use Age → Perceived ease to use Gender → Perceived ease to use Specialization → Perceived ease to use Perceived usefulness → Perceived ease to use Perceived usefulness → Perceived Attitude toward using Perceived ease to use → Perceived Attitude toward using	M-commerce
Wang, Wang, Wang, Wei & Wang, 2018 (Empirical, China)	Perceived ease to use → Perceived usefulness Perceived ease to use → Consumers' intention to use ride-sharing services Perceived usefulness → Consumers' intention to use ride-sharing services Perceived risk → Perceived usefulness (negative) Perceived risk → Consumers' intention to use ride-sharing services (negative) Personal innovativeness → Perceived ease of use Personal innovativeness → Perceived usefulness Personal innovativeness → Perceived risk (negative) Personal innovativeness → Consumers' intention to use ride-sharing services Environmental awareness → Consumers' intention to use ride-sharing services	Ride-sharing app service
Razi, Tamrin, Nor, 2019 Empirical, Sri Lanka)	Performance expectancy → Intention to use e-hailing servies Effort expectancy → Intention to use e-hailing servies Trust → Intention to use e-hailing servies Enjoyment → Intention to use e-hailing servies	E-hailing app
Peng, Wang, He, Guo & Lin, 2014 (Empirical, China)	Perceived usefulness → People's attitude toward using Perceived usefulness → People's behavioral intention Perceived ease to use → Perceived usefulness Perceived ease to use → People's attitude toward using Compatibility → People's attitude toward using Subjective norm → People's behavioral intention People's attitude toward using → People's behavioral intention Perceived playfulness → People's attitude toward using	Call-taxi app

	Perceived playfulness → People's behavioral intention Perceived Price level → People's attitude toward using (negative) Perceived price level → People's behavioral intention (negative)	
Lim, Yeo, Goh & Gan, 2018 (Empirical, Malaysia)	Perceived usefulness → Adoption ride-hailing apps Subjective norms → Adoption ride-hailing apps Perceived risk → Adoption ride-hailing apps Perceived playfulness → Adoption ride-hailing apps Perceived Price level → Adoption ride-hailing apps	Ride-hailing app
Liao, Chen & Yen, 2007 (Empirical, Taiwan)	Subjective norm → Behavioral intention Perceived usefulness → Behavioral intention Satisfaction → Behavioral intention Perceived behavior control → Behavioral intention Perceived usefulness → Satisfaction Disconfirmation → Satisfaction Perceived ease of use → Satisfaction Subjective norm → Perceived usefulness Disconfirmation → Perceived usefulness Perceived ease of use → Perceived usefulness Disconfirmation → Perceived ease of use Perceived behavior control → Perceived ease of use	E-service
Li & Liu, 2014 (Empirical, China)	User satisfaction → Continuance intention to use an e-service Perceived usefulness → Continuance intention to use an e-service Perceived usefulness → Satisfaction with an e-service Confirmation of user expectations → Satisfaction with an e-service Confirmation of user expectations → Perceived usefulness User satisfaction → User's WOM behavior regarding an e-service Users' continuance intention to use an e-service → User's WOM behavior regarding an e-service Perceived usefulness → User's WOM behavior regarding an e-service	E-service
Kanti et al. 2018 (Empirical, Indonesia)	Users' attitude towards using Go-Jek Application → Users' continuance usage intention Users' attitude towards using Go-Jek Application → Users' continuance usage intention Users' satisfaction → Users' attitude towards using Go-jek Application Perceived usefulness → Users' continuance usage intention Go-jek Application Perceived usefulness → Users' attitude towards using Go-jek Application Perceived ease of use → Users' attitude towards using Go-jek Application Subjective norm → Users' continuance usage intention Go-jek Application Subjective norm → Users' attitude towards using Go-jek Application Perceived ease of use → Users' perceived usefulness Perceived risk → Users' attitude towards using Go-jek Application (negative) Perceived usefulness → Users' satisfaction Go-jek Application users' confirmation → Users' satisfaction Go-jek Application users' confirmation → Users' perceived usefulness Users' compatibility → Users' attitude towards using Go-jek Application	Mobile taxi booking app

