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INFORMATION TECHNOLOGY ADOPTION AND ORGANIZATIONAL PERFORMANCE IN THE HOSPITALITY INDUSTRY IN MOROCCO

By

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**INFORMATION TECHNOLOGY ADOPTION AND
ORGANIZATIONAL PERFORMANCE IN THE HOSPITALITY
INDUSTRY IN MOROCCO**

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RESUMEN

La adopción de las tecnologías de la información (TI) en la industria de la hospitalidad ha recibido interés en la literatura. Sin embargo, se han realizado pocas investigaciones en países en vías de desarrollo (PVD), y más específicamente, en el continente africano. Los pocos que hay tan solo han estudiado los factores que afectan a la adopción del comercio electrónico en la industria de la hospitalidad. Hasta donde sabemos, hasta la fecha no se ha realizado ningún estudio sobre los factores que influyen en la adopción de las TI y sus beneficios en la industria de la hospitalidad en Marruecos. Esta tesis tiene como objetivo analizar los factores que afectan la adopción de TI en la industria de la hospitalidad, específicamente en Marruecos, un PVD. También investigará cómo el uso de TI en el lugar de trabajo tiene un impacto en el rendimiento organizativo. Además, nuestra investigación tiene como objetivo proporcionar a profesionales, responsables de marketing, hoteleros y gestores un modelo a través del cual los hoteles pueden evaluar la eficacia de su sitio web, con el fin de responder mejor a las necesidades y expectativas de los viajeros, y permanecer competitivos.

La presente tesis consta de tres artículos. El artículo 1 se refiere a los factores que influyen en la adopción de las tecnologías de la información en la industria hotelera. El artículo 2 trata sobre las repercusiones de la adopción de tecnologías de la información en el rendimiento de los hoteles. El artículo 3 proporciona una comprensión general de la web de los hoteles basada en la importancia percibida por los usuarios de las características cruciales del sitio web del hotel y cómo esta importancia puede diferir según el género, la edad y la frecuencia del acceso a Internet.

Esta investigación emplea un enfoque cuantitativo mediante el desarrollo de cuestionarios para los tres artículos para recopilar datos y verificar las hipótesis de investigación. Se han empleado varios métodos, como pruebas *t* emparejadas, ANOVA unidireccional y modelos de ecuaciones estructurales.

La presente tesis contribuye a la teoría ya que proporciona modelos que pueden ser útiles para académicos e investigadores que realizan investigaciones adicionales sobre la adopción de TI y su impacto en el rendimiento hotelero, específicamente en el caso de los PVD.

En términos de implicaciones prácticas, esta tesis ofrece una visión general a los gerentes y propietarios de hoteles, gerentes de TI y responsables gubernamentales sobre el estado actual de la adopción de TI en la industria hotelera en los PVD, particularmente en Marruecos. Esto motivará a los gerentes y profesionales a rediseñar estrategias y confiar en tecnologías novedosas para mejorar el rendimiento organizativo.

ABSTRACT

The adoption of information technology (IT) in the hospitality industry has received interest among some previous studies. However, very few of these works have been conducted in developing countries (DCs), specifically in the African continent. The few that are available have only studied the factors affecting e-commerce adoption in the hospitality industry. To our best knowledge to date no study has been conducted on IT adoption factors and their benefits in the hospitality industry in Morocco.

This Ph.D. aims to analyze the factors affecting the adoption of IT in the hospitality industry, specifically in Morocco, a DC. It will also investigate how the use of IT in the workplace has an impact on organizational performance. Moreover, our research aims to provide practitioners, marketers, hoteliers and managers with a model through which hotels can assess their website's effectiveness, in order to better respond to travelers' needs and expectations, and remain competitive in the marketplace.

The present thesis consists of three articles: Article 1 refers to the factors influencing the adoption of IT in the hotel industry. Article 2 investigates the impact of IT adoption on hotel performance. Article 3 seeks to provide an overall understanding of hotel website evaluation based mainly on users' perceived importance of crucial hotel website features and how this importance may differ by gender, age as well as frequency of Internet access.

This research employs a quantitative approach by developing questionnaires for the three articles to collect data and verify the research hypotheses. Several methods have been employed such as paired t-tests, one-way ANOVA and structural equation modeling (SEM).

The present thesis contributes to theory as it provides useful models for academics and researchers conducting further research into IT adoption and their impact in hotel performance, specifically in the case of DCs.

In terms of implications for practice, this thesis provides an overview to hotel managers/owners, IT managers and policy makers regarding the current state-of-the-art of IT adoption in the hotel industry in DCs, particularly Morocco. This will motivate managers and practitioners to redesign strategies and rely on novel technologies to achieve business performance.

DEDICATION

I dedicate this thesis

To my parents for their love and unconditional support throughout my life. May God bless you with good health and long life.

To my sisters Merieme, Sanae and Kaoutar, and my brother Zakaria for their encouragement. I love you and I wish you success and happiness in your life.

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Publications

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INTRODUCCIÓN GENERAL



Introducción

El turismo nació de una necesidad de escape expresada por los ricos. Es en el siglo XVIII cuando el turismo comienza a crecer progresivamente (Zuelow, 2015). Este nacimiento coincide con la revolución industrial en Inglaterra. El turismo es, por tanto, una actividad de lujo reservada a los ricos hasta principios del siglo XIX. En ese período, la creación del ferrocarril dio un nuevo impulso a los viajes al promover el transporte rápido de turistas, así como el desarrollo de complejos turísticos, específicamente balnearios.

Progresivamente, durante el siglo XX, el turismo se convirtió en una actividad masiva y democratizada. Entonces, predomina la búsqueda de la calidad, el turista busca asegurar la mejor relación calidad-precio, se ha desarrollado el turismo cultural y de negocios, así como el concepto de turismo sostenible (Zuelow, 2015). Por tanto, el continuo desarrollo de las industrias y los cambios en la forma de vida han dado lugar a diferentes tipos de turismo.

Las palabras "Turismo" y "Viajes" se utilizan popularmente para denominar toda una serie de conceptos vinculados, y tanto la industria de viajes como la industria del turismo tienen una relación significativa. Sin embargo, existen algunas diferencias entre los dos sectores. El turismo se percibe como el acto de viajar a un lugar diferente del hogar, ya sea por negocios o por placer. Más concretamente, la Organización Mundial del Turismo (OMT) ofrece la siguiente definición: "el acto de viajar a otro entorno, durante al menos 24 horas, pero no más de un año, con fines relacionados con los negocios o el ocio". En cambio, viajar se refiere al acto de trasladarse de una parte del mundo a otra, por distancias cortas o largas, sea en viajes al extranjero o nacionales. Además, los viajes pueden incluir viajes de ida y vuelta o de ida. Por lo tanto, existe una superposición significativa entre los dos sectores. Sin embargo, la industria de viajes tiene un alcance más amplio que la industria del turismo, y cubre más objetivos y duraciones.

Fuera de su entorno habitual y rodeados de extraños, los turistas o viajeros necesitan un refugio seguro en el que se sientan bienvenidos. Este requisito da origen a otro sector relevante, el denominado en español hospitalidad (como traducción del término inglés *hospitality*). El papel de la hospitalidad en los viajes y el turismo es vital, ya que cubre áreas cruciales interconectadas que incluyen alojamiento, alimentos y bebidas, transporte, y recreación, entre otros.

Por lo tanto, la interdependencia de varios tipos de negocios se ha convertido en un importante método estratégico de desarrollo y crecimiento en la industria de viajes y turismo (Evans, Stonehouse y Campbell, 2003, p. 250). Dado que el turismo está influenciado por una serie de factores ambientales, políticos, económicos y tecnológicos globales que representan tanto desafíos como oportunidades para el sector, se ha vuelto esencial para las empresas independientes establecer alianzas estratégicas con otras organizaciones a fin de brindar una orientación que tiene como objetivo la mejora del turismo dentro de los destinos (Evans et al., 2003, p. 251).

Hoy en día, varios países de todo el mundo confían en la industria de los viajes y el turismo como uno de los componentes más poderosos de las actividades socioeconómicas. El turismo representó el 10% del empleo total en todo el mundo y el 10,3% del PIB mundial (WTTC, 2019). El crecimiento de la industria de viajes y turismo aumenta anualmente y el número de personas que viajan se ha duplicado en todo el mundo, comenzando de 528 millones en 2005 a 1,19 mil millones en 2015, y se espera que alcance más de 1,8 mil millones en 2030. Obviamente, está por ver la situación y la evolución de la industria turística y las cifras de turistas una vez finalice la crisis de la COVID-19. 2020 y 2021 han sido años devastadores para el turismo, y habrá que analizar cómo el sector se recupera.

Los viajes y el turismo varían según las regiones. Por ejemplo, Europa representa el 51% de las llegadas internacionales del mundo y el 40% de los ingresos por turismo internacional (WTTC, 2019), lo que lo clasificó como el continente más visitado del mundo, seguido de Asia y el Pacífico (25%), América (15%), África (5%) y Oriente Medio (4%).

A la luz de lo anterior, y dado que la diversificación de la demanda y oferta turística continúa su expansión, existe la necesidad de potenciar los medios utilizados para la promoción y gestión de los productos y servicios de viajes y turismo para seguir siendo competitivos en el mercado global y responder a las expectativas de los clientes. Middleton y Hawkins (1998, p. 8) afirman que “una perspectiva de marketing es esencialmente una orientación de gestión general que refleja las actitudes corporativas que, en el caso de los viajes y el turismo, deben equilibrar los intereses de los accionistas y propietarios con los intereses medioambientales a largo plazo de un destino y al mismo tiempo satisfacer las demandas y expectativas de los clientes”.

Actualmente, debido a los avances tecnológicos, hay un cambio significativo en los hábitos de los consumidores, los turistas ya no cuentan con las agencias de viajes u otros intermediarios como principal fuente de información relacionada con los viajes. En cambio, los turistas preparan cada vez más sus vacaciones utilizando Internet, lo que hace que la demanda se vuelva más diversificado y personalizado. En otras palabras, los turistas buscan hacer su viaje a medida. Específicamente, el gran uso de teléfonos inteligentes en todo el mundo ha cambiado la perspectiva, permitiendo a los viajeros obtener información rápida desde cualquier momento y en cualquier lugar, y enriquecer su experiencia de visita mediante el uso de una variedad de herramientas móviles (Wang, Xiang y Fesenmaier, 2014).

Por lo tanto, los modelos de negocio novedosos combinados con tecnologías novedosas pueden desempeñar un papel crucial para satisfacer la creciente demanda turística y garantizar el crecimiento sostenible del turismo (Benckendorff, Xiang y Sheldon, 2019; Ivanov, 2019; Sigala, 2018). Sin embargo, la pregunta es ¿qué tipos de tecnologías podrían marcar la diferencia y permitir mantener una competitividad sostenible?

Debido a que los viajes y el turismo son un sector intensivo en información, ya sea la información generada por los viajeros o la gestionada dentro de las empresas de viajes y turismo, existe la necesidad de utilizar un sistema eficaz para almacenar y recuperar información enorme y realizar diferentes transacciones. Por lo tanto, la integración sistemas de reservas (CRS) en los años 70, los sistemas de distribución global (GDS) a finales de los 80, Internet a finales de los 90 y las tecnologías inteligentes en la década que comenzó en 2010, conectadas a través de sensores y de la nube, están dando paso a una nueva era del turismo. Las tecnologías mencionadas anteriormente se pueden reagrupar en el término "tecnología de la información" (TI).

El término TI se asocia popularmente con el uso de ordenadores. Los ordenadores existen desde los años 70 y se usaban principalmente para realizar cálculos complicados. También se aplicaron para facilitar tareas repetitivas como indexar y ordenar datos. Posteriormente, se generalizó el término TI.

Las TI se definieron como soluciones de software y hardware informáticos que brindan soporte a las operaciones y la gestión, aumentando así la productividad de las empresas (Thong y Yap, 1995). Esta definición se amplió luego para convertirse en todas las tecnologías dedicadas a la

operación, recopilación, transporte, recuperación, almacenamiento, presentación de acceso y transformación de información en todas sus formas (Boar, 1997), incluida la red de computadoras, el software y el hardware necesarios para Internet conexión (Tan, Chong, Lin y Eze, 2009).

Las TI han revolucionado la industria de viajes y turismo a través de cambios en procesos, productos y servicios, y gestión de empresas (Buhalis y Leung, 2018; Garrigos-Simon, Galdon, y Sanz-Blas, 2017; Melián-González y Bulchand-Gidumal, 2016). Por ejemplo, los hoteles han aplicado ampliamente los sistemas de TI para integrar los departamentos de front office, back office, en las habitaciones y en el área de alimentos y bebidas. Esto ayuda a mejorar el procedimiento operativo diario, mejorando el conocimiento del trabajo y las capacidades de comunicación mediante el uso de canales de comunicación unificados que ayudan a los empleados a recopilar los datos adecuados en el momento adecuado, mejorando la calidad de los servicios prestados y, por lo tanto, aumentando su productividad laboral y apoyando a la gerencia toma de decisiones (Leung, 2019; Lu, Lu, Gursoy y Neale, 2016; Shin, Perdue y Kang, 2019). Además, la TI juega un papel crucial en la mejora de la red hotelera externa que abre nuevas oportunidades comerciales que involucran a diferentes partes interesadas (es decir, transporte, restaurantes, lugares de ocio y lugares, agencias de viajes, operadores turísticos, etc.).

La adopción de sistemas de TI también tiene un impacto significativo en el rendimiento financiero del hotel al aumentar los ingresos y disminuir los costos (Melián-González y Bulchand-Gidumal, 2016). Por ejemplo, el uso de canales de redes sociales como Facebook afecta los procesos orientados al cliente (Germann Molz, 2012) y, por lo tanto, los ingresos por ventas del hotel. Las herramientas de TI conducen a una mayor participación de mercado y rentabilidad de los hoteles que los sistemas tradicionales (Leung, 2019). De manera similar, la adopción de TI reduce los costos operativos generales a través del cambio de participación en los ingresos de costosos intermediarios (es decir, a través de agencias de viajes o motores de reservas) a canales de distribución directos, reduce los costos de personal y aumenta la rentabilidad, ya que las tareas diarias podrían ser realizadas en parte por los procedimientos como el sistema de facturación en línea. Los costes también podrían reducirse mediante el uso de sistemas de gestión energética (Melián-González y Bulchand-Gidumal, 2016; Piccoli, Lui, y Grün, 2017).

Además, el aumento en el uso de plataformas web por parte de los viajeros para buscar información relacionada con el turismo y comprar productos y servicios turísticos ha generado un considerable interés sobre la calidad de los sitios web. De hecho, los sitios web, primer punto de contacto entre clientes y empresas, han sido considerados como la herramienta de marketing más importante que refleja la imagen de las organizaciones turísticas con respecto a sus productos y servicios (Wang, 2018). Por tanto, es necesario analizar si estas pasarelas satisfacen las necesidades de los clientes reales y, por tanto, si los conduce a realizar reservas. Un sitio web amigable, fácil de usar y que brinda información de alta calidad, influye positivamente en la imagen percibida del destino y crea una experiencia virtual para el consumidor, ayudándolo a tomar decisiones rápidas y mejores (Ku y Chen, 2015).

Adicionalmente, la aparición de plataformas de redes sociales, como Facebook, Twitter, YouTube, Instagram y TripAdvisor, entre muchas otras, permite una comunicación efectiva con los viajeros (Melián-González y Bulchand-Gidumal, 2016). En particular, a través de estas plataformas web 2.0, los consumidores forman comunidades de miembros que comparten intereses similares y les permiten obtener opiniones de otros y comparar diferentes productos y servicios turísticos. Este ritual se convierte en un importante proceso de toma de decisiones antes del viaje, ya que los consumidores tienden a confiar en el contenido generado por los usuarios con respecto a su experiencia real de la visita en lugar de la promoción de los especialistas en marketing (Tsao, Hsieh, Shih y Lin, 2015).

Debido a la revolución de la tecnología, los viajeros durante el viaje esperan comodidades tecnológicas sofisticadas, como acceso a Internet de alta velocidad, tecnologías de vanguardia en la habitación, así como aplicaciones móviles del destino que ayuden a enriquecer su experiencia de viaje. Esto aumentará la satisfacción de los clientes (Bilgihan, Smith, Ricci y Bujisic, 2016; Bulchand-Gidumal, Melián-González y López-Valcárcel, 2011). Esta satisfacción juega un papel clave en la experiencia posterior al viaje, ya que influye en la boca a boca electrónico [eWOM] (Kwok, Mao y Huang, 2019) y la probabilidad de recomendar el hotel (Liu, Li y Kim, 2017), así como las intenciones de repetir la visita (Berezina et al., 2016).

En resumen, podríamos identificar tres dimensiones clave en la adopción del proceso de TI en la industria de viajes y turismo: dimensión del cliente, implementación tecnológica y dimensión de mercado y empresa.

A pesar de las ventajas mencionadas anteriormente de la adopción de TI, el nivel de uso difiere de un destino o empresa a otro, por lo que los beneficios obtenidos también serán diferentes. Lo que nos lleva a plantearnos la pregunta: ¿por qué algunos destinos, a pesar de sus potenciales activos y riqueza turística, no tienen la notoriedad que merecen? ¿Y por qué los gerentes no están abiertos a soluciones novedosas?

Para responder a esta pregunta, primero debemos analizar los factores que influyen en la adopción, estudiar los resultados de las empresas que ya han adoptado TI en sus negocios y luego intentar proponer soluciones adecuadas basadas tanto en las perspectivas de los clientes como de los profesionales.

Algunos estudios anteriores ya han abordado la importancia del uso de las tecnologías de la información en la industria de viajes y turismo, en general, y en la industria hotelera y en la hospitalidad, en particular. Sin embargo, se han realizado pocos estudios en países en desarrollo y, cuando se han hecho, se han centrado principalmente en el continente asiático. En particular, estos estudios están ausentes en el continente africano. En los casos en que se han hecho estudios en África, solo se han analizado los factores que afectan la adopción del comercio electrónico en la industria hotelera.

En este sentido, creemos que sería interesante estudiar el estado del arte en un país en vías de desarrollo (PVD), en cuanto a los factores que limitan la adopción de TI en la industria hotelera, analizar la efectividad de sus sitios web y medir el desempeño del uso de TI por parte de los hoteles. Hemos elegido Marruecos, África como estudio de caso por dos razones principales. Primero, pertenezco a este maravilloso país. Por lo tanto, creo que es crucial intentar mejorar el nivel de TI en la industria hotelera dentro del destino. En segundo lugar, Marruecos es conocido por la diversidad de su cultura y activos turísticos. Viajar de una región a otra en Marruecos es como viajar de un país a otro. Esta peculiaridad de Marruecos se demuestra por el hecho de ser el destino más visitado de África, con 13 millones de turistas internacionales (OMT, 2019).

Por lo tanto, esta tesis busca lograr tres objetivos clave: primero, comprender los factores que influyen en los hoteles para adoptar las tecnologías de la información en sus operaciones comerciales, particularmente en Marruecos; segundo, medir los posibles impactos del uso de la

tecnología de la información en el desempeño del hotel; y tercero, comprender las expectativas de los clientes a través de un modelo que evalúa las características de la web del hotel.

Entre todos los tipos de hoteles, seleccionamos hoteles de tres, cuatro y cinco estrellas y riads de lujo. Hasta donde sabemos y hasta la fecha, no se ha realizado ningún estudio sobre los factores de adopción de TI y sus beneficios en la industria hotelera en Marruecos.

Finalmente, tuvimos la oportunidad de elaborar y presentar un artículo especial que tiene como objetivo examinar los predictores de las intenciones de los usuarios de adoptar aplicaciones de rastreo de contactos para la prevención de COVID-19, y presentarlo durante la conferencia ENTER 2021 celebrada en modalidad virtual por primera vez en sus casi 30 años de historia. Este estudio también puede ser relevante para la industria del turismo, para analizar el riesgo percibido causado por la pandemia y su impacto en las intenciones de viaje.

Contexto de investigación

África, el segundo continente más grande y poblado del mundo, después de Asia, tiene la población más joven entre todos los continentes, ya que la edad media es de 19,7 años (worldometers, 2020). El continente africano alberga una gran cantidad de recursos naturales, ya que posee alrededor del 30% de las reservas minerales conocidas del mundo, que incluyen cobalto, uranio, diamantes y oro, así como importantes reservas de petróleo y gas natural.

Además, África cuenta con recursos culturales y naturales muy ricos y diversos, con sus bosques, desiertos, montañas, ríos y playas que permiten que el continente sea el destino único para tipos particulares de turismo como los safaris en sabanas y aventuras en el desierto.

Debido a ello, el turismo en África ha comenzado a crecer de forma significativa en los últimos años, pasando de 56 millones de turistas en 2014 a 73 millones en 2019 (OMT, 2014, 2019), y un total de 38.000 millones de dólares de ingresos por turismo internacional (OMT, 2019). Más concretamente, Marruecos, vecino de España en la orilla del mar Mediterráneo y en el océano Atlántico, atrajo a 13 millones de turistas internacionales en 2019, un aumento del 5,2% respecto a 2018 (OTM, 2018, 2019).

Marruecos es conocido por su rico patrimonio cultural y de civilizaciones. Cada región tiene sus peculiaridades, contribuyendo a la cultura del reino. Marruecos es un oasis de placer con su oferta turística de múltiples opciones para todos los gustos. Es el país de las cuatro estaciones, que resume todo el continente africano, con sus bosques, desiertos, montañas, cascadas y playas, contando, además, con su ubicación estratégica cerca de Europa, en el noroeste de África.

La capital política de Marruecos es Rabat, mientras que Casablanca es el corazón industrial y económico del país. Fez es la ciudad imperial e intelectual más antigua de Marruecos, construida hace 12 siglos. Fez contiene la Universidad de al-Qarawiyyin (877), reconocida como la universidad más antigua del mundo por la UNESCO y el libro Guinness de los récords. Marrakech, conocida como la "Ciudad Roja", es la ciudad imperial más atractiva de Marruecos. Actualmente es la tendencia de la ciudad y el destino preferido de las estrellas de Hollywood. Marrakech es conocida por la gira "AL Koutobia" y el lugar "Jamaa el Fna", que está clasificado por la UNESCO como patrimonio oral e inmaterial de la humanidad. Agadir es la principal ciudad turística costera que alberga una de las bahías más bellas del mundo. Agadir es el destino único en Marruecos donde los turistas pueden disfrutar de las playas durante todo el año, debido a su clima templado y también a los lujosos resorts de playa. Agadir pertenece a la región de Souss Massa. Su economía se basa en tres grandes sectores tradicionales: agricultura, turismo y pesca. La contribución de cada uno de los tres sectores al PIB nacional es, respectivamente, del 8,4%, 15,1% y 24,2% (HCP, 2017).

El turismo en Marruecos aporta 750.000 empleos directos y 2,5 millones de empleos indirectos (HCP, 2017). Los destinos más visitados del Reino son Marrakech y Agadir, que generaron el 57% del total de noches turísticas. El país ha sido un destino popular para las vacaciones, específicamente con un gran número de turistas de Francia, España, Alemania, Reino Unido, Italia, Bélgica, Holanda y Estados Unidos. Los ingresos por turismo de Marruecos alcanzaron los 8.500 millones de dólares en 2019 con un aumento del 7,7% en comparación con 2018 (OC, 2019). Hoy, el turismo en Marruecos se está convirtiendo en una prioridad real de su plan de desarrollo.

Según el índice de desarrollo humano del Banco Mundial, que clasifica las economías en países menos desarrollados, en desarrollo y desarrollados, se considera a Marruecos como un país en

desarrollo. Esta clasificación se basó en la esperanza de vida, el nivel educativo y el ingreso real ajustado (dólares por persona).

Además, el Índice de Preparación de la Red (*Network Readiness Index*), que mide la aplicación y el impacto de las tecnologías de la información y la comunicación (TIC) en las economías de todo el mundo, clasificó a Marruecos en la posición 87 entre 121 países (WITSA, 2019). Independientemente de esta baja posición, el gobierno marroquí está tomando conciencia de los beneficios que se obtienen del uso de las tecnologías de la información en diferentes sectores, en particular la industria de viajes y turismo, que se beneficia de varios programas nacionales que buscan hacer de las tecnologías de la información un pilar de la economía.

Justificación del tema analizado

A pesar de las numerosas ventajas obtenidas mediante el uso de sistemas informáticos en la industria hotelera (Buhalis y Leung, 2018; Melián-González y Bulchand-Gidumal, 2016), su adopción está limitada por varios factores, ya sean internos o externos (Tarhini, Masa deh, Al-Badi, Almajali y Alrabayaah, 2017; Lin, 2017; Abou-Shouk, Lim y Megicks, 2016), además de la diferencia entre el entorno empresarial en el que operan las empresas. En otras palabras, la adopción de TI puede diferir de países desarrollados a países en desarrollo (Perdomo-Pérez y Suárez-Ortega, 2017).

