Tesis Doctoral

Organizational ambidexterity: Antecedents and Consequences

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Ambidestreza organizativa: Antecedentes y consecuencias

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RESUMEN DE ESTA INVESTIGACIÓN

Esta investigación nace con el objetivo de profundizar en el análisis de los antecedentes de la denominada en la literatura, ambidestreza organizativa.

Los estudiosos del campo de la adaptación organizativa sostienen que una organización necesita cambiar su estructura organizativa para afrontar con éxito los cambio el entorno y obtener competitividad a largo plazo (Schumpeter, 1934). Thompson (1967) caracterizó esta compensación entre eficiencia y flexibilidad como una paradoja de la administración. James March (1991) señaló que el reto adaptativo fundamental al que se enfrentaban las empresas era la necesidad tanto de explotar los activos y las capacidades existentes como de prever una exploración suficiente para evitar que los cambios en los mercados y las tecnologías las volvieran irrelevantes. En su opinión, la explotación tenía que ver con la eficiencia, el control, la certeza y la reducción de la varianza, mientras que la exploración tenía que ver con la búsqueda, el descubrimiento, la autonomía y la innovación. March consideraba que, "el problema básico al que se enfrenta una organización es el de dedicarse a una explotación suficiente para garantizar su viabilidad actual y, al mismo tiempo, dedicar suficiente energía a la exploración para garantizar su viabilidad futura" (1991, p. 105). La dificultad para lograr este equilibrio es un sesgo a favor de la explotación, con su mayor certeza de éxito a corto plazo. La exploración, por su naturaleza, es ineficiente y está asociada a un inevitable aumento del número de malas ideas. Sin embargo, sin un cierto esfuerzo de exploración, las empresas, ante el cambio, probablemente fracasarán. Partiendo de la idea de que se necesitan estructuras diferentes para la explotación y la exploración, varios autores sugirieron que, para la supervivencia a largo plazo, las organizaciones debían dar cabida a ambas. Por ejemplo, en el primer uso del término "ambidiestro", Robert Duncan (1976) argumentó que las empresas necesitaban cambiar sus estructuras para iniciar y, a su vez, ejecutar la innovación. Tras analizar cómo algunas empresas consiguieron sobrevivir y cambiar durante décadas, Tushman y O'Reilly (1996) propusieron que las organizaciones necesitaban explorar y explotar simultáneamente, es decir, ser ambidiestras.

Por lo tanto, el éxtio a largo plazo requiere del desarrollo de una capacidad, que ha sido rebautizada como ambidestreza organizativa. Esta capacidad, permite equilibrar y desarrollar la explotación de las empresas existentes con orientación armoniosa y explorar nuevas oportunidades para mantener una ventaja competitiva sostenible (Raisch y Birkinshaw, 2008). La comprensión y el manejo de las tensiones entre los objetivos paradójicos (exploración frente a explotación) y el éxito simultáneo en el logro de altos niveles en las variables que causan tales tensiones, son esenciales para la competitividad y supervivencia de los negocios (O'Reilly y Tushman, 2004, 2008).

O'Reilly y Tushman (2008), argumentan que la capacidad de una empresa para ser ambidiestra está en el núcleo de las capacidades dinámicas. Desde una perspectiva estratégica, lograr el éxito a largo plazo requiere que las empresas posean no sólo las capacidades y competencias operativas para competir en los mercados existentes, sino también la capacidad de recombinar y reconfigurar los activos y las estructuras organizativas para adaptarse a los mercados y tecnologías emergentes. En este sentido, Teece (2006) caracteriza las capacidades dinámicas como las distintas habilidades, procesos, procedimientos, estructuras organizativas, reglas de decisión y disciplinas que permiten a los altos dirigentes de una empresa identificar las amenazas y oportunidades y reconfigurar los activos para hacerles frente.