	Perceived playfulness → Users' attitude towards using Go-jek Application	
--	--	--

Derived from the previous theoretical analysis, the following hypotheses were raised:

- H1: Information quality has a positive and significant impact on user satisfaction.
- H2: System quality has a positive and significant impact on user satisfaction.
- H3: Design quality has a positive and significant impact on user satisfaction.
- H4: Perceived risk has a negative and significant impact on user satisfaction.
- H5: Information quality has a positive and significant impact on the intention to continue using the app.
- H6: System quality has a positive and significant impact on the intention to continue using the app.
- H7: Design quality has a positive and significant impact on the intention to continue using the app.
- H8: Perceived risk has a negative and significant impact on the intention to continue using the app.
- H9: User satisfaction has a positive and significant impact on the intention to continue using the app.

The resulting theoretical model was structured in two mathematical equations. Equation 1 presents the mathematical model established for this study according to the literature consulted, where satisfaction (Y) is considered the dependent variable and the variables system quality (X1), perceived risk (X2), design quality (X3) and information quality (X4) are taken as independent variables.

$$\text{Equation 1: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Similarly, in equation 2, the intention to continue using the apps (Y) is the dependent variable and the independent variables are: system quality (X1), perceived risk (X2), design quality (X3), quality of information (X4) and satisfaction (X5).

$$\text{Equation 2: } Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$$

Methodology

The present investigation used the quantitative approach. The main method of data collection was surveyed. The items of the questionnaire were adapted and modified from scales previously developed and validated with the appropriate coding for the conditions of young Mexican users.

Each item was measured on a 5-point Likert scale with responses ranging from "totally agree" to "totally disagree". The unit of analysis was the undergraduate student, user of private transport applications of the University Center for Economic-Administrative Sciences (CUCEA) of the University of Guadalajara. Previous experience was necessary to be able to evaluate satisfaction and intention to continue using this type of app. The sampling technique was random, with a size of 202 participants from the various educational programs. Of this number of applied surveys, once the data had been tabulated and reviewed, 144 good surveys remained (corresponding to 71.28%), eliminating the missing or null data. The software used for data analysis was SPSS. Cronbach's alpha and exploratory factor analysis were used for the validity and reliability of the data. Multiple regression was used to test the model.

Results

In this section, the results of the analysis of the data obtained are presented and discussed. First, the profile of the participants was obtained (Table 2) where it is observed that of the 144 participants, 39.6% were men, and 60.4% were women. Regarding age, 71.5% were in the range between 21 and 30 years, 27.1% were under 20 years, and 1.4% were over 31 years. Regarding monthly income, the two largest groups are polarized, since 32.6% earn less than \$ 2000 and 31.3% said they have an income above \$ 4001; the remaining 52% have an income that ranges between \$ 2,000 and \$ 4,000. When asked about the last time they had used the applications to request a transportation service, 65.3% had done so within the last 14 days (from 1 to 7 days and from one to two weeks). Regarding the question of how long they have been using the application, the majority (36.8%) have been using the application for more than a year. The most used application is Uber (95.8%), they generally use it on weekends (43.8%), pay both with card and cash (47.9% and 42.4% respectively), the request is made through a Smartphone (97.9%), and the main brands of the device were Apple (30.6%), Samsung (26.4%) and Motorola (12.5%).