Por lo tanto, esta tesis tiene como objetivo estudiar los factores que influyen en la adopción de las tecnologías de la información en la industria hotelera en el contexto de un país en desarrollo, donde existe una brecha significativa en dichos estudios. La investigación también busca investigar el efecto de la adopción de tecnologías de la información en el rendimiento de los hoteles, en un estudio de caso de Marruecos.

Además, dada la importancia de los sitios web de los hoteles como intermediarios entre los hoteles y los huéspedes actuales o potenciales (Qi, Law y Buhalis, 2017) y por ser una importante herramienta de marketing para promocionar y vender los productos y servicios de los hoteles (Wang, 2018), también se ha realizado un estudio orientado a este ámbito. Este estudio tiene como objetivo medir la importancia relativa de las características del sitio web del hotel en función de las percepciones de los usuarios y analiza el impacto de las características

sociodemográficas, como el género, la edad y la frecuencia del acceso a Internet, sobre la importancia dada de las características.

Objetivos y resumen de cada artículo

Esta investigación consta de tres artículos:

El primer artículo, “Factores que influyen en la adopción de tecnologías de la información en la industria hotelera. Un análisis en un país en desarrollo (*Factors influencing the adoption of information technology in the hotel industry. An analysis in a developing country*)”, investiga los factores que inciden en la adopción de las tecnologías de la información en la industria hotelera, específicamente en Marruecos. El propósito del artículo es construir un modelo que conecte los factores de adopción con la intención de los gerentes generales de usar TI en sus hoteles. Así, el estudio brinda información a los gerentes de los hoteles sobre las características individuales y organizacionales que determinan la adopción de TI, los beneficios potenciales obtenidos a través de la integración de TI, y da a conocer los factores externos como la presión del cliente, la intensidad de la competitividad y la tendencia del mercado.

El segundo artículo, "El impacto de la adopción de tecnologías de la información en el desempeño de los hoteles: evidencia de un país en desarrollo (*The impact of information technology adoption on hotel performance: evidence from a developing country*)", tiene como objetivo investigar el efecto de la adopción de tecnologías de la información sobre el rendimiento de los hoteles en un país en vías de desarrollo, medido a través del rendimiento de los empleados y el rendimiento financiero. Como la mayoría de los gerentes de hoteles se enfocan en los recursos que consideran importantes para mejorar su rendimiento (por ejemplo, el diseño del hotel, el equipamiento de las habitaciones, el área alimentos y bebidas) en lugar de los sistemas de TI, este artículo proporciona información y una comprensión general a los profesionales y gerentes de hoteles sobre la contribución de la TI como un recurso clave que podría mejorar su rendimiento.

El tercer artículo, "¿Importan el género, la edad y la frecuencia del acceso a Internet en la importancia percibida de las características del sitio web del hotel? (*Do gender, age and frequency of Internet access matter on the perceived importance of hotel website features?*)",

Busca proporcionar una comprensión general de la evaluación de la web de los hoteles basándose principalmente en la importancia percibida por los usuarios de las características relevantes del sitio web del hotel y cómo esta importancia puede variar según el sexo, la edad y la frecuencia del acceso a Internet. El modelo incluye diez características: diseño, facilidad de uso, privacidad, información corporativa, información sobre productos y servicios, disponibilidad y reservas, información del entorno, información de contacto, enlaces a páginas de redes sociales y opciones de comentarios de los clientes. Por lo tanto, este modelo brinda nuevos conocimientos a los hoteleros para priorizar la mejora de características específicas del sitio web que los usuarios con diferentes categorías de edad y experiencia en el uso de Internet creen que son importantes. Estas mejoras podrían mediar la brecha de servicio entre la efectividad actual del sitio web de un hotel y las necesidades y expectativas de los usuarios, minimizando así el riesgo de perder reservas de hotel frente a la competencia.

En resumen, esta tesis tiene como objetivo investigar los factores que influyen en la adopción de las TI en la industria hotelera, así como medir el efecto de la adopción en el rendimiento organizativo, específicamente en el ámbito de un país en vías de desarrollo como Marruecos. La tesis consta de tres artículos con conclusiones específicas para cada uno. Terminaremos con las conclusiones generales de esta investigación que engloba las principales aportaciones, implicaciones y recomendaciones, además de limitaciones y sugerencias para futuras investigaciones.

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GENERAL INTRODUCTION



Introduction

Tourism was born from a need for escape expressed by rich people. It is in the XVIII century that tourism begins to grow progressively (Zuelow, 2015). This birth coincides with the industrial revolution in England. Tourism is therefore a luxury activity reserved for wealthy people, until the beginning of the XIX century. At that period, the creation of the railway gave a new impetus to travel by promoting the rapid transport of tourists as well as the development of tourists' resorts, specifically seaside resorts.

Progressively, during the XX century, tourism became a mass and democratized activity. Then, the search for the quality predominates, the tourist seeks to ensure the best quality-price ratio, cultural and business tourism has been developed, as well as the concept of sustainable tourism (Zuelow, 2015). Therefore, the continuous development of industries and changes in the way of life has given birth to different types of tourism.

The words "Tourism" and "Travel" have been popularly used to refer to various linked concepts, and both the travel industry and the tourism industry have significant relationship. However, there are some differences between the two sectors. Tourism is perceived as the act of travelling to a different location from home, for either business or pleasure goals. More specifically, the world tourism organization provides the following definition: "the act of travelling to another environment, for at least 24 hours, but for no longer than one year, for purposes related to business or leisure". On the others hands, travel refers to the act of moving from one part of the world to another, for short or long distance, either abroad or nationally. Additionally, travel could include both-rounds trips or one-way journeys. Therefore, there is a significant overlap between the two sectors. However, the travel industry has a wider scope than the tourism industry, covering more goals and durations.

Outside their usual environment and surrounded by strangers, tourists or travelers need a secure shelter in which they feel welcome. This requirement gives birth to another relevant sector, the hospitality industry. The role of the hospitality in the travel and tourism is vital as it covers crucial interconnected areas including, lodging, food and beverage, transportation, recreation, among others.

Thus, the interdependence of various types of business has become an important strategic method of development and growth in the travel and tourism industry (Evans, Stonehouse, & Campbell, 2003, p. 250). As tourism is influenced by a range of global environmental, political, economic as well as technological factors that represent both challenges and opportunities to the sector, it has become essential for independent firms, to establish strategic alliances with other organizations in order to provide an overall guidance that aims the improvement of tourism within destinations (Evans et al., 2003, p. 251).

Today, several countries worldwide rely on the travel and tourism industry as one of the most powerful components of socio-economic activities. Tourism accounted for 10% of the total employment around the world and 10.3% of the global GDP (WTTC, 2019). Growth of the travel and tourism industry increases yearly and the number of people travelling has doubled worldwide, starting from 528 million in 2005 to 1.19 billion in 2015, and expected to reach more than 1.8 billion by 2030. Undoubtedly, the evolution of the tourism industry and the numbers of tourists has to be reconsidered once the COVID-19 crisis ends. 2020 and 2021 have been devastating years for tourism, and it will be necessary to analyze how the sector recovers.

Travel and tourism varies across regions. For instance, Europe accounts for 51% of the world's international arrivals and 40% of international tourism receipts (WTTC, 2019), which ranked it the most-visited continent in the world, followed by Asia and the Pacific (25%), America (15%), Africa (5%) and Middle East (4%).

In light of the above, and since the diversification of the tourist demand and offer continues its expansion, there is a need to enhance the means used for promotion and management of the travel and tourism products and services to remain competitive in the global market and respond to customers' expectations. Middleton and Hawkins (1998, p. 8) state that "a marketing perspective is essentially an overall management orientation reflecting corporate attitudes that, in the case of travel and tourism, must balance the interests of shareholders/owners with the long-run environmental interests of a destination and at the same time meet the demands and expectations of customers".

Nowadays, due to technological advances, there is a significant change in consumers' habits, tourists no longer count on travel agents or other intermediaries as the main source of travel-related information. Instead, tourists are increasingly preparing their holidays on the Internet,

which makes the demand to become more diversified and personalized. In other words, tourists seek to tailor-made their trip. Specifically, the large use of smartphones worldwide has changed the perspective, enabling travelers to obtain rapid information from any time at any place, and enrich their experience of visit by using a variety of mobile tools (Wang, Xiang, & Fesenmaier, 2014).

Therefore, novel business models combined with novel technologies can play a crucial role in satisfying the increasing tourism demand and ensuring the tourism sustainable growth (Benckendorff, Xiang, & Sheldon, 2019; Ivanov, 2019; Sigala, 2018). However, the question becomes which types of technologies could make the difference and allow to maintain a sustainable competitiveness?

Because travel and tourism is an information-intensive sector, whether the information generated by travelers or those managed inside travel and tourism firms, there is a need to use an effective system to store and retrieve huge information and conduct different transactions. Hence, integrating computer reservations systems (CRSs) in 1970, global distribution systems (GDSs) in the late 1980, Internet in the late 1990, and smart technologies in the decade that has begun in 2010, connected through sensors and clouds, have all lead to a new era of tourism. The abovementioned technologies can be regrouped in the term “information technology” (IT).

The term “IT” is popularly associated with the use of computers. Computers have existed since the 70s and they were mainly used to perform complicated calculations. They were also applied to facilitate repetitive tasks such as indexing and sorting data. Then, the term “IT” was generalized.

IT was defined as computer software and hardware solutions that provide support of operations and management, thus increasing the productivity of firms (Thong & Yap, 1995). This definition was then extended to become as all technologies engaged in the operation, collection, transport, retrieving, storage, access presentation, and transformation of information in all its forms (Boar, 1997), including computer network, software and hardware required for Internet connection (Tan, Chong, Lin, & Eze, 2009).

ITs have, revolutionized the travel and tourism industry through changes in processes, products and services, and management of companies (Buhalis & Leung, 2018; Garrigos-Simon, Galdon, & Sanz-Blas, 2017; Melián-González & Bulchand-Gidumal, 2016). For example, hotels have

widely applied IT systems to integrate the front office, back office, in-room and food and beverage departments. This helps in improving daily operation procedure, enhancing work knowledge and communication capabilities by using unified communication channels that helps employees collect the proper data at the proper time, improving the quality of the services delivered and, thus increasing their job productivity as well as supporting managerial decision making (Leung, 2019; Lu, Lu, Gursoy, & Neale, 2016; Shin, Perdue, & Kang, 2019). Furthermore, IT plays a crucial role in improving external hotel's network that opens up new business opportunities involving different stakeholders (i.e., transportation, restaurants, leisure and sites, travel agencies, tour operators, etc).

The adoption of IT systems has also a significant impact on hotel financial performance by increasing revenues and decreasing costs (Melián-González & Bulchand-Gidumal, 2016). For example, using social media channels such as Facebook affect the customer-oriented processes (Germann Molz, 2012) and thus, the hotel's sales revenue. IT tools lead to increased hotel's market share and profitability than the traditional systems (Leung, 2019). Similarly, IT adoption lowers overall operational costs through revenue share-shift from costly intermediated (i.e., through travel agencies or booking engines) to direct distribution channels, reduces staff costs and increases profitability, since daily tasks could partly be done by the automated procedure such as online check-in system. Costs could also be reduced by using energy management systems (Melián-González and Bulchand-Gidumal, 2016; Piccoli Lui, & Grün, 2017).

Moreover, increases in travelers' use of web-based platforms to search for tourism-related information and purchase tourism products and services, created website quality concerns. Indeed, websites, the first point of contact between customers and firms, have been considered as the most important marketing tool that reflects the image of tourist organizations regarding their products and services (Wang, 2018). Thus, there is a need to analyze whether these gateways meet the real customers' needs and thus, lead them to make reservations. A user-friendly website that is easy to use and provide a high-quality information, influenced positively the perceived image of the destination and created a virtual experience for the consumer that helped them make quick and best decisions (Ku & Chen, 2015).

Additionally, the emergence of social media platforms, such as Facebook, Twitter, YouTube, Instagram and TripAdvisor, among many others enabled an effective communication with travelers (Melián-González & Bulchand-Gidumal, 2016). Particularly, through these web 2.0

platforms, consumers form communities of members who share similar interests and allow them to obtain others opinions and compare from different tourism products and services. This ritual becomes an important pre-trip decision-making process, since the consumers tend to trust user generated content regarding their real experience of visit rather than marketers' promotion (Tsao, Hsieh, Shih, & Lin, 2015).

Due to the revolution of technology, travelers during the trip are expecting sophisticated-technology amenities such as high-speed Internet access, cutting-edge in-room technologies, as well as destination apps that help enrich their trip experience. This will increase customers' satisfaction (Bilgihan,Smith, Ricci, & Bujisic, 2016; Bulchand-Gidumal, Melián-González, & LópezValcárcel, 2011). This satisfaction plays a key role of the post-trip experience since it influences the e-word-of-mouth [eWOM] (Kwok, Mao, & Huang, 2019) and the likelihood to recommend the hotel (Liu, Li, & Kim, 2017), as well as the repeat visitation intentions (Berezina et al., 2016).

To sum up, we could identify three key dimensions in the adoption of the IT process in the travel and tourism industry: customer dimension, technological implementation, and market and firm dimension.

Despite the above mentioned advantages of IT adoption, the level of use differs from one destination or firm to another, thus, the benefits gained will also differ. Which leads us to ask the question: why do some destinations, despite their potential assets and touristic richness, not have as notoriety as they deserve? And why managers are not open toward novel solutions?

To respond to this question, we should first analyze the factors that influence the adoption, study the outcomes of firms that have already adopted IT in their business, and then try to propose adequate solutions based on both customers and practitioners' perspectives.

Some previous studies addressed the importance of use of IT in the travel and tourism industry, in general, and in the hospitality and hotel industry in particular. However, few studies have been conducted in developing countries, and the existing ones were mainly focused in the Asian continent. Particularly, such studies are absent in the African continent. In the case of studies that have been conducted in Africa, only the factors affecting e-commerce adoption in the hospitality industry have been analyzed.

In this sense, we believe that it would be thought-provoking to study the state-of-the art in a developing country (DC), regarding the factors that constraints toward the adoption of IT in the hotel industry, analyze their websites effectiveness, and measure the performance of using IT by hotels. We have chosen Morocco, Africa as a case study for two main reasons. First, I belong to this wonderful country. Thus, I believe that it is crucial to try enhancing the level of IT in the hotel industry within the destination. Second, Morocco is known by the diversity of its culture and tourist assets. Traveling from region to region in Morocco seems like traveling from country to country. This peculiarity of Morocco could be demonstrated as the most visited destination in Africa with 13 million international tourists (UNWTO, 2019).

This thesis thus seeks to achieve three key objectives: First, understanding the factors influencing hotels to adopt IT in their business-related operations, particularly in Morocco; second, measuring the possible impacts of using IT on hotel performance; and third, understanding customers' expectations through a model that evaluates hotel website features.

Among all types of hotels, we selected three-, four-, and five-star hotels and luxury riads. To our best knowledge no study has been conducted on IT adoption factors and their benefits in the hotel industry to date in Morocco.

Finally, we got to opportunity to elaborate and present a special article that aims to examine the predictors of users' intentions to adopt contact-tracing apps for prevention from COVID-19, and present it during ENTER conference, 2021, held virtually for the first time in its nearly 30 years of history. This study may also be relevant for the tourism industry, to analyze the perceived risk caused by the pandemic and its impact on travel intentions.

Research context

Africa, the world's second-largest and second-most populous continent, after Asia, has the youngest population amongst all the continents, as the median age is 19.7 years (worldometers, 2020). The African continent is home to an abundance of natural resources since it holds around 30% of the world's known mineral reserves that include cobalt, uranium, diamonds and gold, as well as significant oil and natural gas reserves.

Moreover, Africa is granted with a very rich and diverse cultural and natural resources, with its forests, deserts, mountains, rivers and beaches that allow the continent to be the unique destination for particular types of tourism such as savanna safaris and desert adventures.

Therefore, tourism in Africa has begun to perceive a significant growth in the last 5 years, starting from 56 million of tourists in 2014 to 73 million in 2019 (UNWTO, 2014, 2019), and a total of 38 \$ billions of international tourism receipts (UNWTO, 2019). More specifically, Morocco, Spain's neighbor in the bordering of the Mediterranean Sea and the Atlantic Ocean, attracted 13 million international tourists in 2019, an increase of 5.2% compared to 2018 (OTM, 2018, 2019).

Morocco is known by its rich cultural and civilizational heritage. Each region has its peculiarities, contributing to the culture of the kingdom. Morocco represents an oasis of pleasure with its tourist offers of multiple choices which suit all tastes. It is the country of four seasons that summarizes the entire African continent, with its forests, deserts, mountains, waterfalls and beaches, as well as its strategic location near to Europe, in the northwest of Africa.

The political capital of Morocco is Rabat, while Casablanca is the industrial and economic heart of the country. Fez is Morocco's oldest imperial and intellectual city, built 12 centuries ago. Fez contains the University of al-Qarawiyyin (877), recognized as the oldest university in the world by UNESCO and the Guinness book of records. Marrakech, known as the “Red City”, is the most attractive imperial city in Morocco. Currently it is the city trend, and the preferred destination of Hollywood’ stars. Marrakech is known by “AL Koutobia” tour and “Jamaa el Fna” place, which is classified by UNESCO as a world’s oral and intangible heritage of humanity. Agadir is the main tourist seaside city, sheltering one of the most beautiful bays in the world. Agadir is the unique destination in Morocco where tourists could enjoy beaches around the year, due to its temperate climate and luxury beach resorts as well. Agadir belongs to Souss Massa region. Its economy is based on three main traditional sectors: agriculture, tourism and fishing. The contribution of each of the three sectors to the national GDP is respectively 8.4%, 15.1%, and 24.2% (HCP, 2017).

Tourism in Morocco contributes to 750 000 direct employments and 2.5 millions of indirect jobs (HCP, 2017). The most visited destinations in the kingdom are Marrakech and Agadir,

which generated 57% of the total tourism nights. The country has been a popular destination for holidays, specifically with large numbers of tourists from France, Spain, Germany, United Kingdom, Italy, Belgium, Holland and United states. Morocco's tourism receipts reached 8.5 billion \$ in 2019 with an increase of 7.7% compared to 2018 (OC, 2019). Today, tourism in Morocco is becoming a real priority of its development plan.

According to the World Bank's human development index which classify economies into less developed, developing, and developed countries, considered Morocco as a developing country. This classification was based on life expectancy, educational attainment, and adjusted real income (dollars per person).

Furthermore, the Network Readiness Index which measures the application and impact of information and communication technology (ICT) in economies around the world classified Morocco in the 87th position out of 121 countries (WITSA, 2019). Regardless of this low rank, Moroccan government is becoming conscious of the benefits gained from the use of IT in different sectors, particularly the travel and tourism industry that takes advantages from several national programs seeking to make IT as a pillar of the economy.

Justification of the subject analyzed

Despite the numerous advantages gained through the use of IT systems in the hotel industry, (Buhalis & Leung, 2018; Melián-González & Bulchand-Gidumal, 2016), their adoption is constrained by several factors whether internal or external (Tarhini, Masa'deh, Al-Badi, Almajali, & Alrabayaah, 2017; Lin, 2017; Abou-Shouk, Lim, & Megicks, 2016), in addition to the difference between the business environment in which firms operate. In other words, the adoption of IT may differ from developed to developing countries (Perdomo-Pérez & Suárez-Ortega, 2017).

Therefore, this thesis aims to study the factors influencing IT adoption in the hotel industry in the context of a developing country, where there is a significant gap in such studies. The research also seeks to investigate the effect of IT adoption on hotel performance, in a case study of Morocco.

Moreover, given the importance of hotel websites as an intermediary between hotels and current or potential guests (Qi, Law, & Buhalis, 2017) and an important marketing tool for promoting and selling hotels' products and services (Wang, 2018), a study oriented to this area has also been conducted. This study aims to measure the relative importance of hotel website features based on users' perceptions, and analyzes the impact of sociodemographic characteristics such as gender, age, and frequency of Internet access on the given importance of features.

Objectives and summary of each article

This research consists of three articles:

The first article, "Factors influencing the adoption of information technology in the hotel industry. An analysis in a developing country", investigates the factors affecting the adoption of IT in the hotel industry, specifically in Morocco. The article's purpose is to construct a model that connects the factors of adoption to the intention of general managers to use IT in their hotels. Thus, the study provides insight to the hotels' managers, regarding the individual and organizational characteristics determining IT adoption, the potential benefits gained through the integration of IT, and gives awareness regarding the external factors such as customer pressure, the intensity of competitiveness and the trends of the market.

The second article, "The impact of information technology adoption on hotel performance: evidence from a developing country", aims to investigate the effect of IT adoption on hotel performance (HP) in a DC, measured through employee performance and financial performance. As most hotel managers focus on resources they perceive important to enhance their HP (e.g., hotel design, room equipment, food and beverage) rather than IT systems. This article provides insight and an overall understanding to practitioners and hotel managers, regarding the contribution of IT as a key resource that could improve their HP.

The third article, "Do gender, age and frequency of Internet access matter on the perceived importance of hotel website features?", seeks to provide an overall understanding of hotel website evaluation based mainly on users' perceived importance of relevant hotel website features and how this importance may differ by gender, age as well as frequency of Internet access. The model includes ten features: design, ease of use, privacy, corporate information,

information on products and services, booking information and reservations, information on the surroundings, contact information, links to social media pages, and customer feedback options. Therefore, this model gives new insights to hoteliers to prioritize improvement of specific website features that users with different age category and Internet-use experience believe to be important. These improvements could mediate the service gap between a hotel's current website effectiveness and users' needs and expectations, thus minimizing the risk of losing hotel reservations to competitors.

To sum up, this thesis aims to investigate the factors influencing the adoption of IT in the hotel industry, as well as measuring the effect of adoption on HP, specifically in Morocco, a DC. The thesis consists in three articles with specific conclusions to each one. We will end by general conclusions of this research which encompasses the main contributions, implications and recommendations, in addition to limitations and suggestions for future research.

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ELABORATED ARTICLES



This thesis consists of three articles:

- Article 1: Factors influencing the adoption of information technology in the hotel industry. An analysis in a developing country.
- Article 2: The impact of information technology adoption on hotel performance: evidence from a developing country.
- Article 3: Do gender, age and frequency of Internet access matter on the perceived importance of hotel website features?

**ARTICLE 1: FACTORS INFLUENCING THE
ADOPTION OF INFORMATION TECHNOLOGY IN
THE HOTEL INDUSTRY. AN ANALYSIS IN A
DEVELOPING COUNTRY**



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ARTICLE 1

FACTORS INFLUENCING THE ADOPTION OF INFORMATION TECHNOLOGY IN THE HOTEL INDUSTRY. AN ANALYSIS IN A DEVELOPING COUNTRY

Abstract

This study investigates the factors influencing the adoption of information technology (IT) in the hotel industry, specifically in Morocco, a developing country. Our research model incorporates the following four constructs: organizational characteristics, individual characteristics, perceived benefits, and external factors. For this aim, a questionnaire was developed and sent to the general managers of hotels in Morocco to collect data and verify the research hypotheses. A sample size of 233 hotels and riads was used. The hypotheses were tested using a partial least squares approach. The results of the analysis reveal that external factors (i.e., competitive pressure, customer pressure, supplier pressure, and government support) have the strongest effects on the adoption of IT, the individual characteristics and the benefits that hotel managers perceive they will get from IT adoption are also important, while the organizational characteristics have no significant impact. The theoretical and managerial implications of these results are discussed.

Keywords: information technology; adoption factors; hotel industry; developing countries.

1 Introduction

Over two decades, information technology (IT) systems have changed the way businesses operate in the hotel industry (Buhalis & Leung, 2018; Garrigos-Simon, Galdon, & Sanz-Blas, 2017), allowing hotels to reach customers directly (Leung, Law, van Hoof, & Buhalis, 2013; Sotiriadis, 2017), enhance their competitiveness, and improve their organizational performance (Inversini & Masiero, 2014; Melián-González & Bulchand-Gidumal, 2016).

In fact, the term “IT” is used to describe a wide range of digital technologies that enable data to be accessed, transmitted, stored, and modified through networks. Internet, email, website, Wi-Fi, booking engines such as Booking.com, SMS for notification and promotions, hardware (i.e., computers and smartphones), software, such as enterprise resource planning (ERP), computer reservation systems (CRSs), global distribution systems (GDSs), customer relation management systems (CRMs), property management systems (PMSs), knowledge management systems (KMSs), mobile applications, as well as social media platforms (such as Facebook, Twitter, YouTube, Instagram, TripAdvisor and LinkedIn), are some examples of the IT tools that have been broadly implemented throughout the hotel industry (Buhalis & Leung, 2018; Bulchand-Gidumal, Melián-González, & López-Valcárcel, 2011; Law, Buhalis, & Cobanoglu, 2014; Sirirak, Islam, & Khang, 2011).