Aunque existe cierta ambigüedad en la terminología de las capacidades y las competencias, lo que Winter (2000) ha denominado ''neblina terminológica'', hay consenso entre los estudiosos de la estrategia en que las capacidades dinámicas se reflejan en la capacidad de la organización, manifestada en las decisiones de la alta dirección, para mantener la aptitud ecológica y, cuando es necesario, reconfigurar los activos existentes y desarrollar las nuevas habilidades necesarias para hacer frente a las amenazas y oportunidades emergentes (Teece et al., 1997; Eisenhardt y Martin, 2000; Winter, 2003). En este sentido, las capacidades dinámicas resutan en actividades específicas como el desarrollo de nuevos productos, las alianzas, las empresas conjuntas, la innovación entre líneas de negocio y otras acciones más generales que fomentan la coordinación y el aprendizaje organizativo (por ejemplo, Gulati et al., 2002). Estas capacidades son el resultado de las acciones de los altos directivos para garantizar el aprendizaje, la integración y, cuando sea necesario, la reconfiguración y la transformación, todo ello con el fin de detectar y aprovechar las nuevas oportunidades a medida que evolucionan los mercados y las tecnologías.

Por tanto, la ambidestreza requiere que los directivos de alto nivel cumplan dos tareas críticas. Primero, deben ser capaces de detectar con precisión los cambios en su entorno competitivo, incluidos los posibles cambios en la tecnología, la competencia y los clientes. Segundo, deben ser capaces de actuar sobre estas oportunidades y amenazas; para poder aprovecharlos mediante la reconfiguración de activos tangibles e intangibles para enfrentar nuevos desafíos. Como una capacidad dinámica, la ambidestreza incorpora un conjunto complejo de rutinas que incluyen descentralización, diferenciación, integración dirigida y la capacidad del liderazgo principal para orquestar las complejas compensaciones que requiere la búsqueda simultánea de exploración y explotación. Desarrollar estas capacidades dinámicas es una tarea central del liderazgo ejecutivo (O’Reilly & Tushman 2008, 2011)

La premisa fundamental de la ambidestreza organizativa es que las decisiones estratégicas están, hasta cierto punto, siempre en conflicto y, por lo tanto, los directivos se ven obligados a manejar las compensaciones. Estas decisiones paradójicas son extremadamente difíciles de hacer, esto provoca que la ambidestreza es difícil de lograr, porque los directivos deben hacer concesiones bien pensadas formadas por rutinas de auto-refuerzo, intereses a corto plazo y factores invisibles para decidir si los beneficios actuales deben sacrificarse para el éxito futuro (Prahalad & Bettis, 1984; March 1991; Ghoshal & Bartlett, 1994; Smith & Lewis, 2011). Esta compensación es la premisa central del marco de March (1991), que establece que la toma de decisiones de los directivos se distrae con rutinas de auto-refuerzo, contradicciones temporales y recursos limitados.

Décadas de investigación han demostrado que la ambidestreza organizativa es beneficiosa y factible para las organizaciones, pero la literatura acumulada todavía nos dice relativamente poco sobre cómo puede surgir y evolucionar la ambidestreza organizativa cuando los miembros de la organización, individual y colectivamente, promueven demandas paradójicas reduciendo las tensiones inerciales y aprovechando la búsqueda de exploración y explotación en sus actividades empresariales diarias (Raisch et al., 2009; Mom et al., 2019).

Dentro de este marco teórico es donde esta investigación analiza la ambidestreza organizativa. Para ello, esta tesis integra capítulos independientes que analizan diferentes antecedentes que facilitan esta ambidestreza, en diferentes contextos. Estos antecedentes están integrados por el nexo común del análisis de antecedentes de la ambidestreza organizativa, por el capítulo uno y dos, donde se integran los objetivos de esta investigación y se presenta el marco teórico general y por las conclusiones generales y aportaciones extraídas de las investigaciones que conforman los distintos capítulos de esta tesis, que se abordan en el capítulo 7.

En esta tesis, se estudian determinados antecedentes relacionados con la ambidestreza de las empresas y los gerentes y líderes ambidiestros, tanto teórica como empíricamente. Estos antecedentes, facilitan esta ambidestreza tanto en las organizaciones como en sus líderes, repercutiendo en el desempeño de la empresa, en su supervivencia a largo plazo o sostenibilidad. Esta investigación, también analiza la relación entre las alianzas y la ambidestreza organizativa. Para ello, se ha realizado una revisión bibliográfica, analizando las características desde diferentes perspectivas propuestas en literatura (por ejemplo, O'Reilly & Tushman). Además, se estudia esta influencia en un contexto específico como es el de la empresa familiar cuyas características específicas puede influir

en esta relación y alternativamente también se estudia su desarrollo en grandes empresas donde su gran tamaño puede crear un contexto diferente en el desarrollo de la ambidestreza. Las diversas muestras de las empresas analizadas en esta investigación incluyen diferentes sectores empresariales.