Table 2. User characteristics

Variable	Frequency	Percentage
Gender		
Man	57	39,6
Woman	87	60,4
Age		
Less than 20 years	39	27,1
Between 21 and 30 years	103	71,5
More than 31 years	2	1,4
Monthly income		
Less than \$ 2000	47	32,6
From \$ 2001 to \$ 3000	31	21,5
From \$ 3001 to \$ 4000	21	14,6
From \$ 4001 to more	45	31,3

When was the last time you used the mobile applications to request a transportation service?		
Today	12	8,3
1 - 7 days ago	71	49,3
1 - 2 weeks ago	23	16,0
3 - 4 weeks ago	21	14,6
2 - 3 months ago	15	10,4
3 - 4 months ago	2	1,4
What was the application you used?		
Uber	138	95,8
Cabify	3	2,1
Easy taxi	2	1,4
City driver	1	,7
Since when have you used the private transport applications?		
Less than a month	8	5,6
1 to 6 months	46	31,9
7 to 12 months	37	25,7
More than a year	53	36,8
How often do you use it?		
Everyday	3	2,1
Two or three days a week	25	17,4
Weekends	63	43,8
Other	53	36,8
What is your form of payment?		
Cash	61	42,4
Card	69	47,9
Both of them	14	9,7
What type of mobile device do you use most frequently to access the private transport application?		
Smartphone	141	97,9
Tablet	1	,7
iPod touch	2	1,4
Who is the manufacturer of the device?		
Apple	44	30,6
HTC	4	2,8
Motorola	18	12,5
Samsung	38	26,4
LG	9	6,3
Nokia	2	1,4
Sony Ericson	1	,7
Other	28	19,4

Table 3 presents the results of the reliability and validity test, which correspond to Cronbach's alpha, Kaiser-Meyer-Olkin Test, Bartlett's Test of Sphericity, commonality, total explained variance and correlations (Table 4). All indicators were exceeding the minimum for validity and subsequent use.

Table 3. Results of the reliability and validity analysis

Variable	Items	Cronbach Alpha	Kaiser-Meyer-Olkin test	Bartlett's sphericity test (p value)	Item loading	AVE

System quality	SQ1	0,842	0,786	Chi squared	,854	67,909
	SQ2			230,614	,842	
	SQ3			gl 6	,813	
	SQ4			p-value 0,000	,785	
Design quality	DQ1	0,821	0,868	Chi squared	,824	66,926
	DQ2			345,709	,866	
	DQ3			gl 10	,861	
	DQ4			p-value 0,000	,766	
	DQ5				,768	
Information quality	QI1	0,875	0,831	Chi squared	,842	68,044
	QI2			383,645	,810	
	QI3			gl 10	,852	
	QI4			p-value 0,000	,827	
	QI5				,793	
Perceived risk	PR1	0,764	0,665	Chi squared	,867	68,900
	PR2			124,552	,866	
	PR3			gl 3	,752	
Intention to continuance to use	I1	0,753	,661	Chi squared	,849	69,303
	I2			129,095	,860	
	I3			gl 3	,752	
				p-value 0,000		

Table 4. Pearson correlations

	IQ	SQ	DQ	PR	S	ICU
IQ	1					
SQ	,649**	1				
DQ	,679**	,565**	1			
PR	,501**	,376**	,419**	1		
S	,620**	,601**	,548**	,533**	1	
ICU	,390**	,361**	,443**	,412**	,550**	1

**. The correlation is significant at the 0.01 level (bilateral).

Table 5 shows the results of the multiple regression and hypothesis testing. In model 1, where satisfaction was the dependent variable, it is observed that the quality of the information, the quality of the system and the perceived risk were approved, while the quality of the design was not significant in the result regarding its influence on satisfaction.

In model 2, where the intention to use was the dependent variable, only satisfaction and quality of design have a positive and significant impact on the continuity of use, the rest of the hypotheses were rejected.

On the other hand, it can be mentioned that in model 1, user satisfaction is explained by 50.3% by the quality of the information, the quality of the system and the perceived risk. And model 2, the intention to continue using the apps is explained by 32.3% by satisfaction and the quality of the design.