However, evidence suggests that the IT adoption process in the hotel industry is affected by several factors that can be grouped into internal (Jia, Guo, & Barnes, 2017; Tarhini, Masa’deh, Al-Badi, Almajali, & Alrabayaah, 2017; Wang, Gunasekaran, Ngai, & Papadopoulos, 2016) and external factors (Abou-Shouk, Lim, & Megicks, 2016; Lin, 2017). Additionally, the decision of hotel managers in terms of increasing IT investments depends on how they perceive the use of such technologies. In other words, the more positive their attitudes, the more likely they are to invest in IT (Leung, Lo, Fong, & Law, 2015; Ramayah, Ling, Taghizadeh, & Rahman, 2016).

Furthermore, the importance of the business environment in which firms operate has been highlighted as an important determinant of their practices. In fact, prior studies have revealed that the adoption of IT differs from developing countries (DCs) to the developed ones. The reason behind this difference could be related to several factors, such as social and economic

trends, as well as laws and rules applied in each country (Perdomo-Pérez & Suárez-Ortega, 2017).

This paper seeks to investigate the factors that influence the adoption of IT in the hotel industry in the specific case of DCs. The paper focuses in particular on luxury riads (traditional Moroccan houses that have two floors around an Andalusian-style courtyard containing a fountain and plants), three-, four-, and five-star hotels, and palaces (a term used to describe some luxury hotels among five-star hotels) in Agadir and Marrakech, the two most visited destinations in Morocco.

The purpose and the contribution of the study are to construct a model that connects the factors of adoption to the intention of hotels' general managers in embracing the use of IT in the hotel industry, specifically in DCs, where there is a significant gap in the literature regarding IT adoption factors. To our knowledge, the current research is one of the first studies on DCs offering an overall understanding of the factors that influence IT adoption and the only one in Morocco.

The present work provides insight to the hotels' managers, regarding the individual and organizational characteristics determining IT adoption, as well as providing awareness regarding the potential benefits gained through the integration of IT. Moreover, being informed of external factors such as the competitiveness and customer pressure makes managers aware regarding the intensity of competitiveness and the trends of the market in which they operate, and could motivate them to innovate by applying a competitive strategy using advanced IT in order to maintain their positions in the marketplace and better respond to customers' needs and expectations.

The study will also help managers identify some barriers against adoption such as insufficient financial resources. This, in turn, could encourage governments and policymakers to take action and provide solutions through national programs and policies by providing funds, training programs and incentives, increasing public spending on technology projects, and ensuring and improving the IT infrastructure to enable both hoteliers and costumers to take full advantage of the opportunities offered by IT. Additionally, the government role to build capacity through entrepreneurship initiatives will help hotels discover best practices, make their business innovative and become more competitive.

2 Overview of IT adoption in Morocco

In the northwest of Africa and bordering the Mediterranean Sea and the Atlantic Ocean, is located the Kingdom of Morocco. The country is known for its rich cultural heritage. It is called the country of four seasons, and is seen as representing the entire African continent with its forests, deserts, mountains, waterfalls and beaches. Its strategic location near Europe is especially important. Morocco has been characterized by its political and economic stability compared to its neighboring countries.

Moroccan economy depends mainly on exports, private investment and tourism. The latter contributes by 6.8% to the national GDP (Gross Domestic Product) and represents more than 2 million direct and indirect jobs (HCP, 2017).

Tourism in Morocco began in the 19th century, and the number of tourists has successfully increased from 250 000 in 1953 to 12.3 million in 2018. With “Vision 2020”, the country aims to reach 20 millions of tourists by 2020, and position Morocco among the top twenty tourist destinations worldwide (ONMT, 2010).

On the other hand, the Networked Readiness Index, which measures the readiness of a country to make effective use of IT, scores Morocco in the 78th rank among 148 countries (WEF, 2015). Despite this low ranking in terms of IT use, Moroccan government is becoming more and more aware of the benefits gained from IT adoption in different sectors, such as tourism. We highlight the national program “Maroc Numeric 2013”, which seeks to make IT as a vector of human development; make IT as a source of productivity and added value for economic sectors and public administration; make IT industry as a pillar of the economy, and position Morocco as a regional technology hub. We also mention the program “Maroc Digital 2020”, which adds to the previous program the creation of the “Digital Development Agency” that aims to reduce the digital access gap in half, and better respond to enterprises’ needs and expectations, such as performing tests before investing in a digital application and benefiting from a financial program of digital transformation. Thus, we believe that this could accelerate the process of IT adoption in Morocco and increase the level of use in tourism in general and the hotel industry in particular.

3 Literature review

3.1 Adoption of IT in the hotel industry

Nowadays, IT has been dramatically transforming the hotel industry, and can be considered the most powerful tool in conducting business, from marketing, supporting operations and managerial decision making, improving communication between employees, increasing employees' efficiency, to reaching a competitive advantage (Melián-González & Bulchand-Gidumal, 2016; Neuhofer, Buhalis, & Ladkin, 2015).

In terms of the factors that affect the intention to use IT tools, Matikiti, Mpinganjira, and Roberts-Lombard (2018) classified them into internal factors, which can be represented by managerial support and managers' levels of education and technical knowledge, and external factors, which includes pressure from competitors, perceived benefits, and perceived ease of use. Similarly, Lin (2017) stated that the most critical factors for IT adoption are top management support and consumer needs. Styvén and Wallström (2017) suggested four barriers (financial risk, time constraints, external environment, and lack of IT expertise and strategy) and three benefits (internal efficiency, marketing and competition, and financial benefit) in the adoption of IT tools by Swedish tourism companies. Additionally, Sunny, Patrick, and Rob (2019) stated that the perceived long-term benefits of hotel technology, such as workload reduction and performance enhancement, can be considered as a positive impact on the increasing level of technology use.

In analyzing IT adoption in the hotel industry, it is worth mentioning the technology, organization, and environment (TOE) framework (Tornatzky & Fleischer, 1990) that identifies three categories (technological, organizational, and environmental context of an enterprise), which influence the process by which an enterprise adopts and implements IT. The technological context refers to technology-related factors that influence the adoption of innovative IT. The organizational context refers to firm's profile characteristics, resources, internal social network on its IT adoption behavior, firm size and scope, formal and informal linking structures, internal communication, peer influence, organizational culture, and the quality of human resources. Finally, environmental resources refer to many external factors, such as government policies, competitors, and trading partners.

3.1.1 Comparison of IT adoption between developing and developed countries

Businesses in DCs have been argued to face unique challenges from those in developed countries and, thus, differ in the ways they adopt and benefit from technology. For instance, Zaied (2012) revealed that the lack of technological infrastructure such as slow telecommunication and Internet negatively influences the adoption of IT in DCs. Al-Weshah and Al-Zubi (2012) stated that the lack of skills is one of the most important barriers of IT adoption. Ahmad, Abu Bakar, Faziharudean, and Mohamad Zaki (2015) and Adebajo, Teh, and Ahmed (2016) showed that unawareness of potential benefits hinders the process of IT adoption in DCs. Similarly, the lack of financial resources, have also been considered as a major cause in businesses' hesitation to adopt IT in the hotel industry in DCs (Adebajo et al., 2016).

Evidence suggested that external factors such as competitive pressure (Krizaj, Brodnik, & Bukovec, 2014) and customer pressure (Lin, 2017) are key factors to adopt IT in DCs. Socio-cultural factors also influence the process of adoption of IT. In fact, each country is characterized by its own culture and values, and business internationalization to DCs encounters several risks due to institutions differences between the origin and the host country (Perdomo-Pérez & Suárez-Ortega, 2017). Thus, this difference impacts on how IT is adopted (El-Gohary, 2012; Ongori & Migiro, 2010; Sunny et al., 2019).

In the case of Morocco, the main challenges encountered by foreign lodgings operating in the country are lack of expertise in planning or managing tourism at the national level, inefficient public administration and lack of tourism promotion (Perdomo-Pérez & Suárez-Ortega, 2017). Particularly, foreign managers clearly perceive more challenges than Moroccan ones. These challenges are related to the educational system, lack of suppliers and sometimes unqualified ones, as well as cultural and religious challenges.

Furthermore, the perception of potential benefits and barriers may depend on type and size of establishments (Perdomo-Pérez & Suárez-Ortega, 2017). In some cities in Morocco such as Marrakech, the number of riads exceeds the number of hotels, which could lead to the difference of challenges. In this case, foreign managers highlighted problems of corruption, discriminatory taxes and unfair competition, specifically from illegal guest houses (Perdomo-Pérez & Suárez-Ortega, 2017), while Moroccan managers of riads stressed specifically the lack of funds to support the development of their business.

3.1.2 IT adoption intention

According to many scholars, integrating a variety of IT inside the hotel has resulted in decreased costs, increased revenues, greater productivity, and improved service quality and guest satisfaction (Buhalis & Leung, 2018; Hua, Morosan, & DeFranco, 2015; Melián-González & Bulchand-Gidumal, 2016).

However, the decision of hotel managers in terms of increasing IT investments depends on how they perceive the use of such technologies. In other words, the more positive their attitudes, the more likely they are to invest in IT (Ramayah et al., 2016). In light of the above and of what has been stated in previous sections, three items will be tested to verify hotel managers' intentions to adopt IT: the positive attitude toward the hotel's adoption of IT (ADOPT1), the intention to increase the use of IT in the hotel (ADOPT2), and the intention to increase the hotel's IT investments (ADOPT3).

3.2 *Development of hypotheses*

3.2.1 Organizational characteristics

The organizational characteristics refer to the characteristics and resources of the firm that might influence the adoption of IT (Jia et al., 2017). Hotels' characteristics such as size and star rating are among the major determinants in adopting IT for business practices (Jia et al., 2017; Wang et al., 2016), in addition to organizational readiness in terms of financial resources (Law et al., 2014; Leung & Law, 2013). In other words, hotels with more sufficient financial resources are more likely to adopt IT (El-Gohary, 2012). Therefore, organizational characteristics are key factors toward the adoption of IT. In view of this, we propose the following hypothesis:

Hypothesis 1. Organizational characteristics influence the adoption of IT in the hotel industry.

To test hypothesis 1, the following two dimensions will be used according to the previous literature review: hotel characteristics and financial resources.

Hotel characteristics. Generally, small tourism firms have been less likely to implement IT tools than their larger counterparts. For instance, Escobar-Rodríguez and Carvajal-Trujillo (2013) observed that Spanish larger hotel chains showed a greater presence on social media platforms. Wang et al. (2016) indicated that a firm's size (i.e., number of employees) is positively related to mobile hotel reservation systems.

On the other hand, existing theories have suggested that firms that handle large amounts of information are most likely to adopt more IT solutions to improve their efficiency, effectiveness, and competitiveness (Mndzebele, 2013). Additionally, Jia et al. (2017) state that firm scope (the degree of geographical dispersion of a firm's business activities) is another organizational characteristic that affects the adoption of IT. In light of the above, three items are proposed to measure hotel characteristics and structure effects: hotel's size (OHCHR1), hotel's information intensity (OHCHR2), and hotel's scope (OHCHR3).

Financial resources. Several results have found that the availability of financial resources enhances the adoption of IT within firms. Leung and Law (2013) demonstrated that the lower the cost of adoption, the more likely the new innovation will be adopted by hotels and vice versa. Okumus, Bilgihan, Ozturk, and Zhao (2017) demonstrated that cost and return on investment are considered as barriers against IT implementation in hotel companies. On that basis, the following items are proposed to determine the effect of financial resources on the accuracy of hypothesis 1: hotel's financial resources (OFINC1), cost of IT implementation (OFINC2), and return on investment (OFINC3).

3.2.2 Individual characteristics of the hotel's general manager

Researchers have pointed out that the general manager's support plays a key role in influencing the adoption of innovative activities in the organizations (Tarhini et al., 2017), as it can be considered as a source of encouragement and motivation for employees. Particularly, individual characteristics of managers are considered to be a determinant factor of IT adoption (Rahayu & Day, 2015). Thus, the positive attitude toward IT can heavily influence the manager's decision to implement IT within a firm (Ozturk & Hancer, 2014; Tarhini et al., 2017). In that regard, the following hypothesis is proposed.

Hypothesis 2. The individual characteristics of the hotel's general manager influence the adoption of IT in the hotel industry.

Evidence suggested that the general manager's characteristics, such as IT skills and openness toward change, are relevant in the development of all types of innovation (Jones, Simmons, Packham, Beynon-Davies, & Pickernell, 2014). Ramayah et al. (2016) stated that the deeper the CEO's IT knowledge and innovativeness, the greater the likelihood of website technology continuance. Rahayu and Day (2015) demonstrated that a manager's innovativeness, play a key role in adopting technology. Therefore, to see the effect on hypothesis 2, the following items are proposed: innovativeness of the hotel's general manager (IMCHR1), IT skills of the hotel's general manager (IMCHR2), and openness toward change of the hotel's general manager (IMCHR3).

3.2.3 Perceived benefits

Empirical studies have found that perceived benefits have a significant impact on IT adoption. In fact, considering the benefits induced by IT adoption, most tourism firms, regardless of their size, have adopted and used IT tools in their businesses (Krizaj et al., 2014).

Abou-Shouk et al. (2016) highlighted three types of perceived benefits that lead the actual level of technology adoption: marketing and competition benefits, business efficiency benefits, and essential benefits that support strategy and development. Leung et al. (2015) stated that the willingness to adopt IT in hotels is affected by both perceived direct and indirect benefits. Therefore, benefits that hotels' managers perceive are relevant to the decision to adopt IT. In that context, this study proposes the following hypothesis:

Hypothesis 3. There is a positive relationship between the perceived benefits of use and the intention to adopt IT in the hotel industry.

In order to test hypothesis 3, three perceived benefits will be used according to the previous literature review: marketing benefits, managerial benefits, and competitive advantage.

Marketing benefits. In the hotel industry, IT is considered to be one of the most powerful promotional tools. For example, in focusing on commonly mentioned advantages of social media adoption, hoteliers stressed that these tools help them to better approach their customers. As a result, they can improve their image and provide a touch of modernity (Garrido-Moreno, Lockett, & Garcia-Morales, 2015).

Specifically, in DCs, Rahayu and Day (2017) stated that the top six IT benefits perceived by Indonesian enterprises are marketing and purchasing procurement activities, extending market reach, increasing sales, improving external communication, improving company image, improving speed of processing, and increasing employee productivity. In light of the above, three items are proposed to measure marketing benefits: promote hotels' product and service, (PMARK1), reach customers directly, (PMARK2), and improve customer satisfaction, (PMARK3).

Managerial benefits. Management benefits and their influences on IT adoption have been included in prior studies. For example, Melián-González and Bulchand-Gidumal (2016) designed a model that connects IT and hotel performance through it, illustrated how IT can improve employee productivity by reducing personal costs (e.g., online check-in) and making service interactions more available.

Specifically, for the case of DCs, studies have examined the need for large firms to integrate their IT systems with their knowledge management strategies (Tarhini, Arachchilage, & Abbasi, 2015) to improve communication with employees and stakeholders, and support daily operations and managerial decision making. This is supported by Buhalis and Leung's (2018) study, revealing that internal data from IT applications among all stakeholders, consolidated with external environment context, form the hospitality big data on the cloud that enables managers to use business intelligence analysis to generate scenarios (e.g. yield management) that enhance revenue management performance. Their proposed model enables integrated applications, using big data to enhance hospitality decision making as well as strengthen competitiveness and improve strategies performance. In light of the above and of what has been stated in previous sections, the following items are proposed to determine the effect of management benefits on the accuracy of hypothesis 3: increase employees' performances (PMANAG1), improve communication and interactions with employees (PMANAG2), and support managerial decision making (PMANAG3).

Competitive advantages. Researchers have considered IT as an enabler to achieve the desired competitive advantages and as an important support for operational and strategic business decisions (Vratskikh, Al-Lozi, & Maqableh, 2016). In fact, ITs help hotels staying connected with their existing and potential customers, maintaining price leadership in the market and differentiating their products and services (Bertan, Bayram, Ozturk, & Benzergil, 2016). In light

of the above, three items are proposed to measure competitive advantage: maintain price leadership in the market (PCA1), differentiate a hotel's products and services (PCA2), and enhance revenue generation (PCA3).

3.2.4 External factors influencing the adoption of IT in the hotel industry

In general, firms are forced to adopt some specific IT tools due to pressure exerted by various external forces. Based on the TOE, Jia et al. (2017) have shown that environmental context factors, including competitive pressure, significantly influence enterprises' intentions to use IT tools. El-Gohary (2012) adds that market trends play an important role in the use of IT tools. This is supported by Abou-Shouk et al. (2016)'s work, which showed a positive relationship between perceived environmental pressures and the perceived benefits of IT adoption by Egyptian travel agents. Thus, external factors are major determinants that oblige hoteliers to adopt innovative solution in their business in order to stay competitive in the marketplace (Sainaghi, Phillips, & Zavarrone, 2017). In that context, the following hypothesis is proposed.

Hypothesis 4. There is a positive relationship between external factors and the adoption of IT in the hotel industry.

In order to test hypothesis 4, four external factors will be used, according to the previous literature review, namely: intensity of competitiveness, customer pressure, suppliers' pressure, and government support.

Intensity of competitiveness. It has been argued that the competitive pressure affects the degree to which an organization will adopt IT in doing business (Jia et al., 2017). Tarhini et al. (2017) revealed that there is a significant impact of competitive pressure on behavioral intention to use IT services. Thus, hotels operating in a highly competitive market must continue to innovate by applying a competitive strategy using advanced technology in order to maintain their positions in the market and being different from competitors (Sitawati, Winata, & Mia, 2015).

In the case of Morocco, the country has always held a certain attraction for entrepreneurs to set up their own hotels, which has played a key role in the social and economic development of Morocco, as well as the increase of competitiveness in the hotel industry. Due to the widespread use of technology, IT solutions have become a real need for Moroccan hotels (Mohammed, Rashid, & Tahir, 2014; Perdomo-Pérez & Suárez-Ortega, 2017). In light of the above and of

what has been stated in the previous section and to see the effect on hypothesis 4, measured via intensity of competitiveness, three items are proposed: intensity of competitiveness (ECOMP1), stay ahead of the hotel's competitors (ECOMP2), and the hotel's need to differentiate itself from its competitors (ECOMP 3).

Customer pressure. Many authors have stated that the tourism industry is influenced by increasing advances in new technologies and the tourists' constantly changing needs (Ho, Lin, & Chen, 2012; Jordan, Norman, & Vogt, 2013; Law et al., 2014). In fact, consumers increasingly rely on technology in planning their trips and expect hotels to offer the technologies they enjoy at home (Jung, Na, & Yoon, 2013). Thus, customers are considered as driving forces of IT adoption (Mahrous, 2016). In light of the above, three items are proposed to measure customer pressure: pressure from customers (ECPRES1), the travelers' behaviors change (i.e., relying more and more on IT for arranging their personalized trips) (ECPRES2), and the experience of travelers in IT (ECPRES3).

Suppliers pressure. Supplier dependence is another important factor influencing the adoption of technology by firms. Jones et al. (2014) showed that supplier dependence influences a firm's external diffusion of technology. Some authors join the TOE framework with the institutional theory, since the institutional theory adds to the environmental context of the TOE framework external pressures from trading suppliers and competitors (Jones et al., 2014; Oliveira & Martins, 2011).

Furthermore, Zhang & Dhaliwal (2009) stated that large firms put pressure on suppliers to adopt technologies for supply chain management. On that basis, we propose the following items, to determine their effect on hypothesis 4: pressure from suppliers (ESUP1), suppliers' use of IT when conducting business (ESUP2), and the supplier dependence, the more likely the adoption of IT (ESUP3).

Government support. Several studies have suggested that contributions from the government play an important role in the adoption and implementation of IT in the tourism and hotel industry. For instance, Doh and Kim (2014) suggested that financial support from the government is meaningful for enterprises' innovations. Alam and Noor (2009) revealed that all types of financial support to Malaysian enterprises for IT adoption have been provided by government. Makame, Kang, and Park (2014) demonstrated that technology infrastructure is an

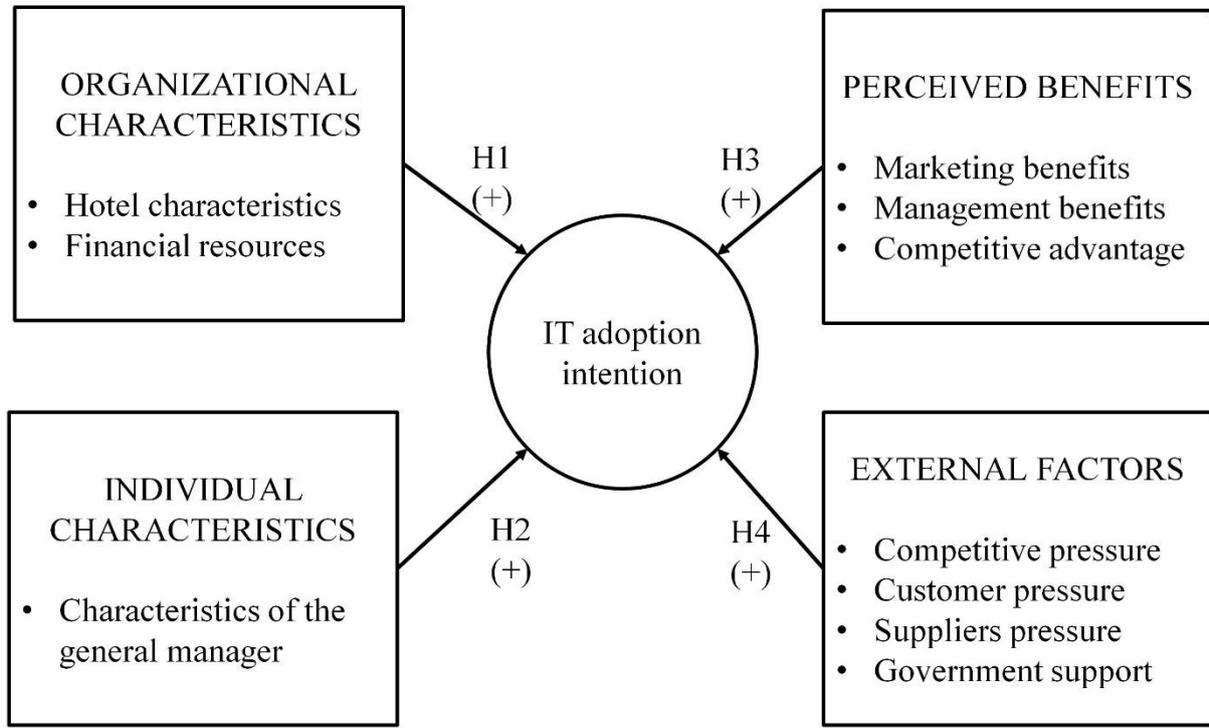
important factor in IT adoption in Tanzania and national policy initiatives are valuable for building online trust and improving the technology infrastructure.

Additionally, Vrgovic, Vidicki, Glassman, and Walton (2012) revealed that, in DCs, a government agency using innovation hubs, could help enterprises to connect, communicate and collaborate with independent inventors and other parties to start all types of innovation practices. On that basis, the following three items are proposed to determine the effect of government support on the context of hypothesis 4: government' financial support (EGOV1), national programs and IT policies created by government (EGOV2), and government's assurance of the availability of IT infrastructure (EGOV3).

3.2.5 Hypothesized model

Based on what has been shown up to this step, we show our hypothesized model in Figure 1.

Figure 1. Factors influencing the adoption of IT in the hotel industry in DCs



4 Methodology

4.1 Research context

In general, the World Bank's human development index, measures life expectancy, educational attainment, and adjusted real income (\$ per person) to classify economies into less developed countries, DCs, countries in transition, and developed countries. In this classification, Morocco is considered a DC. In our study, we aim to analyze the importance of organizational characteristics, the individual characteristics of the hotel manager, the perceived benefits, and the external factors in the adoption of IT in the hotel industry of DCs.

4.2 *Data collection procedure*

In this study, we explore factors of IT adoption in the hotel industry, specifically in the case of a DC. To this aim, a research questionnaire was developed to collect responses. A self-administered questionnaire (see appendix) was delivered and later collected in person. This was done because face-to-face communication helps to enhance the response rate. Because of the limitation of access to all hotels' employees, questionnaires were addressed only to the attention of hotels' general manager in the cities of Agadir and Marrakech. They were written in French because it is the second-most common language in Morocco. The questionnaires were delivered by the research assistants, who are students at École Nationale de Commerce et de Gestion de Marrakech et Agadir, and one of the authors of this study.

Data were collected from October 2015 to March 2016. 550 questionnaires were sent out. For this aim, we selected all three-, four-, and five-star hotels and palaces available in Agadir (65 hotels) and Marrakech (160 hotels); three luxury riads in Agadir (the only riads that the city has); and 322 luxury riads in Marrakech (out of a total of 883 riads) that have already adopted IT that could be ascertained externally (i.e., website, booking engines, TripAdvisor, Facebook, Twitter, Instagram). The reason behind this choice is that we had already conducted previous interviews with managers of one-star and two-star hotels and riads in Morocco and had found that their level of IT usage was extremely low, as well as their consideration for incorporating IT in their businesses in the near future.