Con respecto a los análisis empíricos se han utilizado diferentes metodologías, como diferentes modelos de regresión jerárquica (SPSS) y un análisis comparativo cualitativo de conjuntos difusos (FsQCA).

Las conclusiones de esta investigación deben entenderse en el marco de los objetivos propuestos en el primer capítulo. Además de profundizar en el análisis de los antecedentes de la ambidestreza organizativa, los objetivos específicos de esta tesis se dividen en:

El **primer objetivo** específico de la investigación es profundizar en el concepto de ambidestreza organizativa, clarificando su significado y alcance. También se realiza una revisión bibliográfica sobre los directivos y líderes ambidiestros. Por último, en el capítulo 2 se analizan los antecedentes de la organización ambidiestra (empresa familiar, alianzas; liderazgo) y algunos mecanismos que facilitan la ambidestreza directiva. Esta revisión bibliográfica permite establecer el marco teórico de nuestra investigación y definir los conceptos que se analizan a lo largo de la investigación. La revisión de la literatura sobre ambidestreza organizativa destaca que, aunque su origen se remonta a los años 70, no fue hasta mediados de los 90 cuando el término se generalizó gracias al trabajo de Tushman y O'Reilly (1996). El interés por este concepto ha ido creciendo, a juzgar por la abundante literatura académica generada, y se ha convertido en una de las variables paradigmáticas en el estudio de las paradojas de gestión.

A nivel general, tras realizar el marco teórico, destacamos que el interés por el concepto de ambidestreza organizativa ha crecido en los últimos años en la investigación académica y empresarial. Además, existen muchos estudios empíricos que demuestran sus diversos beneficios: rendimiento organizativo e individual superior (Schnellbächer y Heidenreich, 2020; Turner y Lee-Kelley, 2013), supervivencia y éxito a largo plazo (Levinthal y March, 2003); la ambidestreza organizativa, además, fomenta el aprendizaje activo y el crecimiento del conocimiento, lo que, a su vez, mejora la capacidad de la empresa para innovar, asumir riesgos y anticiparse a futuras oportunidades sostenibles antes que sus competidores (Jansen et al., 2012; Hill y Birkinshaw, 2014).

En concreto, esta investigación quiere ir más allá del concepto de ambidestreza organizativa y analizar teórica y empíricamente algunos de los antecedentes propuestos por la literatura (empresa familiar, liderazgo ambidiestro, alianzas y mecanismos de integración de los directivos ambidiestros), que ayudan a conseguir esta ambidestreza y, en consecuencia, mayores beneficios, como un mayor rendimiento o una mayor supervivencia a largo plazo. Esto nos permite estudiar la influencia de la ambidestreza a nivel organizativo y directivo, en diferentes contextos y sectores.

Nuestro **segundo objetivo** es analizar la relación entre las especificidades de las empresas familiares y la ambidestreza organizativa. Tras realizar el análisis, concluimos que en las empresas familiares, la gestión de la diversidad y los diferentes grados de implicación de la familia en la propiedad y la gestión requieren mecanismos de gobernanza específicos y conocidos, para orientar positivamente la capacidad y la voluntad de las empresas familiares hacia la consecución de la ambidestreza. Además, el hecho de ser multitemporales les permite aprovechar las oportunidades y reconfigurar los recursos. La diversidad conjunta de edad y experiencia del equipo directivo refuerza la ambidestreza (Fernández-Mesa et al., 2013). La cultura familiar es también un antecedente importante para promover la orientación ambidiestra. Finalmente, la ambidestreza representa un constructo organizativo prometedor para comprender mejor las diferencias entre las empresas familiares (Lubatkin et al., 2006; Stubner et al., 2012), y los directivos pueden promover los aspectos positivos de las empresas familiares que permiten la ambidestreza y la competitividad a largo plazo.