Table 5. Results of the Multiple Regression Analysis

	Variable	β standarized	Value t	p-value	Hypothesis result
Model 1	IQ	,211	2,267	,025*	H ₁ : Supported
	SQ	,292	3,668	,000*	H ₂ : Supported
	DQ	,130	1,573	,118	H ₃ : Not supported
	PR	,263	3,821	,000*	H ₄ : Supported
	F-value		37,215 (,000)		
	R		,719		
	R ²		,517		
	R ² ajustada		,503		
	Variable	β standarized	Value t	p-value	
Model 2	IQ	-,075	-,682	,496	H ₅ : Not supported
	SQ	-,012	-,128	,898	H ₆ : Not supported
	DQ	,216	2,217	,028**	H ₇ : Supported
	PR	,147	1,746	,083	H ₈ : Not supported
	S	,407	1,114	,000*	H ₉ : Supported
	F-value		14,644 (,000)		
	R		,589		
	R ²		,347		
	R ² ajustada		,323		

Model 1: Dependent variables: Satisfaction. Predictor variables: (Constant), Ease of use, Perceived risk, Response time, System quality, Information quality.

Model 2: Dependent variables: Intention to continue use. Predictor variables: (Constant), Satisfaction.

* p < 0.001 ** p < 0.005

Conclusions

In conclusion, it can be mentioned that it is important for companies to be at the forefront of technology since apps are an excellent tool or strategy, from the point of view observed, to welcome

the market, position themselves and facilitate the purchase processes between the company and the customers.

With mobile devices, companies can adopt a business mobility strategy, saving costs, gaining flexibility and being able to optimize processes due to obtaining customer information in real-time and improving corporate communications. Similarly, through the use of mobile marketing, the interaction between the company and its customers is promoted, facilitates the dissemination of offers and promotions, encourages purchases, improves customer loyalty and favors the image of the brand. All this was influencing the future of business around the world.

Given this, the transport network companies are here to stay and satisfy the needs of the consumer regarding individual public transport, emphasizing that a better knowledge of the user will lead to improving the service offered and with it the loyalty, continuity of use and promotion of Word of mouth from the user, reflecting in higher sales and therefore profits for companies.

References

- Agyeman, S., Kwarteng, R. A., & Zurkalmaine, S. (2019). Principal component analysis of driver challenges in the shared taxi market in Ghana. *Case Studies on Transport Policy*, 7(1), 73–86. <https://doi.org/10.1016/j.cstp.2018.12.001>.
- Akbulaev, N. (2020). The impact of the taxi service mobile applications on the financial condition of taxi companies. *International Journal of Scientific and Technology Research*, 9(2), 2144–2150.
- Akimova, T., Arana-Landín, G., & Heras-Saizarbitoria, I. (2020). The economic impact of transportation network companies on the traditional taxi sector: An empirical study in Spain. *Case Studies on Transport Policy*. 0–1. <https://doi.org/10.1016/j.cstp.2020.02.002> February.
- Balachandran, I. & Bin, H. I. (2017). The influence of customer satisfaction on ride-sharing services in Malaysia. *International Journal of Accounting & Business Management*. 5 (2). 24924/ijabm/2017.11/v5.iss2/184.196
- Cetin, T., & Deakin, E. (2017). Regulation of taxis and the rise of ridesharing. *Transport Policy*, 76(September), 149–158. <https://doi.org/10.1016/j.tranpol.2017.09.002>.
- Contreras, S. D., & Paz, A. (2018). The effects of ride-hailing companies on the taxicab industry in Las Vegas, Nevada. *Transportation Research Part A: Policy and Practice*, 115(November 2017), 63–70. <https://doi.org/10.1016/j.tra.2017.11.008>.
- Cruz, P., Barreto, F. N. L., Muñoz-Gallego, P., & Laukkonen, T. (2010). Mobile banking rollout in emerging markets: Evidence from Brazil. *International Journal of Bank Marketing*, 28(5), 342-371.
- Chan, J. W., Chang, V. L., Lau, W. K., Law, L. K., & Lei, C. J. (2016). Taxi App Market Analysis in Hongkong. *Journal Economy Business Management*, 4 (3), 239-242.