We received a total of 285 responses, of which 52 were discarded for various reasons (e.g., responses missing in the questionnaire, respondents were not the intended informant). Thus, the final sample size contained 233 valid responses, a response rate of 42.36%.

Additionally, a pre-test was conducted in order to evaluate the constructs and other questions outcomes. This pre-test was done with 62 hotels in Agadir and Marrakech over a period of one month.

Due to the results of the pre-test, there were some changes made to the first version of questionnaire, mainly regarding the initial explanation, the way in which certain items were written, and the possible answer to the questions in Parts II and III of the questionnaire. We also got negative loadings for two of the variables: cost of IT implementation (OFINC2) and return on investment (OFINC3). Thus, in order to make reading of results easier, the two

variables were inverted. Furthermore, we removed some questions that inquired about occupancy rates and ADR (Average Daily Rates) in the hotels since the feedback we got was that including these questions would significantly lower the response rate.

4.3 *Description of the sample*

Most responses refer to four-star hotels (40.77%). Among the respondents, 81.97% were male, and 18.02% were female. The majority of the respondents are between 41 and 50 years (32.62%), and 26.18% have between one and five years of experience as hotels' general manager. 44.64% of the respondents had a bachelor's degree, while 42.06% had a master's degree. 46.35% of hotels had a permanent IT manager while 39.05% rely on an external provider (see Appendix I).

In terms of technologies used, the majority of hotels (67.78%) used emails, 47.13% had websites, and 69.75% used booking engines (e.g., Booking.com), while 41.81% have had some type of integrated information systems (PMS) for over 10 years. Additionally, 91.09% of the hotels have Wi-Fi, 91.88% used Facebook and 89.98% used TripAdvisor. Mobile applications were in use in 56.96% of the hotels (see Appendix II).

4.4 *Data analysis*

We considered the structural equation model (SEM) with partial least squares (PLS) method and PLS-Graph Software Version 3.2.8., to test the hypotheses and analyze the measurement and structural model.

Several researchers (Hair, Hollingsworth, Randolph, & Chong, 2017; Rigdon, 2014), state that the main reason for using PLS is its value as an exploratory form of analysis as a confirmatory multivariate technique that includes measurement errors and the relationships between latent variables (LVs) and observed ones.

There are two sub-models in a SEM, the inner model specifies the relationships between the independent and dependent latent variables, whereas the outer model specifies the relationships between the latent variables and their observed indicators (Wong, 2013).

The PLS approach permits the simultaneous testing of hypotheses, allowing measures with single and multiple items as well as the use of reflective and formative indicators (Fornell &

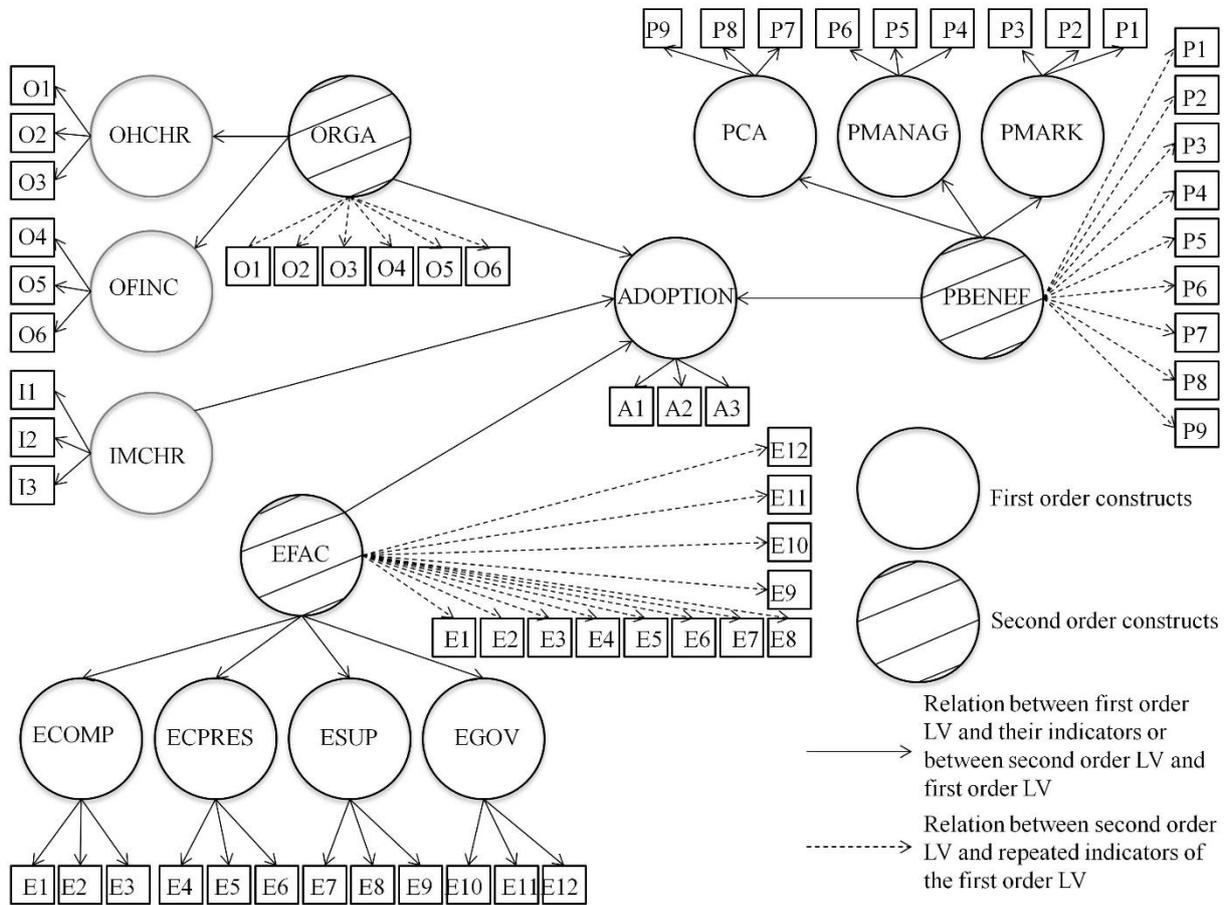
Bookstein, 1982). In the case of our model, reflective measurement scales are used, since all indicators of a construct are interchangeable.

To determine the minimum sample size for a proper PLS-SEM analysis, the “10-times rule” remains the most common and the favorite formula used due to its simplicity of application: 10 times the largest number of indicators used to measure a construct within the model (Hair, Hult, Ringle, & Sarstedt, 2017). Thus, the minimum sample size for the model assessment would be 120, since the construct EFAC is the one with the largest number of indicators, 12 (see Figure 2). Therefore, a sample size of 233 hotels is considered appropriate.

All constructs, dimensions and items derived from previous literature and were modified to suit the purpose of this study. For the questionnaire, the operationalization of variables (i.e., constructs, dimensions, measurement and references) is shown in Appendix IV. All items in the questionnaire are based on a five-point Likert-scale ranging from strongly disagree (1) to strongly agree (5), a total of 33 questions to test the constructs. The questionnaire also included a second part which enquires about general information of hotels and/or riads (name, category, who takes care of their computer system, etc.), as well as a third part, which represents general information of hotel’s general managers (gender, age, years of experience, education level) (42 questions for the three parts).

Following the methodology of Wetzels, Gaby, and Claudia (2009), our model is hierarchical and was constructed in the following order (see Figure 2): We constructed 11 first-order LVs and related them reflectively with their indicators (three for each one). The three second-order constructs were constructed by relating each of them with the corresponding first-order LVs and with their indicators. The three second order-constructs and the first-order construct IMCHR are related to the structural model with the first-order construct ADOPTION (three reflective indicators), the dependent LV.

Figure 2. PLS-SEM model



5 Results

5.1 Assessment of the measurement model

We first evaluated the convergent validity by examining indicator loadings, composite reliability (CR), and average variance extracted (AVE) (Hair, Matthews, Matthews, & Sarstedt, 2017). By checking Table 1, it can be seen that all of the indicators have indicator reliability values that are much larger than the minimum acceptable level of 0.4 and close to the preferred level of 0.7 for an exploratory research. All values of composite reliability are shown to be larger than 0.6, so high levels of internal consistency reliability have been demonstrated among all reflective latent variables. All of the AVE values are greater than the acceptable threshold of 0.5 (Bagozzi & Yi, 1988). Thus, the convergent validity is confirmed. The same conclusion

can be stated for CRs and AVEs of the second order constructs (see Appendix V). Table 1 shows that all dimensions had Cronbach's alpha values above 0.6 (Fornell & Larcker, 1981), showing that all dimensions in this model exhibited internal consistency.

Tableau 1. Results summary for reflective outer models

Latent Variable	Indicators	Loadings	Cronbach's Alpha	Composite reliability	AVE
Hotel's characteristics (OHCHR)	OHCHR1	0.876	0.811	0.888	0.727
	OHCHR2	0.894			
	OHCHR3	0.785			
Financial resources (OFINC)	OFINC1	0.801	0.642	0.803	0.578
	OFINC2	0.798			
	OFINC3	0.675			
Characteristics of general manager (IMCHR)	IMCHR1	0.812	0.771	0.868	0.687
	IMCHR2	0.881			
	IMCHR3	0.793			
Marketing benefits (PMARK)	PMARK1	0.831	0.730	0.848	0.652
	PMARK2	0.852			
	PMARK3	0.734			
Management benefits (PMANAG)	PMANAG1	0.846	0.807	0.886	0.721
	PMANAG2	0.877			
	PMANAG3	0.825			
Competitive advantage (PCA)	PCA1	0.787	0.762	0.863	0.678
	PCA2	0.860			
	PCA3	0.821			
Competitive pressure (ECOMP)	ECOMP1	0.827	0.681	0.825	0.611
	ECOMP2	0.755			
	ECOMP3	0.761			
Customer pressure (ECPRES)	ECPRES1	0.780	0.778	0.871	0.694
	ECPRES2	0.853			
	ECPRES3	0.863			
Business suppliers pressure (ESUP)	ESUP1	0.835	0.770	0.867	0.684
	ESUP2	0.822			
	ESUP3	0.825			
Government support (EGOV)	EGOV1	0.890	0.882	0.927	0.809
	EGOV2	0.909			
	EGOV3	0.899			
IT adoption intention (ADOPTION)	ADOPT1	0.851	0.768	0.865	0.683
	ADOPT2	0.889			
	ADOPT3	0.732			

The discriminant validity was tested by examining the correlation between measures of overlapping constructs (Fornell & Larcker, 1981).

Tableau 2. The AVEs and the correlations between the first order constructs

	1	2	3	4	5	6	7	8	9	10	11
1.Characteristics of general manager	0.829										
2.Financial resources	0.523	0.760									
3.Hotel characteristics	0.718	0.517	0.853								
4.Competitive advantage	0.469	0.411	0.476	0.823							
5.Management benefits	0.500	0.470	0.515	0.638	0.849						
6.Marketing benefits	0.515	0.362	0.468	0.573	0.604	0.807					
7.Competitive pressure	0.339	0.449	0.424	0.593	0.553	0.482	0.782				
8.Customer pressure	0.298	0.316	0.367	0.538	0.400	0.441	0.597	0.833			
9.Government support	0.227	0.403	0.300	0.272	0.256	0.199	0.257	0.263	0.899		
10.Suppliers pressure	0.281	0.366	0.333	0.502	0.432	0.399	0.530	0.558	0.425	0.827	
11.IT adoption intention	0.442	0.363	0.427	0.462	0.426	0.423	0.384	0.408	0.351	0.473	0.826

Table 2 reveals that the square root of AVE of each latent variable (written in bold on the diagonal) is larger than the correlation values encompassed in the row and column of such variable. Thus, the discriminant validity is well established.

5.2 Assessment of the structural model and of hypotheses

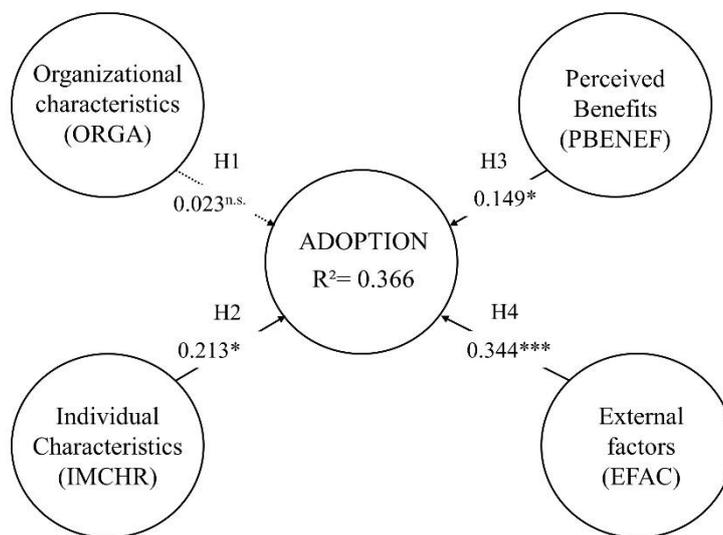
We checked the structural path significance with bootstrapping (subsamples = 5000). Using a two-tailed t-test with a significance level of 5%, the path coefficient will be significant if the t-statistics is larger than 1.96. In our case, all of the t-Statistics are larger than 1.96 (detailed descriptive statistics of each variable can be found in Appendix III, which contains means, standard deviations, t-values and p-values), so we can state that all path coefficients in the inner model are statistically significant. This confirms our earlier findings.

Predictive relevance technique, known as the Stone-Geisser's (Q2) values (cross-validated redundancy measures) can be used to assess the research model's capability to predict (Q2 values of 0.02, 0.15 and 0.35 indicate an exogenous construct has a small, medium and large predictive relevance for an endogenous latent variable respectively) (Hair, Matthews, et al.,

2017). In our case, $Q^2 = 0.226$, which confirm that the measurement model is adequate and that the structural model has a medium to large predictive relevance for the adoption of IT.

As shown in Figure 3, the coefficient of determination, R^2 , is 0.366 for the ADOPTION endogenous LV. This means that 36.6% of the variance of ADOPTION is explained by the four LVs (ORGA, IMCHR, PBENEF and EFAC).

Figure 3. Estimated causal relationships in the structural model



Note: dotted lines refers to non-significant (n.s.) paths; * $p < .05$; *** $p < .001$

Based on Figure 3, hypothesis H2, which predicted a positive relationship between individual characteristics and the adoption of IT in the hotel industry was verified (the path standardized coefficient $\beta = 0.213$), at the level of $p < .05$. The same happens with hypothesis H3, which established that there was a positive relationship between the perceived benefits of use and the mentioned adoption ($\beta = 0.149$, $p < .05$), and hypothesis H4, which predicted a positive relationship between external factors and the adoption of IT ($\beta = 0.344$, $p < .001$). However, Hypothesis H1, which predicted a positive relationship between the organizational characteristics and adoption of IT, is not significant ($\beta = 0.023$, n.s.).

Therefore, as proposed in hypothesis H2, individual factors which are represented by the first order construct the characteristics of hotels' general managers (innovativeness, IT skills, and openness toward change) have a significant contribution in the process of adoption of IT by hotels' managers.

Similarly, as proposed in hypothesis H3, hotel's general managers perceive a series of benefits that motivate them to adopt IT. Those benefits are classified into three types: marketing benefits, management benefits and competitive advantage. All three of them have a significant contribution in the process of building the second order construct.

Also, the four proposed types of external factors (competitive pressure, customers' pressure, suppliers' pressure, and government support) have a significant contribution in the process of building the second order construct.

Finally, the non-significance of the hypothesis H1 permits to conclude that organizational characteristics do not constitute a factor that affects the adoption of IT by hotel's managers.

6 Conclusions and implications

The purpose of the current study was to investigate the factors influencing the adoption of IT in the hotel industry, specifically in the case of a developing country, Morocco. We tested the influence of four groups of factors: organizational characteristics, individual characteristics, perceived benefits, and external factors, using a sample of 233 hotel's general managers in Agadir and Marrakech.

The major conclusion of this study is that the greatest factors influencing the adoption of IT are external factors. This result corroborates with the findings of Jia et al. (2017), who demonstrated that environmental context factors, including competitive pressure, significantly influence enterprises' intentions to use IT services, as well as with those of Abou-Shouk et al. (2016), who revealed a positive relationship between perceived environmental pressures and the perceived benefits of IT adoption by Egyptian travel agents.

In addition to this, this study found that the individual characteristics of hotel's general managers also impact the adoption of IT, a result that aligns with Rahayu and Day (2015)'s

study, which showed that hotelier's individual factors, such as innovativeness, IT experience, and IT ability, play a significant role in adopting technology.

Another important conclusion is that organizational characteristics have no significant impact on the adoption of IT. This result contradicts those of Wang et al. (2016) and Jia et al. (2017)'s indicating that organizational characteristics such as firm's size and scope are positively related to IT adoption. However, this result coincides with those of Rahayu and Day (2017). We believe this may be dependent on the context in which this study was done. Moroccan hotels are still at a low to middle level in the adoption of IT, thus not requiring significant financial resources, which they would need if they were using sophisticated IT tools.

The results also revealed that perceived benefits influence the process of IT adoption. This concurs with Leung et al. (2015)'s findings, which proved that the willingness to adopt IT in hotels is affected by both perceived direct and perceived indirect benefits. Furthermore, in this study, perceived benefits occur as a third factor influencing IT adoption. This could be explained that in the context of a DC, the lack of awareness of potential benefits slowed the IT adoption process.

6.1 *Theoretical implications*

In terms of theoretical implications, this study provides a measurement model that may be useful for academics and researchers conducting further research into IT adoption in the hotel industry, specifically in the case of DCs, where few studies have been conducted, and the majority were focused on factors affecting e-commerce adoption.

Although some previous researches investigated the IT adoption in DCs, the majority studied only the barriers, and in most cases the respondents were employees in general. The current study thus provides further understanding of the relationships among all the factors that affect the process of adoption of the above-mentioned IT, from hotel managers' perspective given its important role in decision making.

The study reflects the perceptions of IT in Morocco in particular, where no study has been conducted on IT adoption factors in the hotel industry to date. Additionally, researchers could use this study in other DC to compare and verify if there are differences from one country to

another. The measurement model of this study could also be used to investigate other disciplines of IT adoption and different categories of enterprises.

6.2 *Managerial implications*

As stated, the findings reveal that the greatest factors influencing the IT adoption in the hotel industry are external factors. Thus, this study suggests that hotel managers should take all the above varieties of external factors into consideration and try to apply novel strategies to cope with the current environment of high competitiveness and maintain their positions in the market (Sitawati et al., 2015). Managers should also consider the fact that travelers' behaviors are changing; a number of them rely on IT to arrange personalized trips, and the most experienced travelers require the use of IT devices before, during, and after their stays, and expect hotels to offer the technologies they enjoy at home. Thus, by adopting IT or by increasing the actual level of use, hotels can enhance their guest satisfaction and loyalty, make the differentiation from their competitors, and achieve a competitive advantage (Bertan et al., 2016; Buhalis & Leung, 2018). In the same sense, IT adoption can help hotels cope with competitive and suppliers pressure.

This study showed that the individual characteristics of hotel's general managers also impact the adoption of IT. Thus, hotels with managers that are innovative and have positive attitude toward IT are more likely to adopt IT (Ramayah et al., 2016). Additionally, considering the major role that the hotel's general managers play in decision-making process, their positive attitude is fundamental. Hence, the greater the positive attitude of the general manager, the more likely the adoption of IT. This is a result that should be taken into consideration by hotel owners when selecting the manager and when designing training processes for current managers.

The results of this study revealed that perceived benefits affect the process of IT adoption. Despite the slow adoption of IT in Moroccan hotels, managers are becoming more and more aware about the potential advantages they will gain by adopting such novel practices. However, suppliers of IT solutions should make IT tools more suitable for use by hoteliers so that their expectations are met.

Furthermore, recognizing the factors that influence IT adoption could encourage governments and policymakers to take action (Abou-Shouk et al., 2016). For example, government should promote IT awareness and its benefits for the hotel industry through national programs. Provide

assistance and introduce effective training programs for hoteliers. They should also organize fairs and international congresses to exchange market knowledge and take advantage from the most innovative techniques used in the sector. Government can enhance hoteliers' motivation toward the adoption of IT through awards and certifications underlining the efficiency and core competency of the hotels.

Government intervention is largely important in setting up of national IT policy and enforcement of service standards and regulation. On the other hand, we suggest establishing open innovation centers in universities, in addition to extending entrepreneurship initiatives that could be used to help hotels discover best practices and become more competitive in the sector.

7 Limitations and implications for future research

This study has some limitations. Firstly, regarding the sample size, the focus on Marrakech and Agadir restricted the data collection, thus impacting the results of the study. Secondly, the findings might be different in contexts other than three-, four-, and five-star hotels and riads.

In this sense, future research should enlarge the sample size by adding other cities in Morocco and/or in other DCs. Additionally, other hotel types could be included. Also, barriers restraining and delaying the adoption of IT, such as security and privacy issues could be another interesting area for future research.

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Appendices

Appendix I. Characteristics of the sample

Category	Frequency	Percentage in sample	Response rate
Riad	13	5.57%	4.06%
3-star	66	28.32%	32.97%
4-star	95	40.77%	42.06%
5-star	47	20.17%	70.87%
Palace	12	5.15%	62.12%
Gender of general manager			
Male	191	81.97%	
Female	42	18.02%	
Age of hotel manager			
From 21 to 30 years	21	9.00%	
From 31 to 40 years	54	23.17%	
From 41 to 50 years	76	32.62%	
From 51 to 60years	51	21.89%	
Above 60 years	31	13.30%	
Experience as hotels' general manager			
From 1 to 5 years	61	26.18%	
From 6 to 10 years	57	24.46%	
From 11 to 15 years	51	22.00%	
From 16 to 20 years	31	13.07%	
From 21 to 25 years	21	9.14%	
Above 25 years	12	5.15%	
Education of hotel manager			
Secondary education level	9	3.90%	
Higher education	104	44.64%	
Master's degree	98	42.06%	
Ph.D.	22	9.40%	
Who takes care of the IT system			
An IT manager which has a permanent function	108	46.35%	
An employee of the hotel/riad which his no this/her main function	34	14.59%	
An external provider	91	39.05%	

Appendix II. Technologies used in the hotel/riad

	Never	Less than a year	1-2 years	3-5 years	6-10 years	> 10 years	I do not know what it is
Email		2.02%	4.00%	6.89%	19.30%	67.78%	
Website	3.14%	2.10%	4.83%	11.72%	31.07%	47.13%	
SMS (notification, promotion, etc.)	8.86%	6.13%	10.11%	38.91%	19.77%	16.21%	
Wi-Fi	6.21%	7.15%	5.71%	31.04%	29.11%	18.07%	2.70%
Integrated IS (ERP/PMS)	8.06%	3.92%	5.16%	12.77%	22.10%	41.81%	6.17%
CRM systems	11.11%	6.15%	9.65%	16.71%	23.22%	31.12%	2.03%
Booking engines		1.02%	2.12%	4.95%	22.15%	69.75%	

Mobile applications	43.04%	20.97%	15.03%	12.11%	6.86%	1.98%
Facebook	8.12%	7.02%	20.72%	30.10%	22.89%	11.14%
Twitter	26.87%	18.05%	25.22%	18.95%	9.02%	1.88%
YouTube	22.07%	8.87%	11.09%	28.15%	17.10%	12.71%
TripAdvisor	10.02%	12.13%	15.77%	32.01%	19.94%	10.12%
LinkedIn	28.89%	14.01%	20.28%	26.87%	9.94%	

Appendix III. Means, standard deviations, T-Values, P-Values

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values
EFAC - ADOPTION	0.344	0.346	0.075	4.597	0.000
EFAC - ECOMP	0.774	0.776	0.036	21.752	0.000
EFAC - ECPRES	0.806	0.807	0.033	24.759	0.000
EFAC - EGOV	0.621	0.620	0.060	10.281	0.000
EFAC - ESUP	0.839	0.840	0.020	41.278	0.000
IMCHR - ADOPTION	0.213	0.215	0.094	2.261	0.024
ORGA - ADOPTION	0.023	0.022	0.092	0.252	0.801
ORGA - OFINC	0.827	0.828	0.026	31.979	0.000
ORGA - OHCHR	0.909	0.909	0.015	62.502	0.000
PBENEF - ADOPTION	0.149	0.150	0.088	1.696	0.043
PBENEF - PCA	0.860	0.860	0.019	45.420	0.000
PBENEF - PMANAG	0.881	0.881	0.017	52.135	0.000
PBENEF - PMARK	0.834	0.834	0.023	36.345	0.000