El **tercer objetivo** de esta investigación es analizar cómo la ambidestreza influye en el rendimiento sostenible y cómo la combinación de ambidestreza y alianzas interorganizativas facilita este rendimiento sostenible. Para ello, se realiza un estudio que profundiza en la comprensión de cómo los hoteles españoles pueden aumentar su rendimiento medioambiental, proporcionando un marco del efecto contributivo de las alianzas y la ambidestreza. De este estudio destacamos que los hoteles juegan un importante papel en la conservación del entorno natural. Su competitividad también está relacionada con su rendimiento medioambiental: podría reducir los costes y el uso de recursos. Además, un mayor rendimiento medioambiental podría mejorar la reputación de la empresa (Berg et al., 2018), la identificación del consumidor con la empresa (Du et al., 2010) y, por tanto, el posicionamiento de la empresa, la competitividad y el acceso a mejores recursos (Yu et al., 2016). Además, los hoteles deben colaborar periódicamente con socios externos para hacer frente a retos medioambientales cada vez más complejos (Albino et al., 2012; Hofmann et al., 2012; Seuring y Müller 2008), accediendo a conocimientos ajenos a su ámbito de actuación. Los resultados confirman la importancia de la ambidestreza por su efecto positivo y directo en el desempeño ambiental, y por el

efecto mediador, que ayuda a transformar los beneficios de la participación de las empresas en alianzas estratégicas en un mejor desempeño ambiental. También contribuye a una mejor comprensión de los factores que impulsan los resultados medioambientales al introducir el efecto integrado de la participación de los hoteles en alianzas y la ambidestreza.

Nuestro **cuarto objetivo** es analizar ciertas características o rasgos que hacen que un líder sea ambidiestro. Concluimos que los líderes necesitan una serie de competencias y capacidades para poder manejar de forma ambidextra las diferentes actividades de exploración y explotación. En términos ambidiestros, los directivos deben centrarse tanto en las actividades de explotación como en las de exploración. Estas capacidades de gestión ayudan a las organizaciones a reconfigurar los activos y habilidades existentes para detectar y aprovechar nuevas oportunidades (O'Reilly y Tushman, 2011). En este capítulo, recogemos las características analizadas en la literatura necesarias para que los directivos sean ambidiestros. La mayoría de los autores consideran que los directivos ambidiestros albergan contradicciones (Smith y Tushman 2005; Tushman y O'Reilly 1996); son multitarea (Birkinshaw y Gibson 2004, Floyd y Lane 2000); y perfeccionan y renuevan a la vez sus conocimientos, habilidades y experiencia (Floyd y Lane 2000, Hansen et al., 2001, Sheremata 2000). Una visión global y compartida y con sistemas de recompensa de incentivos permite a los directivos lograr la ambidestreza y mantener a todos los miembros de la organización involucrados con la estrategia ambidiestra. Además, se destaca la importancia de las entradas de conocimiento ascendentes de los directivos para las actividades de exploración, y descendentes para las actividades de explotación (Mom, Van Den Bosh y Volberda, 2007).

Finalmente, el **último objetivo** de esta investigación, es analizar qué conjunto de antecedentes es el más óptimo para facilitar la ambidestreza directiva y, en consecuencia, el rendimiento organizativo. Para ello, realizamos un estudio empírico para ver qué combinación de estos antecedentes afecta a la ambidestreza directiva y cómo esta ambidestreza afecta al rendimiento organizativo. Demostramos empíricamente cómo la integración de una visión global y compartida y la existencia de sistemas de recompensa incentivados permiten a los directivos alcanzar la ambidestreza y los efectos positivos que tiene sobre el rendimiento. Además, se demuestra la importancia de la entrada de conocimientos ascendentes de los directivos para las actividades de exploración (Mom, Van Den Bosh y Volberda, 2007).

Para concluir, contribuimos a la literatura organizativa y de gestión de diferentes maneras; esta investigación muestra cómo las particularidades de las empresas familiares tienen un efecto