- Coursaris, C., K. Hassanein, K. and Head, M. (2003). M-Commerce in Canada: An Interaction Framework for Wireless Privacy, *Canadian Journal of Administrative Sciences*, 20 (1), 54-73.
- Currás-Pérez, R., Ruiz-Mafé, C., & Sanz-Blas, S. (2013). Social Network Loyalty: Evaluating the Role of Attitude, Perceived Risk, and Satisfaction. *Online Information Review*, 37 (1), 61-82.
- Deloitte Insights. Estudio: Hábitos de los consumidores móviles en México, 2019. Consultado el 10 de agosto de 2020 de: <https://www2.deloitte.com/content/dam/Deloitte/mx/Documents/technology/Global-Mobile-Consumer-Survey.pdf>
- Federal Commission for Economic Competition (2015). Opinión OPN-008-2015. Retreived August 12, 2020. From: <https://www.cofece.mx/CFCResoluciones/docs/Mercados%20Regulados/V6/16/2042252.pdf>
- Ge, W., Shao, D., Xue, M., Zhu, H., Zhao, X., & Cheng, J. (2020). Urban taxi ridership analysis in the emerging metropolis: Case study in Shanghai. *Case Studies on Transport Policy*, 8(1), 173–179. <https://doi.org/10.1016/j.cstp.2018.09.006>.
- Gerrard, P. and Cunningham, J.B. (2003). The impact of perceived risks on banking managers intention to outsource business processes – a study of the German banking and finance industry, *International Journal of Bank Marketing*, 21 (1), 16-28.
- Govender, K. (2014). Public Transport Service Quality in South Africa: A Case Study of Bus and Min Bus Services in Johannesburg. *African Journal of Business Management*. 8(10) 317-326.
- Harding, S., Kandlikar, M., & Gulati, S. (2016). Taxi apps, regulation, and the market for taxi journeys. *Transportation Research Part A: Policy and Practice*, 88 (December 2014), 15–25. <https://doi.org/10.1016/j.tra.2016.03.009>.
- Hong Z.L.Y. & Zhang Z. (2017). An Empirical Analysis Of On Demand Ride-Sharing And Traffic Congestion: *Proceedings Of The 50th Hawaii International Conference On System Sciences*.
- Im, S., Mason, C.H., and Houston, M.B. (2007). Does innate consumer innovativeness relate to new product/service adoption behavior? The intervening role of social learning via vicarious innovativeness. *Journal of the Academy of Marketing Science*, 35 (1), 63–75.
- Jain, L., Kumar, H., & Singla, R. K. (2014). Assesing Mobile Technology Usage for Knowledge Dissemination among Farmers in Punjab. *Information Technology for Development*, 21 (4), 1-9.
- Joewono, T.B. & Kubota,H., (2007). User satisfaction with paratransit in competition with motorization in Indonesia: anticipation of future implications. *Transportation* 34, 337–354.
- Jun, M. and Cai, S. (2001). The key determinants of internet banking service quality: a content Analysis, *International Journal of Bank Marketing*, Vol. 19 No. (7), 276-91.