Appendix IV. Operationalization of variables

Constructs	Dimension	Measurement	References
Organizational characteristics	Hotel characteristics	OHCHR1- I rank the size of our hotel as large	Escobar-Rodríguez & Carvajal-Trujillo (2013); Wang et al. (2016)
		OHCHR2- In our hotel, we handle a large amount of information	Mndzebele (2013)
		OHCHR3- Our hotel scope is geographically large	Jia et al. (2017)
	Financial resources	OFINC1- Generally speaking, our hotel financial resources are sufficient	Leung & Law (2013)
		OFINC2- In general, the cost of IT implementation is low	Okumus et al. (2017)
		OFINC3- The return on investment of IT adoptions is certain	Okumus et al. (2017)
Individual characteristics	Characteristics of general manager	IMCHR1- I consider myself as an innovative manager	Rahayu & Day (2015)
		IMCHR2- I rank my IT skills in general as very good	Jones et al. (2014); Ramayah et al. (2016)

		IMCHR3- I am very open toward change	Jones et al. (2014)
Perceived benefits	Marketing benefits	PMARK1- For our hotel, it is important to promote our products and services	Rahayu & Day (2017)
		PMARK2- For our hotel, it is important to reach customers directly	Garrido-Moreno et al. (2015); Rahayu & Day (2017)
		PMARK3-For our hotel, it is important to improve our customers' satisfaction	Garrido-Moreno et al. (2015)
	Management benefits	PMANAG1- For our hotel, it is important to increase employees' performance (efficiency, rapidity...)	Leung et al. (2015); Melián-Gonzalez & Bulchand-Gidumal (2016)
		PMANAG2- For our hotel, it is important to improve communication and interaction with employees	Tarhini et al. (2015); Vraskikh et al. (2016); Buhalis & Leung (2018)
		PMANAG3-For our hotel, it is important to support managerial decision-making	Tarhini et al. (2015); Vraskikh et al. (2016); Buhalis & Leung (2018)
	Competitive advantage	PCA1- For our hotel, it is important to maintain price leadership in the market	Bertan et al. (2016); Buhalis & Leung (2018)
		PCA2-For our hotel, it is important to differentiate our products and services	Bertan et al. (2016); Buhalis & Leung (2018)
		PCA3-For our hotel, it is important to enhance revenue generation	Buhalis & Leung (2018)
	External factors	Competitive pressure	ECOMP1- We operate in a very competitive environment
ECOMP2- We have to adopt IT in order to stay ahead of our competitors			Sainaghi et al. (2017); Jia et al. (2017)
ECOMP3- We need to differentiate from our competitors			Sitawati et al. (2015)
Customer pressure		ECPRES1- There is a pressure from our customers to use IT	Jung et al. (2013); Mahrous (2016)
		ECPRES2- Travelers' behavior is changing relying further on IT	Ho et al. (2012); Jordan et al. (2013); Jung et al. (2013); Law et al. (2014)
		ECPRES3- Our guests are more and more IT-experienced	Jung et al. (2013)
Suppliers pressure		ESUP1- Our business suppliers expect from us and sometimes force us to use IT	Jones et al. (2014); Mahrous (2016)
		ESUP2- Our suppliers use IT in doing business	Jones et al. (2014); Mahrous (2016)

Government support	ESUP3- We are dependent to our suppliers in using technical applications	Mahrous (2016)
	EGOV1- There is financial support from the government regarding the use of IT	Doh & Kim (2014)
	EGOV2- Government offers national programs to encourage the use of IT in the hotel industry	Makame et al. (2014)
	EGOV3- Government ensures IT infrastructure availability	Makame et al. (2014)
IT adoption intention	ADOPT 1- I think that using IT for our hotel is positive	Tarhini et al. (2017)
	ADOPT2- I intend to increase the use of IT in our hotel	Ramayah et al. (2016); Tarhini et al. (2017)
	ADOPT3- I intend to increase budget for IT in the next 12 months	Ramayah et al. (2016)

Appendix V. Results of second order constructs

	ORGA	PBENEF	EFAC
CR	0.85	0.90	0.89
AVE	0.50	0.50	0.40
OHCHR	0.91***		
OFINC	0.82***		
PMARK		0.83***	
PMANAG		0.88***	
PCA		0.86***	
ECOMP			0.77***
ECPRES			0.80***
ESUP			0.83***
EGOV			0.62***

Note: ***p<.001

Research Questionnaire

Presentation

Hello, for academic purposes, we conduct a research on factors of adoption of information technology in the hotel industry in Morocco. Your collaboration and support will be of great utility to accomplish this research. We would like to confirm that all collected data will be kept confidential and only used for statistical purposes. Please make sure to complete the questionnaire. With many thanks.

Part I: Factors of adoption: This part enquires about factors influencing your decision to adopt information technology in your hotel.

Based on Likert scale ranging from (1) to (5), where (1) means that “you strongly disagree” and (5) means that “you strongly agree”, please tick the checkbox based on your hotel case.

	Question	1	2	3	4	5
1.	I rank the size of our hotel as large.					
2.	In our hotel, we handle a large amount of information.					
3.	Our hotel scope is geographically large.					
4.	Generally speaking, our hotel financial resources are sufficient.					
5.	In general, the cost of IT implementation is low.					
6.	The return on investment of IT adoptions is certain.					
7.	I consider myself as an innovative manager.					
8.	I rank my IT skills in general as very good.					
9.	I am very open toward change.					
10.	For our hotel, it is important to promote our products and services.					
11.	For our hotel, it is important to reach customers directly.					
12.	For our hotel, it is important to improve our customers' satisfaction.					
13.	For our hotel, it is important to increase employees' performance (efficiency, rapidity, etc).					
14.	For our hotel, it is important to improve communication and interaction with employees.					
15.	For our hotel, it is important to support managerial decision-making.					
16.	For our hotel, it is important to maintain price leadership in the market.					
17.	For our hotel, it is important to differentiate our products and services.					
18.	For our hotel, it is important to enhance revenue generation.					
19.	We operate in a very competitive environment.					
20.	We have to adopt IT in order to stay ahead of our competitors.					
21.	We need to differentiate from our competitors.					
22.	There is a pressure from our customers to use IT.					
23.	Travelers' behavior is changing relying further on IT.					
24.	Our guests are more and more IT-experienced.					
25.	Our business suppliers expect from us and sometimes force us to use IT.					
26.	Our suppliers use IT in doing business.					
27.	We are dependent to our suppliers in using technical applications.					
28.	There is financial support from the government regarding the use of IT.					
29.	Government offers national programs to encourage the use of IT in the hotel industry.					

30.	Government ensures IT infrastructure availability.						
31.	I think that using IT for our hotel is positive.						
32.	I intend to increase the use of IT in our hotel.						
33.	I intend to increase budget for IT in the next 12 months.						

Part II: general information of the hotel/riad

34. Name of the hotel/riad:

35. Category: a. Riad b. 3* c. 4* d. 5* e. Palace

36. Who takes care of your computer system (hardware, connection...)? (you can tick many options)

a. An IT manager which has a permanent function.

b. An employee of the hotel/riad which his not his/her main function.

c. An external provider.

d. Others (please specify):

37. How long have each of the following technologies been used in your hotel/riad?

Technologies	Never	Less than a year	1-2 years	3-5 years	6-10 years	> 10 years	I do not know what it is
Email							
Website							
SMS (for notification, promotion, etc)							
Wi-Fi							
Integrated information systems specific to the hotel (ERP/PMS)							
Customer Relationship Management System (CRM)							
Booking engines (booking.com, etc)							
Mobile applications							
Facebook							
Twitter							
YouTube							
TripAdvisor							
LinkedIn							

Others (please specify):

Part III: general information of the manager of the hotel/riad

38. Gender: Male Female

39. Age: 21-30 years 31-40 years 41-50 years 51-60 years
 Over 60 years

40. Years of experience as general manager of hotels:

1-5 years 6-10 years 11-15 years 16-20 years 21-25 years
 Above 25 years

41. Education:

Secondary education Bachelor's degree
 Master's degree Ph.D.

Others:

Other comments or recommendations:

.....

.....

If you wish to obtain a summary of the results of this research, please indicate it below.

() Yes, I want to receive a summary of the results of this research.

Many thanks for your time and patient cooperation...

Signature and stamp:

**ARTICLE 2: THE IMPACT OF INFORMATION
TECHNOLOGY ADOPTION ON HOTEL
PERFORMANCE: EVIDENCE FROM A
DEVELOPING COUNTRY**



ARTICLE 2

THE IMPACT OF INFORMATION TECHNOLOGY ADOPTION ON HOTEL PERFORMANCE: EVIDENCE FROM A DEVELOPING COUNTRY

Abstract

Managers seek continuously to enhance their organizational performance by adopting innovative strategies and tools. Information technology (IT) has revolutionized the hotel industry. To measure the outcomes of IT use on the sector, this study investigates the impact of IT adoption on hotel performance (HP) in Morocco, a developing country. Our proposed research model includes two constructs, namely employee performance and financial performance. We used a quantitative approach and elaborated a questionnaire for hotel's general managers. A sample size of 100 managers from three-, four- and five-star hotels was used. The hypotheses were tested using a partial least squares method. The findings indicate that the major impact of IT adoption on HP is on employee performance more than financial performance. The results also reveal a significant relationship between employee performance and financial performance in hotels. The implications of these findings for researchers and hoteliers are discussed.

Keywords

Information technology, adoption, hotel industry, developing countries, employee performance, financial performance

1. Introduction

Companies today must identify and explore how to access and capitalize on the key resources that could enhance their business performance and keep them competitive in the field in which they operate. In this vein, information technology (IT) has dramatically transformed the hotel industry in recent years (Buhalis & Leung, 2018).

The increasing use of IT in business processes has led to lower costs (Ahmad and Scott, 2019) and increased revenue (De Pelsmacker, Van Tilburg, & Holthof, 2018; Kim and Chae, 2018) and thus, improved hotel's financial performance (Buhalis & Leung, 2018; Jeong et al., 2016).

Furthermore, using IT in the workplace improves communication between employees (Aboelmaged, 2018), the service quality provided (Jeong, Lee, & Nagesvaran, 2016), and help managers to make the proper decisions by obtaining the proper information from the proper source at the proper time (Buhalis & Leung, 2018).

Hoteliers need to confirm the important benefits to be gained from investing in IT tools. Thus more research is needed and from different contexts, as the generalization of factors and their circumstances differ according to the context in which they are applied from developed to developing countries (DCs) (Ezzaouia & Bulchand-Gidumal, 2020).

The number of studies related to the adoption of IT in tourism and hospitality industry increased rapidly in the second half of the 2000s, specifically in countries such as the USA, China, UK and Australia (Yuan, Tseng, & Ho, 2019). Also, it is very common to come across studies that investigate IT usage in hotels and their impact on organizational performance in developed countries. However, few studies have been conducted in DCs.

This study aims to investigate the impact of IT adoption on HP in Morocco, which places the study within the context of a DC. It focuses on three-, four- and five- star hotels and luxury riads (i.e., traditional Moroccan houses with two floors and a courtyard with fountain in the middle surrounded by trees) in Agadir and Marrakech.

This paper makes a contribution to the literature by addressing some gaps in the literature as follows: How does the actual level of IT adoption impact HP, which is measured through employee performance and financial performance? Which type of IT drives to the desired HP?

Are the results similar or different from developed to DCs? To our best knowledge, this research is one of the first studies in Morocco analyzing the current level of IT adoption and their impact on HP.

This study provides insights to hotel managers regarding the numerous benefits reached by adopting IT tools in their business, by analyzing financial performance and employee performance.

2. Literature review

This section begins by discussing recent studies related to IT adoption in the hotel industry. We then explain how IT adoption impacts on HP. Additionally, we provide a comprehensive model that will be tested using a developing country as the case study.

2.1 IT in the hotel industry

In the hotel industry, IT is considered a strategic resource and a key factor in providing business value, enhancing competitiveness and improving organizational performance (Buhalis & Leung, 2018). However, the willingness to adopt IT and the level of use of such technologies may differ due to several factors. In this sense, Ezzaouia and Bulchand-Gidumal (2020) revealed that there are four types of factors affecting the adoption of IT in the hotel industry: organizational characteristics, individual characteristics, perceived benefits, and external factors. Their results show that external factors (i.e., competitive pressure, customer pressure, supplier pressure, and government support) have the strongest effects on the adoption of IT, followed by the individual characteristics and the benefits that hotel managers perceive they will get from IT adoption, while the organizational characteristics have no significant impact.

Accordingly, Leung (2019) shows that the attitude toward the adoption of new technologies in the hotel industry differs among hotel stakeholders. She states that hotel owners expect that the adoption of new technologies could enhance hotel's reputation and brand image, which in turn lead to financial performance. Instead, hotel managers perceive that the use of new technologies could improve their operation performance, reduce workload, save manpower and costs and increase revenue.

IT encompasses a variety of tools that provide support of collection, transformation, storage, and share of information. More specifically, the hotel industry has adopted, among others, computer reservation systems (CRSs), global distribution systems (GDSs), customer relation management systems (CRMs), knowledge management systems (KMSs), mobile applications, websites, and social media platforms (e.g., Facebook, Twitter, YouTube, and TripAdvisor) (Law, Buhalis, & Cobanoglu, 2014).

Consequently, to evaluate the level of IT adoption, scholars have used different methodologies. For instance, Sirirak et al. (2011) include three elements for measuring the level of hotels' IT adoption, namely the availability of IT components, integration of IT components, and intensity of IT usage. Chevers (2015) adapts Sirirak et al. (2011)'s model to propose four levels of IT adoption from the hotel's operational domain: intensity of IT component usage in the room division department, intensity of IT component usage in the food and beverage department, intensity of general IT component usage, and intensity of in-room IT component usage. Furthermore, Ramayah et al. (2016) divide the level of the IT tools into two groups, basic and advanced, beginning from level 0 (i.e., email) to level 4 (i.e., business transformation).

In light of the above, four items are tested to verify the level of IT adoption in hotels, namely: the level of front-office IT use (A1), the level of in-room IT use (A2), the level of food and beverage IT use (A3), and the level of back-office IT use (A4).

2.2 IT adoption and performance in the hotel industry in DCs

Evidence suggests that the adoption of IT in the hotel industry differs from developing to developed countries (Ezzaouia & Bulchand-Gidumal, 2020). This could be related to several factors, such as social and economic trends, laws and rules that apply in each country (Perdomo-Pérez & Suárez-Ortega, 2017). It may also be related to the differences in culture between developed and DCs (Sunny, Patrick, & Rob, 2019). Therefore, it is worth studying whether there are also differences in terms of the benefits gained. In this vein, a study conducted by Mohammed, Rashid and Tahir (2014) indicates that using IT such as CRM affected hotel's financial performance, internal process as well as learning and growth. Ahmad and Scott (2019) suggest that using various IT such as PMS and self-check-in/out kiosks reduces labor costs and increases productivity and efficiency in Malaysian hotels. Masa'deh et al. (2019) state that there

are positive impacts of technological and cultural knowledge management infrastructures on job satisfaction in Jordan.

Moreover, Madhukar and Sharma (2019) reveal that IT plays a significant role in the profitability of the Indian tourism and travel industry. Particularly, in the hotel industry, these covers maintaining a competitive pricing, promoting products and services, improving customers' service quality as well as reaching customers directly without distance and time constraints.

However, Mihalič and Buhalis (2013) state that IT as such does not directly increase hotels' profitability in Slovenia. They suggest that IT adoption has an indirect positive effect on a hotel's financial performance that occurs through other determinants, such as differentiation, quality or image.

Performance can be measured through several dimensions. However, scholars have adopted the most relevant constructs to measure it. For instance, Cohen and Olsen (2013) use profitability, sales growth and revenue per available room measurement. Xie et al. (2016) include revenue per available room as a HP indicator. Kim and Chae (2018) studied the correlation between the adoption of IT tools such as Twitter and room sales performance in hotels in USA.

Furthermore, other researchers focused mainly on employee performance as the most crucial construct to assess HP. For instance, a study made by Rusdi, Hassan, Munir, and Mohamad (2017) reveal that IT adoption has insignificant relationship with employees' performance in Malaysian's firms. Melián-González and Bulchand-Gidumal (2017) show that IT use greatly impact the performance of front office employees in hotels. This is supported by the work of Shin, Perdue and Kang (2019) revealing that front desk employees could be more effective in their tasks when they use the innovative technology. Particularly, their results showed that IT use influences positively human resource management practices including hiring and training.

Following the studies that have been mentioned, we will use two constructs to measure hotel performance: employee performance (EP) and financial performance (FP).

2.3 Development of hypotheses

2.3.1 Employee performance

Many scholars believe that the adoption of IT has a strong positive effect on employee performance. For instance, Yueh, Lu and Lin (2016) suggest that using IT in the workplace positively influences an employee's perceived improvement of their work performance.

From managers' perspectives, IT could enhance employee performance, work knowledge and communication capabilities at a lower cost (Lu et al., 2016), in addition to increasing the quality of the services delivered (Buhalis & Leung, 2018). This is corroborated by the study of Shin, Perdue, and Kang (2019) which revealed that hotel front desk technology affects operational processes, output, experiences, and systems. Therefore, we propose the following hypothesis.

Hypothesis 1. There is a positive relationship between the level of IT adoption and employee performance in hotels.

To test Hypothesis 1, we will use the two following variables to measure employee performance according to the previous literature review: improvement of employee productivity and improvement of service quality. We will now describe these variables.

Improvement of employee productivity. Many studies suggest that IT adoption has a positive effect on employee productivity. For instance, Stieglitz and Brockmann (2012) state that adopting IT helps employees collect ad-hoc information, that it makes workflows clear, flexible and effective using unified communication channels. Chang, Tseng, and Woodside (2013) reveal that over 60% of surveyed managers assume that adopting IT tools boosts employee productivity, responsiveness and job satisfaction.

Jeong et al. (2016) indicate that hotel employees feel confident using IT and perceive IT as relevant tools for performing their job better, which leads to increased job satisfaction and retention with the current organization longer. Aboelmaged (2018) suggests that using IT to communicate and spread relevant internal and external information has a positive effect on employee productivity. Additionally, Leung (2019) states that from hotel managers' perspectives, novel IT systems streamline daily operation procedure and makes internal departments interconnected and interoperable. Thus, increase employees' productivity.

Improvement of service quality. With the rapid evolution of IT, hotels have digitalized many of their internal operations in order to achieve better service quality and meet guests' desires. Employing technologies such as ERP, PMS and CRM, among others helps improving the service quality provided by employees (Chevers, 2015), as well as reducing human errors (Leung, 2019). For example, front desk employees can be more effective in their tasks and deliver high service quality when they use front desk innovative technology (Shin et al., 2019).

Moreover, the adoption of CRM in the hotel industry increases efficiency and improves guests' service quality since it helps hotel employees to identify and build a deep understanding of customers' needs and expectations, and thus, customizing products and services, ensuring higher service quality, and ultimately maintaining customers' loyalty (Mohammed & Rashid, 2012; Rahimi & Kozak, 2016).

2.3.2 Financial performance

Financial performance is the most frequent indicator to measure firm performance. The literature reveals that IT has had a significant effect on a firm's financial performance by enhancing revenues and decreasing costs (Melián-González & Bulchand-Gidumal, 2016).

In the hotel industry, studies suggest that IT investments play a fundamental role in financial performance (DeFranco, Morosan, & Hua, 2017) and can lead to long-term profitability (Diavastis et al., 2016). Mohammed, Rashid and Tahir (2014) state that in the Malaysian hotel industry, CRM technology is combined with the financial dimension of the organization performance. This is supported by Patiar and Wang (2016), who demonstrate that using IT in hotels leads to improved profitability and financial performance. Additionally, Piccoli et al. (2017) confirm that IT-enabled service personalization yield to financial performance of the hotel through revenue share-shift from costly intermediated to direct distribution channels. In that context, we suggest the following hypothesis.

Hypothesis 2. There is a positive relationship between the adoption of IT and financial performance in hotels.

We tested Hypothesis 2 by using the following three variables to measure financial performance: improvement of sales revenue, reduction of operation costs and improvement of profitability. We will now explain them.

Improvement of sales revenue. Many researchers suggest that IT adoption plays a major role in increasing the tourism industry's market share (Aramendia-Muneta & Ollo López, 2013).

More specifically, social media channels greatly impact the customer-oriented processes that in turn impact an organization's sales performance (Rodriguez, Ajjan, & Peterson, 2014; Wong, 2012). Kwok and Yu (2013) state that sales revenue can be increased by using IT such as Facebook. Aziz et al. (2011) similarly argue that implementing IT in the hotel industry increases revenues. However, Hua et al. (2015) note that IT expenses have a significant positive impact on room revenue for midscale and upscale hotels but not luxury, upper upscale and upper midscale hotels.

Reduction of operation costs. In the hotel industry, many researchers revealed that IT adoption lowers overall operational costs and provides greater productivity by improving efficiency and increasing effectiveness. This then reduces transaction and operational costs (Lu et al., 2016).

Melián-González and Bulchand-Gidumal (2016) support this finding, highlighting how IT adoption increases HP by decreasing two types of costs: personnel and non-personnel activities. The former consists of reducing staff costs and increasing profitability by using, for example, an online check-in system. The latter refers to raw materials and energy, such as kitchen control and energy management systems.

Additionally, Leung (2019) reveals that most hoteliers expect IT systems to increase hotel revenue and reduce operation cost and man power (i.e., the daily tasks could partly do by the automated procedure).

Improvement of profitability. Several empirical studies have examined the benefits of IT on financial performance, specifically in terms of profitability (Leung, 2019).

For instance, Elhamma and Yi Fei (2013) state that the use of IT tools leads to increased profitability and higher organizational performance than the traditional systems. Krumwiede and Charles (2014) argue that firms enhance their profitability when they implement high-quality IT. Patiar and Wang (2016) further suggest that hotels can use sophisticated IT to gain a cost advantage over their competitors and increased efficiency in operational decisions, which, in turn, leads to improved profitability and financial performance (Patiar & Wang, 2016).

2.3.3 Employee performance and financial performance

Several studies have identified the impact of employee performance and employee satisfaction on hotel financial performance (Baker, Rapp, Meyer, & Mullins, 2014; Decramer et al., 2013). For instance, DiPietro et al. (2014) reveal that employee satisfaction is vital in enhancing financial performance. Amin, Mohamed Aldakhil, Wu, Rezaei, and Cobanoglu (2017) show a significant relationship between employee satisfaction and hotel performance.

Furthermore, it has been shown that the use of IT tools in daily tasks improve employees' performance and increase their job satisfaction (Jeong et al., 2016). This satisfaction in the workplace is crucial to achieve the expected results from employees and improve hotel financial performance (Latif, Ahmad, Qasim, Mushtaq, Ferdoos, & Naeem, 2013).

As hotel industry is a human-oriented sector, it is of great importance for hotel managers to ensure the satisfaction of their employees in order to deliver a high service quality and produce satisfied customers, which in turn increase hotel revenue and profitability (Al-Refaie, 2015; Arsić et al., 2012).

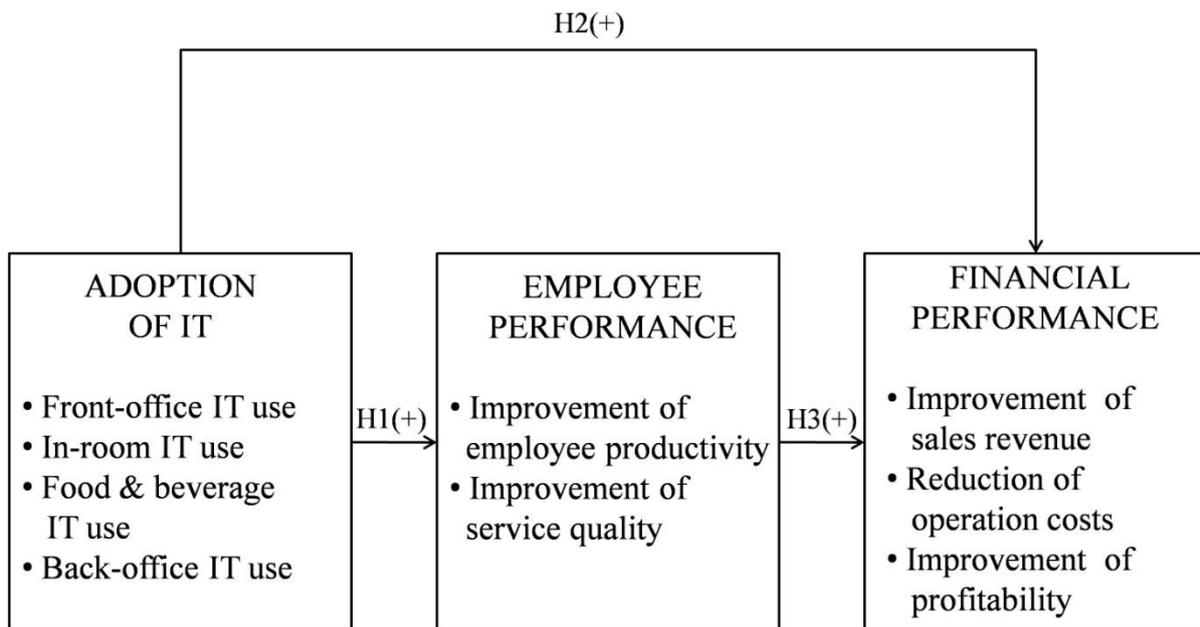
There is a common assumption that satisfied employees work harder and are more likely to deliver continuous improvement and higher service quality that leads to higher sales and financial performance (Al-Refaie, 2015; Sanchez and Blanco, 2014). However, some scholars such as Chi and Gursoy (2009) reveal that employee satisfaction and productivity have insignificant direct relationship with financial performance. In light of the above, the following hypothesis is proposed:

Hypothesis 3. There is a positive relationship between employee performance and financial performance in hotels.