- Justitia, A. Semiati, R. & Ramadhini, A. N. (2019). Customer Satisfaction analysis of online taxi mobile apps. *Journal of information systems engineering and business intelligence*. 5 (1). <http://dx.doi.org/10.20473/jisebi.5.1.85-92>
- Kanti, M. W., Anandya, D. & Rahardja, C. (2018). Continuance Usage Intention of Gojek Application in Surabaya. ICEMAB 2018. 10.4108/eai.8-10-2018.2288664
- Keong, W. Y. (2016). Factors Influencing Passengers' Attitude and Adoption Intention of Mobile Taxi Booking. *The Social Science*, 11 (11), 2769-2776.
- Kwame, R. (2013). Banking Innovation in Ghana: Insight of Students' Adoption and Diffusion. *Journal of Internet Banking and Commerce*, 18 (3).
- Kumar, R. & Ravindran, S. (2012). An empirical study on service quality perceptions and continuance intention in mobile banking context in India. *Journal of internet banking and commerce*. 17(1).
- Khuong M. N., & Dai N. Q. (2016). The Factors Affecting Customer Satisfaction And Customer Loyalty — A Study Of Local Taxi Companies In Ho Chi Minh City, Vietnam. *International Journal Of Innovation, Management And Technology*, 7 (5).
- Kleijnen, M., Wetzel, M., & Ruyter, K. (2004). Consumer acceptance of wireless finance. *Journal of Financial Services Marketing*, 8(3), 205-217.
- Laforet, S. and Li, X., (2005). Consumers' attitudes towards online and mobile banking in China. *International Journal of Bank Marketing*, 23 (5), 362–380.
- Lai, W-T. & Chen, C.-F. (2011). Behavioral intentions of public transit passengers — The roles of service quality, perceived value, satisfaction and involvement. *Transport Policy*. 18, 318 – 325. 10.1016/j.tranpol.2010.09.003
- Laukkanen, T. (2007). Internet vs mobile banking: comparing customer value perceptions, *Business Process Management Journal*, 13 (6), 788-797, <https://doi.org/10.1108/14637150710834550>
- Lee, K.C. & Chung, N. (2009). Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean's model perspective. *Interacting with Computers*, 21, 385 - 392.
- Lee, Y. & Kwon, O. (2011). Intimacy, familiarity and continuance intention: An extended expectation-confirmation model in web-based services. *Electron. Commer. Res. Appl.*, 10, 342–357.
- Li, H. & Liu, Y. (2014). Understanding post-adoption behaviors of e-service users in the context of online travel services. *Information & Management*. <http://dx.doi.org/10.1016/j.im.2014.07.004>

- Liao, C., Chen, J-L. & Yen, D. (2007). Theory of planning behavior (TPB) and customer satisfaction in the continued use of e-service: An integrated model. *Computers in Human Behavior*. 23, 2804–2822. 10.1016/j.chb.2006.05.006
- Lim, K. B., Yeo, S.F., Goh, M. L. & Gan, A. X. (2018). Journal of Fundamental and Applied Sciences. 10(6S), 1132-1142. <http://dx.doi.org/10.4314/jfas.v10i6s.74>
- Luarn, P., & Lin, H. (2005). Toward an understanding of the behavioral intention to use mobile banking. *Computer in Human Behavior*, 21, 873-891.
- Mexican Institute of Transportation (IMT, 2017). Análisis de los Sistemas de Transporte. Retrieved August 01, 2020. <https://www.gob.mx/imt>
- Miyazaki, A., & Fernandez, A. (2001). Consumer perceptions of privacy and security risk for online shopping, *The Journal of Consumer Affair*, 35, 27–44.
- Mohamed, M. J., Rye, T., & Fonzone, A. (2020). The utilisation and user characteristics of Uber services in London. *Transportation Planning and Technology*, 0(0), 1–18. <https://doi.org/10.1080/03081060.2020.1747205>.
- Nathanail, E., (2008). Measuring the quality of service for messengers on the Hellenic railways. *Transp.Res. Part A* 42, 48–66.
- Nguyen-Phuoc, D. Q., Su, D. N., Tran, P. T. K., Le, D. T. T., & Johnson, L. W. (2020). Factors influencing customer's loyalty towards ride-hailing taxi services – A case study of Vietnam. *Transportation Research Part A: Policy and Practice*, 134 (March 2019), 96–112. <https://doi.org/10.1016/j.tra.2020.02.008>.
- Oghuma, A. P., Libaque-Saenz, C. F., Wong, S. F., & Chang, Y. (2016). An Expectation-Confirmation Model of Continuance Intention to Use Mobile Instant Messaging. *Telematics and Informatics*, 33 (1), 34-47.
- Olubusola, A. O. (2015). User Satisfaction in Mobile Applications, *Research Paper at School of Computer Science University of Birmingham*. Retrieved from, 2015, [online] Available: <http://www.cs.bham.ac.uk/~rjh/courses/Research/TopicsInHCI/2014-15/Submissions/ajayi-oluwande.pdf>.
- Paronda, A. G. A., Regido, J. R. F., & Napalang, M. S. G. (2016). Comparative analysis of transportation network companies (TNCs) and conventional taxi Services in Metro Manila. 23rd Annual Conference of the Transportation (pp. 1–12). . August https://s3.amazonaws.com/academia.edu.documents/54055483/Comparative_Analysis_Uber_Grab_Taxi_Paper_Paronda_2_FINALrev06302016.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1517457700&Signature=KVlw86klvqMeM34kwPCSDj0xLc%3D&response-content-dispositio.

- Peng, L., Wang, H., He, X., Guo, D. & Lin, Y. (2014). Exploring Factors Affecting the User Adoption of Call-taxi App. 25th Australasian Conference on Information Systems. 8th -10th Dec 2014, Auckland, New Zealand.
- Poey, L. & Arffin, Z. (2015). Consumers' Intention to Use a Single Platform E-Payment System: A Study Among Malaysian Internet and Mobile Banking Users. *Journal of Internet Banking and Commerce*, 20(1). <http://www.arraydev.com/commerce/jibc/>
- Poon, W. C., (2008). Users' adoption of e-banking services: the Malaysian perspective, *Journal of Business and Industrial Marketing*, 23 (1), 59-69.
- Ram, S. and Sheth, J.N. (1989). Consumer resistance to innovations: the marketing problem and its solutions, *Journal of Consumer Marketing*, 6 (2), 5-14.
- Rayle L. (2014). App-Based, On-Demand Ride Services: Comparing Taxi And Ridesourcing Trips And User Characteristics In San Francisco; A Survey.
- Razi, M., Tamrin, M. & Nor, R. (2019). Adopting e-hailing Application Among Malaysian Millennials. *The 7th International Conference on Cyber and IT Service Management (CITSM 2019)*.
- Reid, M., & Levy, Y. (2008). Integrating trust and computer self-efficacy with TAM: An empirical assessment of customers' acceptance of banking information systems (BIS) in Jamaica. *Journal of Internet Banking and Commerce*, 13(3), 1-18.
- Rogers, E. (2003). *Diffusion of Innovations*, New York, Free Press.
- Rojas, M. Q. (12 de Junio de 2019). La importancia de las apps móviles en las empresas. Obtenido de <https://economiatic.com/importancia-apps-moviles-empresas/>
- Sánchez-Torres, J.A., Correa, H. S. & Gómez, I.C. (2020). Assessment of mobile taxi booking apps: An empirical study of adoption by taxi drivers in Medellín-Colombia. *Research in Transportation Business & Management*, <https://doi.org/10.1016/j.rtbm.2020.100500>
- Sohail, S. & Al-Jabri, I. (2014). Attitudes towards mobile banking: are there any differences between users and non-users?. *Behaviour & Information Technology*. 3(4), 335-344.
- Soemantadiredja, A., Vitayala, A., & Hermadi, I. (2015). Analysis Adoption of Innovation Go-jek Application. *International Journal of Science and Research*, 6 (3), 936-940.
- Sripalawat, J., Thongmak, M., & Ngramyarn, A. (2011). M-banking in Metropolitan Bangkok and a comparison with other countries. *The Journal of Computer Information Systems*, 51(3), 67-76.
- Srivastava, K., & Sharma, N. K. (2011). Exploring the Multidimensional Role of Involvement and Perceived Risk in Brand Extension. *International Journal of Commerce and Management*, 21 (4), 410-427.