2.3.4 Hypothesized model

Based on the above, we show in Figure 1 our hypothesized model where we can see that the adoption of IT has a positive effect on HP measured through employee performance and financial performance. Each of the three elements has a set of indicators measured separately on the questionnaire mentioned in the section below.

Figure 1. The impact of information technology adoption on hotel performance



3. Methodology

3.1 Research context

Morocco, one of the most attractive destinations in Africa, is located on the northwest of the continent and has a coastline on both the Mediterranean Sea and the Atlantic Ocean. Morocco is known by its diversity of natural assets, culture, religions and languages. This diversity and richness make the country one of the preferred destination by international visitors.

According to the World Bank's human development index that measures life expectancy, educational attainment, and adjusted real income (\$ per person) to classify economies, Morocco is considered a DC.

3.2 Data collection

In this study, we are exploring the impact of IT adoption on HP in a case study of a DC. For this aim, a research questionnaire was developed in order to collect responses. A self-administered questionnaire was hand-delivered and later hand-collected. This was done because face-to-face communication helps to enhance the response rate. Because of the limitation of access to all hotels' employees, questionnaires were addressed only to the attention of hotel's general managers in Agadir and Marrakech, the two most visited destinations in Morocco, which are more likely handling a large amount of tourist information that requires the use of IT. Also, constructs were measured from the perceptions of managers and not from using current indicators such as the actual occupancy rate or detailed hotel's revenue. This decision was made after performing a pretest with 15 hotels and finding that hotel managers were not willing to disclose that type of information.

Questionnaires were written in French as it is the second-most common language in Morocco, and were delivered by research assistants as well as by one of the authors of this study. Data were collected from December 2017 to February 2018. 300 questionnaires were sent out. We selected all three-, four-, and five-star hotels available in Agadir (65 hotels) and Marrakech (160 hotels); 3 luxury riads in Agadir (the only riads that the city has); and 72 luxury riads in Marrakech (out of a total of 883 riads). The reason behind this choice is that we had already conducted interviews with some managers of 1- and 2-star hotels and basic riads and found that most of them have a very low use of IT in their business, thus it would be difficult to measure the relationship between IT adoption and HP in these cases.

A total of 113 responses were collected, among which 13 were discarded for several reasons (responses missing in the questionnaire, respondents were the wrong persons, etc.). Thus, the final sample size contained 100 valid responses for a response rate of 33.3%.

3.3 Description of the sample

Most responses refer to 4-star hotels (45%). Among the respondents, 69% were male and 31% were female. The majority of the answerers are between 31 and 40 years (31%), and 29% have between 4 and 5 years of work experience in the hotel. Most respondents had a Master's degree (56%). More than 50% of the hotels have between 100 and 199 of rooms, and 25% of hotels had from 100 to 150 employees.

In our sample, the level of IT adoption is high, with only 3% of hotels not using basic IT and over 82% of hotels using advanced IT systems (Table1).

Table 1. Characteristics of the sample

Type of hotel	Percentage in the final sample	Response rate per type
Riad	7%	37.84%
3-star	19%	34.09%
4-star	45%	51.25%
5-star	29%	72%
Gender of the respondent		
Male	69%	
Female	31%	
Age of the respondent		
From 21 to 30 years	24%	
From 31 to 40 years	31%	
From 41 to 50 years	27%	
From 51 to 60years	11%	
Above 60 years	7%	
Education of the respondent		
Secondary education level	2%	
Higher education	38%	
Master's degree	56%	
Ph.D.	4%	
Number of hotel rooms		
30 rooms or less	9%	
31-99	16%	
100-199	51%	
200-299	13%	
300 rooms or above	11%	
Number of employees		
25-50	12%	
50-100	17%	
100-150	25%	
150-200	15%	
200-250	12%	
250-300	8%	
300 employees or above	11%	
Level of IT adoption (i.e., basic 1-2; advanced 3-5)		
Level 1-Email	100%	
Level 1-Website	97%	
Level 2-Booking engines	100%	
Level 3-PMS (Property Management Systems)	86%	
Level 3-CRM (Customer Relationship Management)	87%	
Level 3-SMS (notification, promotion, etc.)	91%	
Level 3-Reservation systems (GDS, CRS)	100%	
Level 4-Facebook	92%	
Level 4-Twitter	73%	
Level 4-Youtube	78%	

Level 4-TripAdvisor	90%
Level 4-LinkedIn	71%
Level 5-Mobile applications	57%
Work experience of the respondent in this hotel	
From 1 to 2 years	11%
From 2 to 3 years	22%
From 3 to 4 years	25%
From 4 to 5 years	29%
More than 5 years	13%

3.4 Data analysis

The hypotheses were tested using a partial least squares (PLS) method with PLS-Graph Software Version 3.2.8 (See Figure 2).

The main reason for using PLS is its value as an exploratory form of analysis as a confirmatory multivariate technique that includes measurement errors and the relationships among latent variables (LVs) and observed ones. The PLS approach enables the simultaneous testing of hypotheses, allowing measures with both single and multiple items and the use of reflective and formative indicators. In the case of our model, reflective measurement scales are used (Hair et al., 2017a). The common rule to determine the minimum sample size of PLS-SEM models is provided by Hair, Hollingsworth, Randolph, & Chong (2017a) and states that the sample size should be at least ten times the largest number of indicators of a formative construct or ten times the largest number of paths directed at a construct of the model. Our sample size of 100 exceeds this requirement.

All constructs and items derived from previous literature and were modified to tailor the aim of this study. Self-report questionnaires were used to measure all items. According to many researchers, this method is appropriate for collecting personal data, asking respondents for future plans, as well as scaling some psychological status (Podsakoff, MacKenzie, & Lee, 2003; Podsakoff & Organ, 1986; Brannick, Chan, Conway, Lance, & Spector, 2010). As previously explained, we did a pretest in which we tried different alternatives in order to obtain performance measures from different sources and/or to use measurably objective data. However, due to the limited availability of public information in the country in which the study was carried out and the unwillingness of managers to disclose this type of information, it was not possible to achieve the objective of using different sources.

All items are based on a seven-point Likert-scale ranging from strongly disagree (1) to strongly agree (7) (see Table 2). A total of nine questions were used to test the hypotheses. The questionnaire also comprises two additional parts that enquire respectively about general information of hotels and/or riads (e.g., name, category, number of employees, the level of IT used), and general information about the respondent (e.g., gender, age, years of experience, education level).

Our model encompasses two endogenous LV: employee performance (EP), measured through two indicators (improvement of employee productivity and improvement of service quality); and financial performance (FP) (improvement of sales revenue, reduction operation costs, and improvement of profitability); and one exogenous LV, the ADOPTION OF IT (see Figure 2).

Table 2. Operationalization of variables

Item	Dimension	Measurement	References
Employee performance	Improvement of employee productivity	EP1-Our hotel has a good employee performance.	Aboelmaged (2018); Chang, Tseng, & Woodside (2013); Jeong et al. (2016); Stieglitz & Brockmann (2012)
	Improvement of service quality	EP2-Our hotel has a good service quality.	Chevers (2015); Leung (2019); Mohammed & Rashid (2012); Rahimi & Kozak (2016); Shin et al. (2019)
Financial performance	Improvement of sales revenue	FP1- Our hotel has high sales revenue.	Aramendia-Muneta & Ollo López (2013); Aziz et al. (2011); Wong (2012); Hua et al. (2015); Kwok & Yu (2013); Melián-González & Bulchand-Gidumal (2016); Rodriguez et al. (2014)
	Reduction of operation costs	FP2- Our hotel has low operation costs.	Melián-González & Bulchand-Gidumal (2016); Leung (2019); Lu et al. (2016)
	Improvement of profitability	FP3- Our hotel has a high profitability.	Elhamma & Yi Fei (2013); Leung (2019); Krumwiede & Charles (2014); Patiar & Wang (2016)

Adoption of information technology

A1- Our hotel has a high level of front-office IT usage.

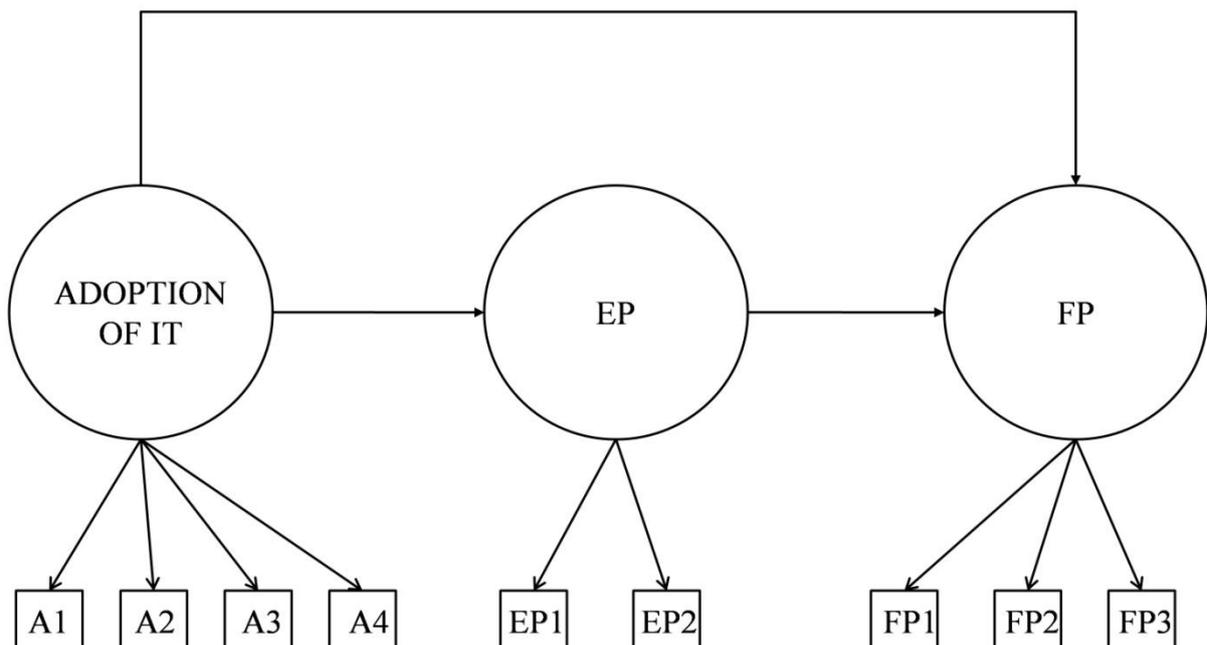
Chevers (2015); Ramayah et al. (2016); Sirirak et al. (2011)

A2- Our hotel has a high level of in-room IT usage.

A3- Our hotel has a high level of food and beverage (F&B) IT usage.

A4- Our hotel has a high level of back-office IT usage (dropped).

Figure 2. PLS-SEM model



4. Results

4.1 Assessment of the measurement model

To examine collinearity issues of the inner model, the variance inflation factor (VIF) was verified. The results show that only the VIF value of the variable A4 (i.e., the level of back-office IT use) exceeds the acceptable threshold of 5 (Hair et al., 2017c). Thus, A4 was removed from the model.

To assess the measurement model, we first evaluated the convergent validity by examining indicator loadings, composite reliability (CR), and average variance extracted (AVE) (Hair et al., 2017c). By checking Table 3, we can state that all indicators have loadings that exceed the preferred level of 0.7 for an exploratory research; as well as values of composite reliability which are larger than 0.6. Thus, high levels of internal consistency reliability have been demonstrated among all the reflective LVs.

Furthermore, all of the AVE values are greater than the acceptable threshold of 0.5 (Bagozzi & Yi, 1988), so the convergent validity is confirmed. Additionally, Table 3 shows that all dimensions had Cronbach's alpha values above 0.7 (Hair et al., 2017a), revealing that all dimensions in this model exhibited internal consistency.

Table 3. Results summary for reflective outer models

Latent Variable	Indicators	Loadings	Cronbach's Alpha	Composite reliability	AVE
Employee performance (EP)	EP 1	0.918	0.720	0.875	0.778
	EP 2	0.844			
Financial performance (FP)	FP1	0.927	0.932	0.956	0.880
	FP2	0.941			
	FP3	0.945			
ADOPTION OF IT	A1	0.921	0.919	0.949	0.861
	A2	0.951			
	A3	0.911			

We tested the discriminant validity by assessing the correlation between measures of overlapping constructs. In our case, the square root of AVE of each LV (see Table 4) is larger than the correlation values encompassed in the row and column of such variable. Therefore, the discriminant validity is well established.

Table 4. Fornell-Larcker criterion analysis for checking discriminant validity

	1	2	3
1.Employee performance	0.882		
2.Financial performance	0.699	0.938	
3.Adoption of IT	0.757	0.796	0.928

4.2 Assessment of the structural model and of hypotheses

The bootstrap result approximates the normality of data. Thus, we checked the structural path significance in bootstrapping. A large number of subsamples (5000) were taken with a two-tailed t-test and a significance level of 5%. In our case, all of the t-Statistics are larger than 1.96 (see Table 5). Therefore, we can state that all path coefficients in the inner model are statistically significant. This confirms our prior findings.

Table 5. Means, standard deviations, T-Values, P-Values

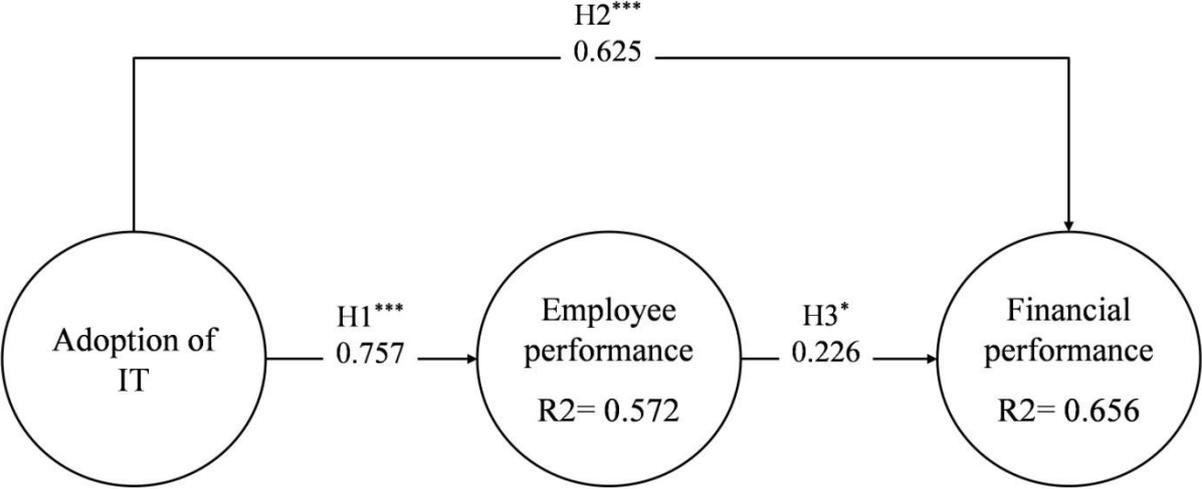
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
ADOPTION – Employee performance	0.757	0.758	0.046	16.410	0.000
ADOPTION - Financial performance	0.625	0.625	0.102	6.130	0.000
Employee performance - Financial performance	0.226	0.232	0.115	1.962	0.050

The Stone-Geisser's (Q2) values (cross-validated redundancy measures) can be used to evaluate the research model's capability to predict (i.e., Q = 0.02, 0.15 and 0.35 mean that an exogenous construct has a small, medium and large predictive relevance for a LV respectively) (Hair et

al., 2017c). In our case, $Q^2 = 0.565$ for financial performance; and 0.428 for employee performance. Thus, we could state that the measurement model is appropriate, and the structural model has a large predictive relevance for the two constructs.

In Figure 3, the coefficient of determination, $R^2 = 0.572$ for employee performance endogenous LV. Therefore, the adoption of IT explains 57.2% of the variance of employee performance. Additionally, the adoption of IT explains 65.6% of the variance of financial performance.

Figure 3. Estimated causal relationships in the structural model



* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Based on Figure 3, hypothesis H1, which established that there was a positive relationship between adoption of IT and employee performance was verified (the path standardized coefficient $\beta = 0.757$, at the level of $p < 0.01$). This is also the case for hypothesis H2 which established a positive relationship between the mentioned adoption and financial performance

($\beta=0.625$, $p<0.01$). Moreover, H3 which predicted a positive relationship between employee performance and financial performance was tested ($\beta=0.226$, $p<0.1$).

Therefore, as proposed in hypothesis H1, the adoption of IT has a positive impact on HP through employee performance (improvement of employee performance and improvement of service quality). Therefore, H1 is supported.

Also, as proposed in hypothesis H2, IT adoption has a significant impact on HP through financial performance (improvement of sales revenue, reduction operation costs, and improvement of profitability). Thus hypothesis H2 is confirmed.

Additionally, as suggested in hypothesis, there is a positive relationship between employee performance and financial performance. Thus, H3 is supported.

5. Conclusions and implications

The aim of this study was to determine the impact of IT adoption on hotel performance, specifically in the case of a developing country, Morocco. To this aim, our proposed research model uses employee performance and financial performance to measure HP, using a sample of 100 hotel's general managers in Agadir and Marrakech.

Employee performance includes the improvement of employee performance and improvement of service quality; and financial performance is assessed through the improvement of sales revenue, reduction of operation costs, as well as improvement of profitability.

The main conclusion of this study is that the adoption of IT has the major impact on HP when measured through employee performance. This result is consistent with the findings of Aboelmaged (2018), whose study suggests that using IT to communicate internal and external information has a significant positive effect on employee performance. The result also aligns with the works of Chevers (2015) and Shin et al. (2019), which indicate that the implementation of IT is leading to the improvement of the service quality provided by employees.

Another important conclusion is that IT adoption has a significant relationship on financial performance. This result corroborates the findings of Kwok and Yu (2013) and Hua et al. (2015), which suggest that implementing IT in the hotel industry increased sales revenue, and with the study by Diavastis et al. (2016), which demonstrates that the use of IT tools has a

positive effect on a hotel's financial performance by improving the long-term profitability of the hotel.

Moreover, the study reveals a significant relationship between employee performance and financial performance. This result is consistent with the work of Al-Refaie (2015) and DiPietro et al. (2014), showing that employee productivity and satisfaction lead to higher financial performance. However, the result contradicts with the study of Chi and Gursoy (2009) showing an insignificant direct relationship between employee satisfaction and productivity and financial performance

In terms of theoretical implications, this study helps to provide a better understanding of the impact of IT adoption on HP, specifically in the case of DCs, as there is still a lack of such studies. Also in many cases the respondents were hotel employees in general. Our study is based on hotel manager perspective given its central role in the hotel.

To our knowledge, this study can be considered as a unique research exploring the actual level of IT adoption and its impact on HP in Morocco. However, we believe a similar study could be conducted in other DCs to ascertain whether or not there are differences among countries.

Regarding implications for practitioners, this study provides insights to hotel managers about the numerous advantages reached by adopting IT tools in the workplace. These advantages include improving communication and interaction with employees, assisting daily operations, and improving business performance (Masa'deh et al., 2016).

Hoteliers need to confirm the real benefits they will have from the adoption of IT. Thus, this study could draw attention of hotel managers to increased use of IT tools that could improve the performance of their business (DeFranco et al., 2017). Given the large amount of data handled inside hotels. This paper provides insights into how hoteliers could use, manage and interchange data in an effective way that will enhance their business performance.

Results reveal that the adoption of ITs lead to financial performance by decreasing costs and increasing sales revenue and profitability. These findings may encourage and provide guidance for hotel managers and/or policymakers in Morocco or other DCs that intend to adopt novel IT systems to improve their financial performance in the future. Additionally, finding may provide

awareness to the government to introduce national programs that help and motivate the adoption of novel IT in the hotel industry.

Furthermore, results show a positive relationship between employee performance and hotel financial performance. Therefore, this will provide insights to hotel managers regarding the key role played by employees in making an organization successful. And thus trying to improve the quality of working life through the adoption of competitive strategies such as the use of novel technologies that could improve employee job productivity and increase their satisfaction, ensure continuous training programs, as well as offering a variety of additional benefits that may impact positively their behavior in the workplace, and thus enhance the hotel performance.

In terms of social implications, finding could enhance the Moroccan positive attitude toward the importance of adopting novel IT tools in the tourism and hospitality industry.

Finally, the limitations of this study include a small sample size, limited dimensions for HP measurement, and focuses on a single location and context, the hotel industry in Morocco. Also, HP was assessed from the perceptions of managers and not from using objective indicators such as the actual occupancy rate, detailed revenue, etc. In addition, self-report measures from only one source could lead to common method bias. Future studies should analyze large samples. It would also be thought-provoking to measure HP in terms of customer satisfaction, for example, through TripAdvisor. Additionally, it would be interesting to make a comparative study between Morocco and other DCs to have an overview and emphasize similarities and differences given each context. Finally, the measurement model of the current study could be used to investigate other disciplines of IT adoption and its impact on different categories of enterprises.

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ARTICLE 3: DO GENDER, AGE AND FREQUENCY OF
INTERNET ACCESS MATTER ON THE PERCEIVED
IMPORTANCE OF HOTEL WEBSITE FEATURES?



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ARTICLE 3

DO GENDER, AGE AND FREQUENCY OF INTERNET ACCESS MATTER ON THE PERCEIVED IMPORTANCE OF HOTEL WEBSITE FEATURES?

Abstract

Purpose- This study measures the relative importance of hotel website features based on users' perceptions and analyses the impact of gender, age, and frequency of Internet access on the given importance of features. Our study includes ten features and three hypotheses.

Design/methodology/approach- A research questionnaire was developed and distributed to hotel guests. A total of 406 responses were collected. Statistical analysis included paired t-tests and one-way ANOVA.

Findings- Results showed that users prioritized information about products and services, bookings and reservations, an easy-to-use website, and contact information. Privacy, design, and information on the surroundings were also important features. Customer feedback options, corporate information, and links to social media sites were ranked as significantly less important. Moreover, age and frequency of Internet access have a significant impact on the perceived importance of features, while no differences were found with regard to gender.

Originality- Many studies have used web performance tools to measure the performance of hotel websites. However, these studies have not provided guests' preferences and perceived importance of website features. To our knowledge, no previous research has examined the effect of gender, age, and frequency of Internet access on the perceived importance of hotel website features.

Keywords Hotel website, website features, demographic characteristics, evaluation

Introduction

In the hotel industry, the use of information technology (IT) has dramatically changed the entire sector's way of life (Garrigos-Simon, Galdon and Sanz-Blas 2017). More specifically, this technological revolution has impacted both hoteliers (i.e., providing management and marketing support) and consumers, who are increasingly changing their habits.

Today, a growing number of tourists are using the Internet to prepare their trips, find hotels, and make reservations (Jung, Chung and Leue 2015). Therefore, an online presence of tourism organizations is necessary to gain a large market segment, communicate with customers about offers, strengthen relationships, as well as establish a destination appeal and reflect a smart tourism destination (Mandić and Praničević 2019).

In this sense, websites are considered an important gateway between hotels and current and potential guests and an important marketing tool for promoting and selling hotels' products and services. Thus, many academic researchers have discussed the importance of evaluating websites' effectiveness and performance while accounting for features such as functionality and usability, responsiveness, interactivity, information on products and services, design, booking and online transactions, and ease of use (Sun, Fong, Law and He 2017). A high quality website has a positive effect on customer satisfaction and trust (Orel and Kara 2014), which in turn affects visitors' decisions to revisit and buy the brand's products and services (Law 2019).

Previous research has suggested that sociodemographic characteristics such as gender and age influence customers' online experience and behavioural intentions (Tarhini, Hone and Liu 2014). For instance, Khan and Rahman (2016) found that men and women perceive brand experiences differently. More specifically, Kim, Kim and Kim (2018) revealed that women place more importance on hotel choice factors such as room quality and staff service than men do. Chan and Wang (2015) stated that young consumers were found to be more brand conscious, requiring a strong need for a brand's novelty, compared with older consumers. Therefore, sociodemographic information related to website users plays a crucial role in designing business strategies (Saste, Bedekar and Kosamkar 2017), and thus providing a website that meets users' needs and expectations.

Although the evaluation of hotel websites has gained ample attention from academic researchers, most of them have utilized web performance tools to measure hotel website performance (e.g., webpagetest.org, yslow.org). Thus, these studies did not analyse customers' preferences and the importance that customers give to hotel website features. Furthermore, studies on changes in hotel website evaluation related to recent mutations in users' habits have been sparse.