Statista eTravel Report 2019. Retrieved August 10, 2020.

<https://de.statista.com/statistik/studie/id/42170/dokument/etravel-report/>

Sumaedi S.I, Bakti G. M. Y., & Yarmen M. (2012). The Empirical Study Of Public Transport Passengers' Behavioral Intentions: The Roles Of Service Quality, Perceived Sacrifice, Perceived Value, And Satisfaction (Case Study: Paratransit Passengers In Jakarta, Indonesia), *International Journal For Traffic And Transport Engineering*, 2(1), 83 – 97.

The Competitive Intelligence Unit (CIU) (January, 20, 2020), Consultado el 11 de agosto de 2020 desde <https://www.theciu.com/publicaciones-2/2020/1/20/plataformas-de-transporte-y-comida-adopcion-y-preferencia>

Vallejo, G. A. (2019). Aplicativo móvil para la utilización de taxis seguros en la Ciudad de Ambato. Trabajo de graduación. Modalidad: Proyecto de Investigación presentado previo la obtención del título Ingeniero en Sistemas Computacionales e Informáticos. Universidad Técnica de Ambato, Ambato, Ecuador.

Wang, Y-S. & Liao, Y-W. (2007). The conceptualization and measurement of m-commerce user satisfaction. *Computers in Human Behavior*, 23, 381 – 398. 10.1016/j.chb.2004.10.017

Wang, X., He, F., Yang, H., & Oliver Gao, H. (2016). Pricing strategies for a taxi-hailing platform. *Transportation Research Part E: Logistics and Transportation Review*, 93, 212–231. <https://doi.org/10.1016/j.tre.2016.05.011>.

Wang, Y., Wang, S., Wang, J., Wei, J. & Wang, C. (2018). An empirical study of consumers' intention to use ride-sharing services: using an extended technology acceptance model. *Transportation*. <https://doi.org/10.1007/s11116-018-9893-4>

Weng, G. S., Zailani, S., Iranmanesh, M., & Hyun, S. S. (2017). Mobile taxi booking application service's continuance usage intention by users. *Transportation Research Part D: Transport and Environment*, 57(October), 207–216. <https://doi.org/10.1016/j.trd.2017.07.023>.

Yang, K.C., (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics*, 22 (3), 257–277.

Yang, A.S., (2009). Exploring adoption difficulties in mobile banking services. *Canadian Journal of Administrative Sciences*. 26 (2), 136–149. 10.1002/CJAS.102

Yang, C., Ye, Xiaofei, Y., Xie, J., Yan, X., Lu, L., Yang, Z., Wang, T. & Chen, J. (2020). Analyzing Drivers' Intention to Accept Parking App by Structural Equation Model. *Journal of Advanced Transportation*. <https://doi.org/10.1155/2020/3051283>

Ye, Q., Cen, J., Chen, X., & Zhen, H. (2018). How taxi operation change in the development of e-hailing APPs: A case study in Shanghai, China. *CICTP 2017: Transportation reform and change - equity, inclusiveness, sharing, and innovation – proceedings of the 17th COTA international*

conference of transportation professionals, 2018-January (pp. 2167–2177).
<https://doi.org/10.1061/9780784480915.229>.

Yu, T. K. & Fang, K. (2009). Measuring the Post-Adoption Customer Perception of Mobile Banking Services. *CyberPsychology & Behavior*. 12(1). 10.1089/cpb.2007.0209

Zhang, W., Honnappa, H., & Ukkusuri, S. V. (2020). Modeling urban taxi services with ehailings: A queueing network approach. *Transportation Research Part C: Emerging Technologies*, 113 (November 2018), 332–349. <https://doi.org/10.1016/j.trc.2019.05.036>.

Zeithaml, V., Varadarajan, P. and Zeithaml, C. (1988), The contingency approach: its foundations and relevancy to theory building and research in marketing, *European Journal of Marketing*, 22 (7), 37-64.