This paper seeks to provide an overall understanding of hotel website evaluation based mainly on users' perceived importance of crucial hotel website features and how this importance may differ by gender, age as well as frequency of Internet access. To our knowledge, no previous research has examined the impact of sociodemographic and psychographic characteristics on the perceived importance of hotel website features.

This study's main contribution is to provide an overall understanding to practitioners, marketers, hoteliers, and managers regarding the most important website features from users' perspectives. This gives new insights to hoteliers to make importance to specific features than others, provide accurate information, ensure high-quality communication, better respond to users' needs and expectations, and remain competitive in the marketplace. Moreover, this study can be used by academics and researchers as a reference for further research into extending and/or reconstructing hotel website evaluation models.

1. Literature review

This section begins by discussing recent studies related to hotel websites, their importance in the hotel industry and how they are evaluated. Then a comprehensive model for hotel website evaluation is provided based on users' perceived importance of hotel website features. Furthermore, the section discussed the possible effects of demographic characteristics (i.e. gender, age, frequency of Internet access) on the importance given to website features.

1.1 Hotel websites and their importance in the hotel industry

With the rapid development of the Internet, online platforms remain the most effective management, sales, and marketing channels for hotels (Mandić and Praničević 2019). These platforms allow hotels to provide relevant information on various products and services, reach

customers directly, increase their market share and profits, decrease the costs of distribution, and enhance their competitiveness in the marketplace (Ting et al. 2013).

Furthermore, with the growing number of Internet users, hotel websites represent the preferred tool for consumers to plan and book their trips. More specifically, hotel websites are considered the first point of contact between potential customers and hotels (Sun et al. 2017).

Previous studies revealed that over 50% of users book through hotel websites or online travel agencies (Pan, Zhang and Law 2013). Therefore, the quality of hotel websites is fundamental in a competitive business environment. In this regard, Bilro Loureiro and Ali (2018) stated that a website's information/content and design/visual appeal has a significant effect on online engagement (i.e., cognitive processing, affection, and activation), which mediates the effect of stimuli on customers' brand advocacy. Al-Shami et al. (2019) revealed that social network websites have a positive impact on innovation capacity, which mediates the relationship between social networks websites and hotel's performance. Thus, a well-designed hotel website that satisfies first-time visitors' impressions is more likely to positively influence users' attitudes, causing users to stay on the same website for trip planning.

1.2 Models used for hotel websites evaluation

In the hotel industry, many researchers have focused on hotel website features to assess website service quality and effectiveness. Research in this field has continued with the development of models that encompasses a variety of items. For instance, Qi, Law and Buhalis (2013) argued that functionality and usability dimensions are equally important to evaluate the performance of hotel websites.

Evaluating hotel website functionality entails assessing the capacity of the website to offer appropriate content and information through its features (Wong, Leung and Law 2018), while hotel website usability is defined as the level of ease of use and conviviality of the design (Qi et al. 2013).

Sun et al. (2017) revealed that the majority of analysed articles on website evaluation in hospitality and tourism for the 2000-2015 period stressed the user interface, marketing effectiveness, and website quality. Zhang, Cheung and Law (2018) used criteria to evaluate the functionality performance of destination marketing websites of smart tourism cities.

Additionally, Law (2019) examined the chronological changes in hotel websites evaluation models and revealed that among many expressions used to illustrate the concept, information quality has been the main focus of academic researchers.

1.3 Hotel website features

The current study adopted the evaluation measurements of hotel websites from previous literature, and selected the website features that were most used according to the evidence and suited to the purpose of this study. Each of them will be explained in the following sections.

1.3.1 Design

Prior studies revealed that there is a significant relationship between a hotel website's design and customers' attitudes toward the hotel. For instance, Khalifa and Hewedi (2016) stated that a hotel website's design, interactivity, and visual appeal affect its competitiveness, which in turn affects the customers' purchasing intention. Thus, the manipulation of different web interface design factors could establish customer confidence. Additionally, Hao et al. (2015) studied the visual appeal of hotel website designs. They revealed that web pages with large pictures and little text are particularly preferable to Chinese users.

1.3.2 Ease of use

Evidence suggests that ease of use is one of the most important factors for users to pursue navigation of a hotel's website. Ease of use refers to the simplicity of navigation through a hotel website to reach the desired products and services (Panda, Swain and Mall 2015). Thus, the easiness of a website's navigation provides better understanding of its contents, which could be an influencing factor in customer satisfaction and loyalty.

Moreover, an easy-to-use hotel website should include ease of understanding and ease of operation. Thus, a page's load time has the potential to influence users' attitudes about the hotel, particularly for first-time visitors (Baraković and Skorin-Kapov 2017). Generally, users abandon a website that does not load in the expected time.

1.3.3 Privacy

Previous literature has suggested that ensuring privacy and security of service and information, such as payment procedures, is crucial to ensure customers' positive attitude and continued perusal of the hotel website, thus impacting their intention to make a purchase (Hahn, Sparks, Wilkins and Jin 2017).

Furthermore, during their stay, guests were willing to share their personal information, such as location, when searching for sightseeing areas (Harris, Brookshire and Chin 2016). Hotels should therefore manage and improve the privacy levels and permissions of location-based services so that customers feel confident about a given hotel's website.

1.3.4 Corporate information

Many researchers have shown the need to make corporate information available, such as presenting the history, mission, and collaborations of the hotel or hotel chain (Poon and Lee 2012), as well as awards and certifications.

To analyse this factor, Ramos et al. (2016) developed a framework to characterize hotel websites. They identified exhaustive dimensions, such as corporate information, which encompass several indicators, such as awards received by the hotel and press news. These types of information could increase the users' perceived website trustworthiness, which in turn could increase their willingness to make a reservation.

1.3.5 Information on products and services

Information on products and services is considered the most important feature for website effectiveness. Tourists seek information about a hotel's products and services, such as description, prices, pictures, general hotel facilities, room facilities, food and beverage options, and entertainment facilities (Ramos et al. 2016). Potential guests also want to compare a hotel's features with alternatives to assure themselves that they are choosing the best option.

Therefore, the website should provide transparent and adequate information, maintain a positive and beneficial image in consumers' minds, and sufficiently respond to customers' queries and expectations (Poon and Lee 2012). A hotel can differentiate itself from competitors by providing high-quality information about its products and services.

1.3.6 Booking information and reservations

Many previous studies have considered the booking and reservation function the primary feature of hotel websites. For example, Khalifa and Hewedi (2016) stated that to deal with foreign customers, hotels should have websites that support online booking and payment.

Currently, hotels try to eliminate intermediaries and drive reservations directly to their own websites by improving and facilitating the purchasing process. This improvement increases electronic trust (i.e., online confidence in dealing with the website and truthful payment procedures) and online booking intentions.

Furthermore, hoteliers prefer direct distribution for their products and services to communicate with customers directly and provide a personalized offer. This form of communication could decrease the costs of distribution (i.e., commission fees required by online travel agencies and other intermediaries), increasing the hotel's profitability (Stangl, Inversini and Schegg 2016).

1.3.7 Information on the surroundings

Information on the hotel's surroundings should be part of the hotel's website. For instance, Khalifa and Hewedi (2016) discussed how customers are satisfied with this informational content and explained how content helps customers in their decision-making process. These features encompass travel ideas, sightseeing areas, weather information, transportation, maps and itineraries, nearby restaurants, shopping, medical and health information, and other helpful details (Ramos et al. 2016). Additionally, customers perceive a hotel to be more reliable if its website includes such information. Thus, content should always be updated.

1.3.8 Contact information

Contact information is one of the most popular attributes of hotel websites. This feature includes the hotel's physical address, email address, phone numbers, and other relevant details. Many researchers have considered this feature important (Ramos et al., 2016) because customers need to know where the hotel is located, and how to contact the hotel quickly and directly by phone. Contact information represents an important channel of communication between hotels and their customers (Ramos et al. 2016).

1.3.9 Social media pages

In the hotel industry, social media platforms are an important tool for marketing and promotion (Zeng and Gerritsen 2014), allowing interaction, creation, and exchange of user-generated content. On social media pages, user-generated content plays a key role in influencing customer decision-making as well as enhancing brand image and increasing sales.

Hence, a growing number of hoteliers are starting to incorporate links to social media, such as Facebook, Twitter, YouTube, and TripAdvisor on their websites to reach larger audiences, improve relationships, and involve customers in their brands. These steps allow managers to understand what customers expect from the organization (Escobar-Rodriguez and Carvajal-Trujillo 2013).

1.3.10 Customers' feedback options

Customer feedback is another important dimension of a hotel website. This dimension can strengthen the relationship between customers and hotels (Hahn et al. 2017), and thus enhance customers' loyalty. Features such as feedback forms, customer surveys, and loyalty systems are relevant to assess customers' satisfaction in and expectations of hotels' products and services and determine how hoteliers can improve their offers (Wong et al. 2018).

1.4 The impact of age, gender, and frequency of Internet access on the importance of hotel website features

The possible effects of various sociodemographic (i.e., gender, age) and psychographic characteristics (i.e., frequency of Internet access) could have on the perceived importance that users attribute to hotel website features were also tested.

Gender effect. Gender has been widely considered a key variable in marketing and consumer research. In fact, some studies have acknowledged notable differences in male and female responses and thus in behavioural intentions, whereas others did not find significant differences in behaviour between genders.

For instance, Kim et al. (2018) stated that women are more concerned with hotel choice factors such as staff service and room amenities than men are. Khan and Rahman (2016) argued that men and women behave differently toward transactions and banking services. Particularly, men

are less willing to take risks compared with women. Understanding such differences will help brands provide a website that meets users' expectations.

However, Roozen and Raedts (2018) found no significant impacts of sociodemographic variables such as gender and age on travellers' decision-making processes. This is supported by Sultana and Imtiaz (2018)'s work showing no significant difference between men and women in overall Internet usage pattern, apart from Internet games and commercial transactions. Therefore, the following hypothesis is proposed:

H1: Gender has an impact on the perceived importance of hotel website features.

Age effect. Age differences have been observed to lead to different attitudes and decision-making of both consumers and brands. More specifically, the differences in attitude in terms of technology adoption and level of use can be explained by variations between younger and older users regarding their perceptions of the usefulness, interest, and ease of use of a given technology (Wong et al. 2012).

For instance, Bolton et al. (2013) stated that younger consumers prefer to interact with technology more than older people do. Mang, Piper and Brown (2016) found that opposed to older consumers, younger people exhibit increased usage of mobile technology related to the tourism industry. Additionally, Khan et al. (2020) revealed that hotel websites and social media positively affect hotel brand loyalty in the case of young customers. Other researchers, such as Kim (2016), who analysed behavioural intentions toward hotel tablet apps, found that demographic characteristics such as age did not play significant moderating roles between an app's ease of use, usefulness, credibility, and subjective norm and behavioural intentions. However, age-related differences were perceived for other specific hotel tablet app functions. In view of the differences between younger and older users, the following hypothesis is proposed:

H2: Age has an impact on the perceived importance of hotel website features.

Frequency of Internet access effect. Previous studies have considered Internet consumers to be the key research subjects that allow firms to understand users' expectations and behavioural intentions. Users who have prior experience with Internet-based systems form habits that impact their behavioural and continuance usage intentions (Amoroso and Lim 2017). In this

sense, Cheung and Thadani (2012) found that familiarity and involvement with Internet platforms were the two most important factors in consumers' decision-making processes. Chopdar and Sivakumar (2019) stated that habit has the strongest effect on use behaviour and continuance usage intention of shopping apps.

Additionally, Teng, Ni and Chen (2018) considered heavy and light Internet users to compare the significant attributes of e-service capes and determine their relationship with purchase intentions. Their results revealed that for heavy users, interactivity was the strongest factor, followed by aesthetic appeal, layout, and functionality. In comparison, aesthetic appeal was the only important factor for light users. Therefore, the following hypothesis is proposed.

H3: Frequency of Internet access has an impact on the perceived importance of hotel website features.

1.5 Research objectives

This manuscript has two main objectives. First, to analyse the relative importance for hotel guests of the 10 hotel website features derived from the previous literature review. Second, to investigate the impact of gender, age and frequency of Internet access on the importance given to the aforementioned features.

2. Methodology

2.1 Data collection procedure

In this study, our objective is to evaluate hotel website features. For this aim, a research questionnaire was developed in order to collect responses from tourists in Agadir, Marrakech and Essaouira, the three main tourism destinations in Morocco. This country has been chosen for our case study since most researches related to the evaluation of hotel website features have been carried out in developed countries such as the USA, UK, Australia and China. However, few studies have been conducted in developing countries. Particularly, no such studies have been conducted in the African continent. Morocco was chosen given its touristic potential, as because of being the most visited destination in Africa with 13 million international tourist arrivals (UNWTO, 2019).

The questionnaire contains 10 features to evaluate hotel website effectiveness, namely: design, ease of use, privacy, corporate information, information on products and services, booking information and reservations, information on the surroundings, contact information, links to social media pages, and customers' feedback options.

A self-administered questionnaire was distributed at the reception of all types of hotels, airports, commercial, entertainment complexes and the main city sights of the aforementioned cities. Then they were hand-collected by the research assistants and one of the authors of this study. Respondents were asked to express their perceived importance regarding the features of hotel websites. Questionnaires distributed were written in English, Spanish and French.

Data were collected from May to November 2019. 1000 questionnaires were distributed. A total of 437 responses were collected, among which 31 were discarded for several reasons (responses missing in the questionnaire, etc.). Thus, the final sample size contained 406 valid responses, for a response rate of 40.6%.

2.2 Description of the sample

Among the respondents, 41.13% were male, and 58.86% were female. The majority of the respondents are between 36 and 45 years (32.26%). The two most frequent countries of origin were France (17.98%) and Morocco (15.02%). Most respondents had a higher education degree (37.43%). 42.61% of respondents accessed the Internet between 1 and 3 hours per day (Table 1).

Table 1: Characteristics of the sample

	Frequency	Response rate
Gender of respondent		
Male	167	41.13%
Female	239	58.86%
Age of respondent		
From 18 to 25 years	10	2.46%
From 26 to 35 years	89	21.92%
From 36 to 45 years	131	32.26%
From 46 to 55 years	112	27.58%
56 years or above	64	15.76%
Country of origin		
France	73	17.98%
Morocco	61	15.02%
United Kingdom	50	12.31%
Germany	39	9.60%

Spain	32	7.88%
Netherlands	20	4.92%
Middle East	20	4.92%
Russia	18	4.43%
United States	13	3.20%
Poland	12	2.95%
Italy	11	2.70%
Portugal	11	2.70%
Belgium	10	2.46%
Switzerland	9	2.21%
Other countries	27	6.65%
Education of respondent		
Basic education	38	9.35%
Secondary education	97	23.89%
Higher education	152	37.43%
Postgraduate degree	119	29.31%
Access to the Internet per day		
Less than 1 hour		
1-3 hours	118	29.06%
4-6 hours	173	42.61%
More than 6 hours	85	20.93%
	30	7.38%

2.3 Measurements

All features were derived from previous literature. Single-item measures were used as they were deemed appropriate and recommended for use by many researchers when the research objective is to attain a general impression of a construct (Diamantopoulos et al. 2012). The current study focused on the perceived importance of general website features of hotels. Thus, the use of single-item is adequate for this research. Furthermore, single-item measures can help decrease the length of the questionnaire, thus avoiding low response rates from participants (Cheah et al. 2018) and increase the potential of survey completion, specifically regarding respondents who are difficult to recruit (Drolet and Morrison 2001; Van Dolen and Weinberg 2017).

All items are based on a five-point Likert-scale ranging from not at all important (1) to very important (5). The 10 features can be found in Table 2.

Table 2: **Operationalisation of features used for hotel website evaluation**

Features	Definition	References
Design	General design of the website	Hao et al. (2015); Khalifa and Hewedi (2016).
Ease of use	Easy navigation on the website	Baraković and Skorin-Kapov (2017); Panda et al. (2015).

Privacy	Ensures security of personal data	Hahn et al. (2017); Harris et al. (2016)
Corporate information	Different information of the owner and manager of the hotel	Poon and Lee (2012); Ramos et al. (2016).
Information on products and services	Information about the products and services provided by the hotel	Poon and Lee (2012); Ramos et al. (2016).
Booking information and reservations	Information about availability and online booking and payments with credits cards accepted	Khalifa and Hewedi (2016); Stangl et al. (2016).
Information on the surroundings	Useful travel information	Khalifa and Hewedi (2016); Ramos et al. (2016).
Contact information	Information on how to reach the hotel	Ramos et al. (2016).
Links to social media pages	Links to different social media	Escobar-Rodriguez and Carvajal-Trujillo (2013); Zeng and Gerritsen (2014).
Customers' feedback options	Indicators to assess the degree of customers' satisfaction and strengthen their relationship	Hahn et al. (2017); Wong et al. (2018).

3. Results

3.1 Analysis of users' perceived importance of features

Table 3 shows users' perceived importance of hotel website features. Users perceived information on products and services (mean=4.40), booking information and reservations (mean=4.36), ease of use (mean=4.28), and contact information (mean=4.21) as the four most important hotel website features, followed by privacy (mean=3.96), design (mean=3.47), and information on the surroundings (mean=3.36). Customers' feedback options (mean=2.87), corporate information (mean=2.77) and links to social media pages (mean=2.49) were all given an average value below 3, which means that users did not think that these features were especially relevant.

Table 3: Users' perceived importance of hotel website features

Feature	Mean	St. dev
Design	3.47	1.11
Ease of use	4.28	0.92
Privacy	3.96	1.15
Corporate information	2.77	1.22
Information on products and services	4.40	0.83

Booking information and reservations	4.36	1.05
Information on the surroundings	3.36	1.10
Contact information	4.21	1.03
Links to social media pages	2.49	1.05
Customers' feedback options	2.87	1.34

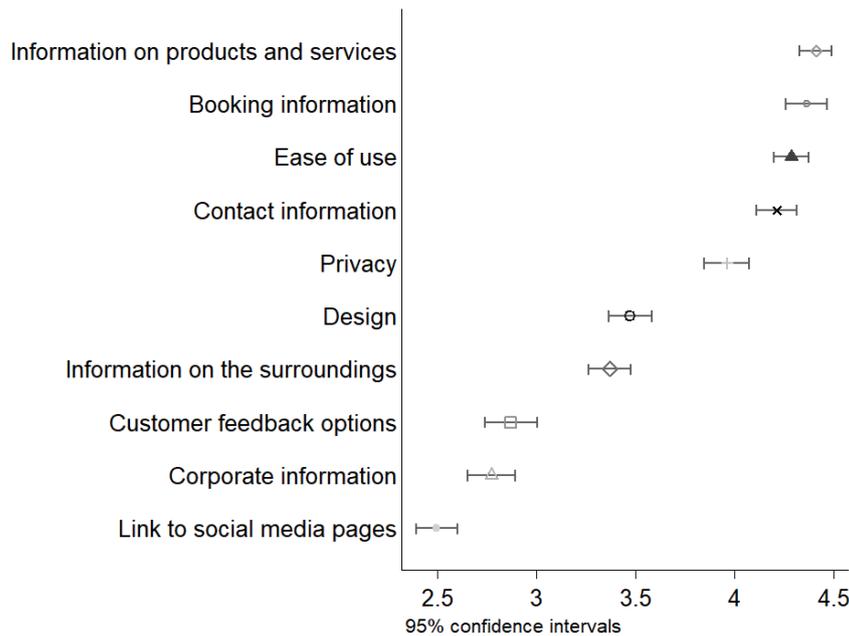
In order to understand the relative importance of each of the aforementioned 10 features as well as their significance, the mean and their confidence intervals were calculated (Table 4 and Figure 1).

Table 4 shows that there are three groups of features: First, a group of four features with a mean that is well above 4: information on products and services, booking information and reservation, ease of use, and contact information. A second group comprised three features with a mean above 3.5 and below 4: privacy, design, and information on the surroundings. Last, a third group of features with a mean under 3 in a range of 1 to 5: customer feedback options, corporate information, and links to social media pages.

Table 4: Users' perceived importance of the overall features

Features	Overall (n=406)		95% Confidence interval	
	Mean	Std. Err.	Lower	Upper
Information on products / services	4.40	0.04	4.32	4.49
Booking information / reservations	4.36	0.05	4.25	4.46
Ease of use	4.28	0.04	4.19	4.37
Contact information	4.21	0.05	4.11	4.31
Privacy	3.96	0.05	3.84	4.07
Design	3.47	0.05	3.36	3.58
Information on the surroundings	3.36	0.05	3.26	3.47
Customers' feedback options	2.87	0.06	2.74	3.00
Corporate information	2.77	0.06	2.65	2.89
Links to social media pages	2.49	0.05	2.39	2.60

Figure 1: **Confidence Intervals of features**



In the cases in which the 95% confidence interval of one feature does not overlap with the confidence interval of the next feature, it can be stated that there is a significant difference between these two features. This is the case, for example, with privacy [3.84, 4.07] and design [3.36, 3.58].

For other cases in which there was a certain overlap between the confidence intervals of two consecutive factors (see Figure 1), an additional paired t-test was performed in order to analyse if there was a significant difference or not. In this sense, Table 5 shows that there is a significant difference between the following features: contact information-privacy, privacy-design, information on the surroundings-customers' feedback options, and corporate information-links to social media pages, while no significant difference is shown between information on products and services-booking information and reservations, booking information and reservations-ease of use, ease of use-contact information, design-information on the surroundings, as well as customers' feedback options.

Table 5: **t-test of features' means**

Feature 1	Feature 2	Comparison
Information on products/services	Booking information/reservations	Difference non-significant
Booking information/reservations	Ease of use	Difference non-significant
Ease of use	Contact information	Difference non-significant
Contact information	Privacy	No overlap & t-test < 0.00
Privacy	Design	No overlap & t-test < 0.00
Design	Information on the surroundings	Difference non-significant
Information on the surroundings	Customers' feedback options	No overlap & t-test < 0.00
Customers' feedback options	Corporate information	Difference non-significant
Corporate information	Links to social media pages	No overlap & t-test < 0.00

3.2 The impact of demographic characteristics on the importance of features

A one-way ANOVA was used to analyse whether the perceived importance of hotel website features differs by gender (see Table 6). H1, which predicted that gender would have an impact on the perceived importance of hotel website features, was not significant, since all p values were greater than .05. Therefore, gender does not influence the importance given by guests to hotel website features.

Table 6: **One-way ANOVA on importance of hotel website features by gender**

Features	MenMean (SD)	WomenMean (SD)	F-statistic
Information on products and services	4.32 (0.97)	4.46 (0.70)	3.01
Booking information and reservations	4.38 (1.08)	4.34 (1.04)	0.18
Ease of use	4.25 (1.00)	4.31 (0.85)	0.39
Contact information	4.28 (0.93)	4.16 (1.10)	1.27
Privacy	3.90 (1.17)	4.00 (1.13)	0.68
Design	3.40 (1.09)	3.51 (1.12)	0.98
Information on the surroundings	3.32 (1.14)	3.40 (1.08)	0.49
Customers' feedback options	2.91 (1.38)	2.84 (1.32)	0.30
Corporate information	2.80 (1.21)	2.75 (1.22)	0.16
Links to social media pages	2.48 (1.06)	2.50 (1.04)	0.04

In a similar vein, and in order to analyse whether the perceived importance of hotel website features differs by age (see Table 7), a one-way ANOVA was used. H2, which predicted the

impact of age on the perceived importance of hotel website features, was partially supported. In fact, based on Table 7, age was found to have no significant effect on the perceived importance of five of the analysed features: privacy, information about products and services, booking information and reservations, information about the surroundings, and contact information.

However, age did have an impact on the importance of the other five features. Table 7 shows that younger tourists (18-25 years) attributed higher importance to design (mean= 4.5, F= 3.28, $p < .05$) and links to social media features (mean=3.9, F=9.11, $p < .001$) compared with the oldest age category (56 years or above) (mean=3.25 and =2.10). In contrast, older tourists (56 years or above) (mean=4.51, F=8.17, $p < .001$; mean=3.01, F=4.9, $p < .01$) were more likely than younger tourists (18-25 years) (mean=4.3 and =1.4) to give more importance to the corporate information features and ease of use of websites.

In terms of the availability of a customer feedback option, younger tourists (26-35 years) (mean=3.23, F=3.05, $p < .05$) and those 18-25 years old were most concerned (mean=3.2), followed by those in the 36-45 and 46-55 years' age categories, whereas older tourists (56 years or above) (mean=2.56) were less interested in this website feature.

Table 7: One-way ANOVA on importance of hotel website features by age

Features	18-25 years Mean (SD)	26-35 years Mean (SD)	36-45 years Mean (SD)	46-55 years Mean (SD)	56 years or above Mean (SD)	F statistic
Information on products and services	4.20 (0.91)	4.30 (.98)	4.41 (.85)	4.49 (0.72)	4.43 (0.70)	0.80
Booking information and reservations	4.30 (1.15)	4.27(1.15)	4.47 (0.95)	4.42(0.99)	4.17 (1.20)	1.14
Ease of use	4.30 (1.11)	3.83(0.67)	4.32(1.14)	4.47(0.91)	4.51(0.73)	8.17***
Contact information	3.70 (1.25)	4.21 (1.13)	4.31 (0.99)	4.06 (0.99)	4.34 (1.01)	1.76
Privacy	4.10 (1.37)	3.73 (1.25)	4.03(1.16)	3.89 (1.06)	4.23(1.03)	2.06
Design	4.50 (0.52)	3.61 (1.17)	3.44 (1.17)	3.42 (1.09)	3.25 (0.89)	3.28*
Information on the surroundings	4.20 (0.78)	3.42 (1.09)	3.27 (1.09)	3.40 (1.16)	3.29 (1.04)	1.81
Customers' feedback options	3.20 (1.22)	3.23 (1.45)	2.88 (1.41)	2.71 (1.25)	2.56 (1.12)	3.05*
Corporate information	1.40 (0.84)	2.76 (1.22)	2.90(1.25)	2.60(1.21)	3.01(1.04)	4.90**
Links to social media pages	3.90 (0.87)	2.77 (1.20)	2.47 (0.97)	2.40 (0.98)	2.10 (0.85)	9.11***

* $p < .05$. ** $p < .01$. *** $p < .001$.

Last, a one-way ANOVA was also used to analyse whether the perceived importance of hotel website features differed by frequency of Internet access (see Table 8). The results showed a significant impact of frequency of Internet access on the importance attributed to three of the ten features: ease of use, privacy, and links to social media.

Tourists that had access to the Internet for less than one hour per day were more likely to attribute importance to ease of use (mean= 4.59, F=8.53, $p < .001$) and privacy (mean=4.21, F=3.89, $p < .01$), whereas tourists that had access to the Internet for more than 6 hours per day attributed more importance to links to social media (mean=3.13, F=4.08, $p < .01$). Therefore, H3, which predicted the impact of frequency of Internet access on the perceived importance of hotel website features, was partially supported.

Table 8: **One-way ANOVA on importance of hotel website features by frequency of Internet access**

Features	Less than 1 hour Mean (SD)	1-3 hours Mean (SD)	4-6 hours Mean (SD)	More than 6 hours Mean (SD)	F statistic
Information on products and services	4.31 (.97)	4.44 (.77)	4.43 (0.79)	4.50 (0.62)	0.77
Booking information and reservations	4.30(1.12)	4.33 (1.09)	4.45 (0.88)	4.46 (1.04)	0.48
Ease of use	4.59 (.73)	4.23 (.93)	4.14 (.92)	3.80 (1.12)	8.53***
Contact information	4.29 (.94)	4.14 (1.10)	4.31 (0.83)	3.96 (1.42)	1.35
Privacy	4.21 (.98)	3.94 (1.12)	3.80 (1.18)	3.53 (1.56)	3.89**
Design	3.50 (1.08)	3.46 (1.08)	3.34 (1.25)	3.76 (0.93)	1.13
Information on the surroundings	3.35 (1.12)	3.43 (1.04)	3.27 (1.22)	3.30 (1.05)	0.49
Customers' feedback options	2.74 (1.28)	2.93 (1.36)	2.82 (1.34)	3.13 (1.50)	0.88
Corporate information	2.73 (1.31)	2.85 (1.21)	2.78 (1.16)	2.43 (1.04)	1.04
Links to social media pages	2.42 (1.03)	2.46 (.98)	2.43 (1.08)	3.13 (1.22)	4.08**

4. Discussion and implications

Among the ten hotel website features analysed, guests perceived four to be important: information on products and services, booking information and reservations, ease of use, and contact information (see Table 9).

Table 9: **Hotel website features classified according to their importance**

Feature	Description	Importance
Information on products and services	Information about the products and services provided by the hotel	Important
Booking information and reservations	Information about availability and online booking and payments with credits cards accepted	Important
Ease of use	Easy navigation on the website	Important
Contact information	Information on how to reach the hotel	Important
Privacy	Ensures security of personal data	Moderately important
Design	General design of the website	Moderately important
Information on the surroundings	Useful travel information	Moderately important
Customers' feedback options	Indicators to assess the degree of customers' satisfaction and strengthen their relationship	Less important
Corporate information	Different information of the owner and manager of the hotel	Less important
Links to social media pages	Links to different social media	Less important

The first three features were expected. Thus, as stated, hotels should properly present their products and services with detailed and up-to-date information and images that give guests a preview of their stay (Poon and Lee 2012). Second, hoteliers should give more importance to booking and reservations to increase direct reservations from their websites and try to eliminate intermediaries (Khalifa and Hewedi 2016). Third, hoteliers should provide easy-to-use websites that can be easily explored and respond to users' specific requirements, encouraging users to continue perusing the same website (Khalifa and Hewedi 2016).

Additionally, when designing a website, hoteliers should provide clear contact information for the hotel, such as the physical address, phone numbers, email, and maps and itineraries (Ramos et al. 2016). Although some of this contact information can be found on websites such as Google Maps, users should also have easy access to it on the hotel's website. For example, guests may try to contact the hotel by email or by telephone or may prefer more detailed information on how to arrive at the hotel than that provided by standard applications like Google Maps.

Privacy was valued by the participants but was not as important as expected. This could be explained by the different levels of Internet usage. Our results show that tourists that access Internet more than 6 hours per day were less concerned by privacy feature. It seems that privacy is of greater concern to those who are less tech-savvy.

Furthermore, design and information on the surroundings were also perceived relevant with means above 3.5 and below 4. Thus, hoteliers should provide well-designed and attractive websites as they represent the first point of contact with customers, since these features may leave consumers wanting to find out more details about the hotel's products and services and ultimately making a reservation (Hao et al. 2015). Additionally, information on the surroundings, such as sightseeing areas, nearby restaurants, transportation, and weather, should usually be updated as these details provide helpful information to customers in their decision-making process and during their stay (Khalifa and Hewedi 2016).

Last, customer feedback options, corporate information, and links to social media pages were all perceived as much less important, with means below 3. Therefore, users considered customer feedback options unimportant. This could be explained by the existence of specific websites (such as TripAdvisor) on which guests can offer their opinions. Most guests usually tend to prefer websites like TripAdvisor more than hotel's website in order to provide feedback (Filieri, Algezau and McLeay 2015).

Regarding corporate information, guests clearly use the website for functional reasons (e.g., booking, finding information). Thus, corporate information about the hotel provides little value to them. For links to social media pages, the low importance (2.50 in a 1 to 5 range) could be due to two reasons. First, when guests want to access a hotel's social media page, they may first access the social media website (e.g., Twitter or Facebook) and then look for the hotel's profile. Second, users may not be interested in the hotel's social media profiles. If they are already on the website, they probably are no longer interested in accessing the publications on Twitter or Facebook. However, these possibilities need to be confirmed in further studies.

The study investigated the impact of gender, age, and frequency of Internet access on the importance attributed to hotel website features. The result revealed no significant effect of gender on the perceived importance of hotel website features. This correlates with Roozen and

Raedts (2018)' study showing no significant influences of gender on travellers' decision-making processes. However, our result contradicts the work of Kim et al. (2018) stating that there is a significant difference between men and women regarding hotel choice factors.

This study showed that younger tourists attribute significantly greater importance to design, links to social media pages, and customer feedback compared with older tourists. Meanwhile, ease of use and corporate information features attract the interest of older tourists more than those in the youngest age category. This result aligns with Khan et al. (2020)'s work revealing a significant difference between younger and older customers in using hotel websites. Therefore, hoteliers should provide a website that meets different age category expectations.

Additionally, this study revealed that tourists that access the Internet less than one hour per day attribute more importance to ease of use and privacy features compared with tourists that access the Internet more than 6 hours. The more frequent Internet users were more concerned with links to social media, a result that corresponds with the work of Cheung and Thadani (2012) showing that familiarity and involvement with Internet platforms were the two most important factors in consumers' decision-making processes, as well as with Teng et al. (2018)'s work revealing a significant difference between heavy and light Internet users in terms of online purchase intentions. This could be explained by the fact that tourists that spend much time browsing the Internet are more experienced and used to exploring a variety of websites and social media platforms. Thus, ease of use and privacy do not matter as much to them as they do to less Internet-experienced tourists.

Given the important role of hotel websites in customers' purchase intentions, many studies have utilized web performance tools to measure hotel website performance. However, these studies did not provide guests' preferences and their perceived importance of hotel website features. Thus, the current study provides an update on and further understanding of the perceived importance of hotel website features from guests' perspectives.

The study also added value to the theory by analyzing the impact of three sociodemographic characteristics on the perceived importance of hotel website features, which may be useful for academics and researchers conducting further research into hotel website evaluation.

In terms of practical implications, this study provides an overall understanding to practitioners, marketers, hoteliers, and managers regarding the most relevant hotel website features from users' perspectives.

As websites are intended for guests, it is important to examine what these guests expect from hotel websites. Therefore, this study demonstrates a need for hotel managers to prioritize improvement of specific website features that users with different age category and Internet-use experience believe to be important.

Furthermore, this study may be useful for hotel website designers to analyse guests' habits and preferences which differ between younger to aged users and between more tech-savvy guests and less tech-savvy ones, in order to ensure that the hotel website will suit all requirements. These improvements could mediate the service gap between a hotel's current website effectiveness and users' expectations, thus minimizing the risk of losing hotel reservations to competitors.

Conclusion

The purpose of this study was to measure the relative importance of hotel website features based on users' perceptions and analyse the impact of gender, age, and frequency of Internet access on the importance given to each of the features. Ten features were tested: design, ease of use, privacy, corporate information, information on products and services, booking information and reservations, information on the surroundings, contact information, links to social media pages, and customers' feedback options; and three hypotheses were proposed. For this research, a sample size of 406 tourists' responses was used from the three main destinations in Morocco.

Among the ten hotel website features, four were found to be essential: information regarding the hotel's products and services, booking information and reservations, ease of use, and contact information. Users also perceived privacy, design, and information on the surroundings as important features, while customer feedback options, corporate information, and links to social media pages were considered irrelevant.

Age and frequency of access of Internet have a significant impact on the perceived importance of hotel website features, while gender does not have a significant effect. Future research

suggests studying hotel mobile websites, as they represent a key source of information for smartphone users' purchasing decisions.

This study has some limitations that provide interesting possibilities for future research. First, this study focused on Morocco. Thus, it would be interesting to carry out similar studies in other developing countries. Also, it would be interesting to make a comparison between domestic and international tourists. Additionally, it would be worth studying the case of hotel mobile websites, as they represent a key source of information for smartphone users' purchasing decisions.

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GENERAL CONCLUSIONS AND IMPLICATIONS



1. Introduction

Tourism encompasses different industries, services and activities that deliver a travel experience. Therefore, it is of a great importance to identify the key resources that lead to achieve the desired success in every component that constitute the tourism industry. Particularly, the hotel industry represents a fundamental pillar of the tourism sector. For successful tourism, hotels should provide a high-quality offer in order to better respond to guests' expectations and remain competitive in the marketplace (Jung et al., 2013; Vraskikh, et al., 2016).

While tourism has traditionally been perceived as a human-based industry, it is now going hand by hand with technologies that have revolutionized the entire sector (Buhalis & Leung, 2018; Law et al., 2014). Today, the most pleasant tourist's experience relies on novel technologies.

Tourism is increasingly facing new trends, new technologies, and rapid changes (El-Gohary, 2012; Lin, 2017; Tarhini et al., 2017). This dynamic growth could be perceived in developed countries that have already gained from the use of the most sophisticated technologies in tourism. However, this will not guarantee that these benefits continue and expand in other contexts such as DCs (Sunny et al., 2019).

Therefore, examining the present state-of-the-art of the tourism industry in different contexts whether in developed or DCs becomes a necessity in order to highlight the gap between the two areas, and stress on the opportunities and challenges that will likely be shaping the future of the sector and offers new potential solutions.

This thesis has investigated the factors influencing the adoption of IT in the hotel industry and determined the impact of IT use on hotel performance, specifically in the context of a DC, Morocco. Additionally, in order to understand the real customers' needs and expectations while searching information from hotel's website, and thus, transform the visit into a purchase act, we developed a model with evaluation criteria based on users' perceived importance of hotel website features and analyzed the impact of gender, age, and frequency of Internet access on the given importance of features.

1.1 Theoretical implications

This thesis provides contribution to research by offering an overview of the existing literature and analyzing the most relevant studies in the adoption of IT in tourism and hospitality industry. Particularly, the findings help to provide a better understanding of factors influencing the adoption of IT in the hotel industry in the specific context of DCs. This thesis developed first a conceptual framework based on previous technology acceptance models such as technology, organization, and environment (TOE) framework to investigate the influence of four groups of factors, namely organizational characteristics, individual characteristics, perceived benefits, and external factors on the adoption of IT in the hotel industry. This helps academics and researchers highlighting the main reasons of IT adoption between developed and DCs.

Then, this thesis studied the impact of using a variety of IT systems on HP. Performance was measured through employee performance including improvement of employee productivity and improvement of service quality, as well as financial performance comprising improvement of sales revenue, reduction of operation costs and improvement of profitability. This will provide a clear image to researchers of how such adoption is beneficial for HP, specifically in DCs, where there is still a lack of such studies. To our knowledge no studies have been conducted in the factors affecting IT adoption and their impact on HP in Morocco.

The research that has been presented in this thesis also provides further understanding of the most important features that increase hotel websites effectiveness. Given their vital role as an intermediary between hotels and customers and a major marketing tool for promoting and selling hotels' products and services, the findings revealed the most important hotel website features based on users' perceptions. Specifically, this is the first research that has analyzed the impact of demographic characteristics such as gender, age, and frequency of Internet access on the given importance of features.

The peculiarity of this thesis is that it investigates the state-of-the-art of a DC, Morocco, while previous literature regarding the factors of IT adoption and their effect on business performance has focused mainly on developed countries. However, the generalization of factors and their circumstances differ according to the context in which they are applied from developed to DCs (Ezzaouia & Bulchand-Gidumal, 2020; Sunny et al., 2019). Therefore, this study may be helpful

for academics and researchers conducting future research into IT adoption in DCs as well as making comparison between the current situation in Morocco and other DCs.

Furthermore, quantitative approach was used and different methods have been employed such as paired t-tests, one-way ANOVA and structural equation modeling. Therefore, this study could be further invested by academics and researchers in understanding IT adoption in DCs, and used as a guideline to assess the validity and reliability of their results through different approaches. Additionally, the measurement models proposed in this thesis could be used to investigate other disciplines of IT adoption and its impact on different categories of enterprises.

1.2 Practical implications

In terms of implications for practice, this thesis offers an overview to hotel managers/owners, IT managers and policy makers regarding the current state-of-the-art of IT adoption in the hotel industry and the factors influencing the adoption in DCs, particularly Morocco. This will provide new insights to managers and practitioners to redesign strategies and tend to be more human-technology oriented in order to achieve business performance (Ahmad & Scott, 2019; Buhalis & Leung, 2018).

Measuring the impact of IT adoption on HP helps hotel managers to perceive the important benefits to be gained from investing in IT systems. These include improvement of employee productivity, improvement of service quality, reduction of operation costs, as well as improvement of sale revenues and profitability (Aboelmaged, 2018; Leung, 2019; Lu et al., 2016; Shin et al., 2019)

Being aware of different IT tools that can be used in the hotel industry and the potential benefits to be gained increase awareness among hoteliers regarding the necessity to adopt these type of tools in the workplace.

Potential hotel managers, owners and entrepreneurs may gain useful knowledge from this thesis by formulating novel business strategies and making IT tools as a pillar of their sustainable firm performance.

Moreover, the findings of this thesis are of significant value to IT consultants to propose useful tools that suit each hotel category and helps in accomplishing hoteliers' daily operations and

improving their productivity and the service quality provided, in addition to improving sales revenue, reducing operation costs as well as increasing hotels profitability.

In this vein, the research that has been presented in this thesis analyzing hotel website and highlighting the most important features from the perception of users help hotel managers to improve their website which is considered an important gateway between hotels and current and potential guests, and a vital tool to reach customers directly, thus eliminating intermediaries' costs. A hotel website remains the most important marketing channel for promoting and selling hotels' products and services (Sun et al. 2017; Mandić & Praničević 2019). Therefore, focusing on improving specific features that are most valued by users could mediate the service gap between a hotel's current website effectiveness and users' expectations, thus minimizing the risk of losing hotel reservations to competitors (Bilro et al., 2018). Additionally, investigating the effect of demographic characteristics help hotel website designers to identify several guests' preferences which differ depending on gender, age and frequency of Internet access, and develop a website that suit all users' needs and expectations.

The results of this research may encourage governments and policymakers to take action through national programs that promote IT adoption and their benefits in the hotel industry. Government should also organize knowledge fairs and international congresses to promote different products and services, exchange market knowledge, and take advantage from innovative policies, projects and initiatives derived from the variety of encounters that take place. This will contribute to prompt comprehensive knowledge management strategies.

Moreover, government support is of great importance in setting up of national IT policy and enforcement of service standards and regulation. Recognizing the factors that influence the adoption of IT may provide guidance for government to formulate adequate policies that help to mitigate the challenges presented in the adoption process. In this vein, the role of government and financial institutions in supporting the use of IT for some specific hotel category that face challenges such as insufficient financial resources should be perceived through ensuring necessary infrastructure, providing training programs as well as supporting technical assistance for hoteliers.

Governments can also increase the positive attitude of hoteliers toward the adoption of IT through awards and certifications underlining the efficiency and core competency of hotels.

Additionally, we suggest establishing open innovation centers in universities to increase university-industry engagement that could be used to help hotels discover best practices and become more competitive in the sector.

2. Conclusions of each article and implications

While in the previous section we have provided a global overview of the main theoretical and practical implications of the thesis being presented, as well as some general conclusions, in this section we will summarize the conclusions and implications of each article.

The major general conclusion of the first article is that the key factors influencing the adoption of IT by hotels are external (i.e., competitive pressure, customer pressure, supplier pressure, and government support). The results also revealed that the individual characteristics (i.e., innovativeness, IT skills and openness toward change) of hotel's general managers also impact the adoption of IT.

Moreover, this study found that organizational characteristics (i.e., hotel characteristics, financial resources) have no significant impact on the adoption of IT; this may be related to the context of this study, DC. In fact, the level of IT use by Moroccan hotels is still at a low to middle level, thus not demanding significant financial resources, which they would need if the level of use were high.

The benefits that hotel's managers perceive they will get from the adoption also influence the process of IT adoption. However, perceived benefits occurred as the third important factors; this could be explained by the lack of awareness of hotel's managers regarding the potential benefits.

Therefore, in terms of practical implications, this study provides insight to the hotels' managers, and recommends taking all the above mentioned external factors into consideration, and trying to apply novel strategies to enhance their guest satisfaction and loyalty, maintain their position in the marketplace, and achieve a competitive advantage.

Moreover, given the key role of hotels' general managers in decision-making process, their positive attitude regarding the adoption of IT and their openness toward change are crucial. Also, recognizing the factors that influence IT adoption in the hotel industry could encourage

governments and policymakers to take action through national programs, provide effective training programs for hoteliers, as well as setting up national IT policy and enforcing service standards and regulation. We also suggest extending entrepreneurship initiatives that could help hoteliers discover best practices and become more competitive in the marketplace.

The participation and cooperation of governments is vital to optimize infrastructures of cities by infusing technology into every aspect of the city operation. This will increase the technology culture to such destination and enrich the tourist's experience.

Collaboration between tourism stakeholders through an interconnected platform might be of great importance. This will provide an overview of the entire sector, enlarge public-private partnership, and enhance business competitiveness in terms of developing and exploiting advanced technology-based infrastructures.

Moving on to the second article, the main conclusion is that the major impact of IT adoption on HP is on employee performance more than financial performance. The results also show a significant relationship between employee performance and financial performance in hotels.

Therefore, this study provides an overall understanding to practitioners and hotel managers regarding the potential benefits achieved by using IT in the workplace and thus, rethink their business strategies. As hotels belongs to one of the high data-intensive industries, this study provides insights to hotel managers regarding the effective way to use IT to manage, interchange data and make the proper decision at the proper time, in addition to provide awareness to the government to introduce national programs that relies on the use of all possible IT systems that lead to the organizational performance in the hotel industry.

The study also provides guidance for hotel managers regarding financial performance gained through the use of novel IT systems in their business. The use of IT systems is essential for effective strategy operation of overall hotel departments: front-office, back-office, in-room, and food and beverage, as it increase productivity, reduce expenses, improve the service quality and, thus increase guest satisfaction.

Last, the main conclusion of the third article is that users evaluate information on products and services, bookings and reservations, an easy-to-use website, and contact information as the most important features of a hotel website. Privacy, design, and information on the surroundings

were also considered relevant, while customers' feedback options, corporate information, and links to social media pages were listed as much less important. Additionally, age and frequency of Internet access have a significant impact on the perceived importance of features, while no differences were found regarding gender.

Thus, this study provides an overall understanding to practitioners, marketers, hoteliers, and managers regarding the assessment of effectiveness of one of the most important means to promote and purchase hotels products and services, the website. Based on customers' preferences and the importance given to specific hotel websites' features, the study provides insights to hotel website designers to analyze guests' preferences that differ between younger to aged users and between more tech-savvy guests and less tech-savvy ones. This gives new guidance to provide high-quality design, relevant data and improve website features that customers give more importance, which in turns, could mediate the service gap between a hotel's current website effectiveness and customers' expectations.

Due to the evolution of technology and society, customers are more and more IT-experienced. Therefore, hotel's managers should take into account that by providing good quality hotel websites with a touch of modernity that include all techniques the customers enjoy using will increase their satisfaction and impact positively their behavioral intentions.

3. Limitations and directions for future research

Finally, like all research, this thesis has some limitations. First, regarding the sample size, the focus on a single location and context, Morocco as one DC, and particularly two cities, Marrakech and Agadir, restricted the data collection, which will impact the results of the study. Second, the findings might be different in contexts other than three-, four-, and five-star hotels and riads. Third, limited dimensions for HP measurement might also affect the results. Fourth, self-report measures from only one source could lead to common method bias. Finally, HP was assessed from managers' perceptions and not from using objective indicators such as the actual occupancy rate and detailed revenue. All these limitations pave the way for future research and studies.

In this sense, future research could enlarge the context of this thesis by adding other cities in Morocco and taking into consideration other DCs and even in underdeveloped countries, to

which little or no attention has been paid in the literature. Such research can provide a useful comparative view and emphasize similarities and differences within DCs and between DCs, developed countries and underdeveloped ones. Also, other hotel types should be included such as one- and two-star hotels, apart-hotels and motels among others, as well as new types of accommodation, such as sharing accommodation. This may reveal barriers that constrain the adoption of IT in other types of lodging such as lack of financial resources, lack of training programs, or limited technological infrastructures. Understanding other factors affecting the adoption of IT such as hotel size and ownership structure (i.e., independent hotels versus integrated in chains) could be worth studying. This will provide further understanding regarding the adoption gap between large and small firms.

Measuring HP through different dimensions such as customer satisfaction (i.e., analyzed through TripAdvisor) could be another interesting area for future research. Due to the evolution of technology and society, customers are more tech-savvy. Therefore, hotel managers should take into account that by providing good quality services with a touch of modernity that include all technologies the customers enjoy using, such as offering innovative in-room technologies (e.g., automated systems that personalize the room ambiance such as temperature, lightings, music, and scent), providing an instant translation service to reduce the misunderstanding and improve the cultural exchange, as well as offering appropriate check-in and check-out process using mobile devices to avoid long queue, will enrich guests' stay experience and increase their satisfaction, which could in turn generate positive electronic word-of-mouth (eWOM) and intention to recommend the hotel.

Moreover, hotel managers and decision makers can take advantage of eWOM from TripAdvisor or other social media, as an operational device to control the internal quality. This feedback can help to identify problems or failures in service delivery and therefore determine the most proper decisions and methods to satisfy customers' needs and expectations. In this same vein, measuring the impact of IT adoption on HP through objective indicators that represent the real outcomes and compare them against the perceived ones could be of great importance. This will build a deep understanding of the level of IT adoption and ensure the validity of measurement models proposed in this thesis.

Regarding the evaluation of hotel website, studying hotel mobile websites should be relevant, giving the increasing use of smartphones in different travel phases: pre-travel, travel and post-

travel. Furthermore, considering cultural factors in the intentions to adopt IT may provide an overview of the findings and enable drawing efficient conclusions of the research. Additionally, investigating the moderating effect of demographic characteristics on the relationship between IT adoption and hotel performance may expand the results of this thesis and provide new insights.

In summary, this thesis has tried to provide some insights regarding the implementation of IT in the tourism industry, and more specifically, in the hospitality sector. However, it is an area in which there are still many issues that need further research and that deserve attention from academia, given the current and expected future importance of IT and other technological trends such as robotics, artificial intelligence, big data, and extended reality.

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