positivo en la ambidestreza organizativa si se orientan hacia una voluntad positiva de ambidestreza y cómo la ambidestreza representa un constructo organizativo prometedor para comprender mejor las diferencias entre las empresas familiares (Lubatkin et al., 2006; Stubner et al., 2012), y también cómo los gestores pueden promover los aspectos positivos de las empresas familiares que permiten la ambidestreza y la competitividad a largo plazo. Además, esta investigación muestra cómo la participación de los hoteles en las alianzas tiene un efecto positivo en la ambidestreza y la ambidestreza tiene un efecto positivo en el rendimiento medioambiental, además de actuar como variable mediadora entre ambas. Así, estos resultados avanzan en la reciente línea de investigación que propone la importancia de la ambidestreza para gestionar los requisitos medioambientales (por ejemplo, Chen et al., 2014; Yu et al., 2016; Lin y Ho 2016). Los directores de hotel que dedican recursos a gestionar y aprovechar simultáneamente la exploración y la explotación (es decir, desarrollan la capacidad de ambidestreza) pueden mejorar el rendimiento medioambiental de la empresa. Los estudiosos han propuesto que, aunque la ambidestreza es un reto para las empresas, es necesaria para su éxito a largo plazo (Tushman y O'Reilly 1996; Simsek 2009; Raisch et al., 2009). Esta investigación amplía esta línea al mostrar también su efecto positivo sobre el rendimiento medioambiental, confirmando así la importancia de desarrollar esta capacidad para las empresas, y en concreto para los establecimientos hoteleros. Además, la ambidestreza no sólo es relevante por su efecto positivo en el desempeño ambiental. Para los hoteles que participan en alianzas, tiene un efecto mediador, es decir, es beneficiosa para transformar los beneficios de las alianzas en mejores resultados en términos de rendimiento medioambiental.

Por otro lado, en todos los capítulos observamos la importancia de los directivos para alcanzar altos niveles de ambidestreza organizativa. Los líderes y gestores necesitan una serie de habilidades y capacidades para poder gestionar de forma ambidextra las diferentes actividades de exploración y explotación. En términos ambidiestros, los directivos deben centrarse tanto en las actividades de explotación como en las de exploración. Estas capacidades de gestión ayudan a las organizaciones a reconfigurar los activos y habilidades existentes para detectar y aprovechar nuevas oportunidades (O'Reilly y Tushman, 2011). También es importante que los directivos sean conscientes de los mecanismos de integración que pueden utilizar para facilitar la ambidestreza, como por ejemplo, la integración de una visión global y compartida y la existencia de sistemas de recompensa incentivados permiten a los directivos lograr la ambidestreza y los efectos positivos que tiene en el rendimiento. Asimismo, esta investigación destaca la importancia de la entrada de conocimientos ascendentes de los directivos para la exploración (Mom, Van Den Bosh y Volberda, 2007).

Las conclusiones obtenidas en esta investigación a partir de los estudios centrados en los líderes y directivos ambidiestros, aportan información a la literatura de gestión empresarial, ya que las conclusiones resultantes pueden ayudar a los directivos a alcanzar la ambidestreza organizativa y a tomar decisiones que contribuyan a alcanzar un mayor rendimiento organizativo, en términos de, resultados financieros, consolidación de ventajas competitivas sostenibles y supervivencia en el tiempo. Por último, cabe destacar que para este último estudio se ha utilizado la metodología FsQCA (Ragin, 2008), y que existen muy pocos estudios que utilicen esta metodología para analizar la ambidestreza organizativa, en concreto, la ambidestreza de los directivos. Además, no hay estudios que analicen la combinación de estos antecedentes en su conjunto con esta metodología.

Esta investigación se divide en **7 capítulos**. El **capítulo uno**, se centra en explicar los intereses que han motivado a realizar esta investigación, los objetivos que hemos establecido y la estructura de la investigación explicada en detalle. El **capítulo dos**, establece el marco teórico general del concepto de ambidestreza organizativa y más concretamente el que enmarca esta investigación. Además, en este capítulo hemos desarrollado de forma teórica los antecedentes y conceptos que vamos a ver a lo largo de la investigación. El **capítulo tres**, se centra en la ambidestreza organizativa, las características de las empresas familiares y sus líderes que fomentan esta ambidestreza. En el **capítulo cuatro**, estudiaremos la relación entre la ambidestreza, las alianzas y la adopción de sistemas de gestión ambiental, concretamente en los hoteles españoles. En el **capítulo cinco**, profundizaremos en las características que hacen a un líder ambidiestro; mientras que en el **capítulo seis** profundizaremos más en los directivos ambidiestros, sus antecedentes y antecedentes y cómo afectan al rendimiento. Finalmente, en el **capítulo siete**, recopilaremos todas las conclusiones obtenidas de los capítulos que componen esta investigación, qué limitaciones hemos tenido y qué direcciones futuras se pueden seguir para continuar la línea de esta investigación. Además se han recogido una serie de prácticas para directivos y empresas.

CONTENT INDEX:

CHAPTER 1: INTRODUCTION

1.1 Introduction and Research Interest:

Companies, as we know them today, are organizations originated at the industrial revolution and have been designed to operate efficiently. However, due to the speed at which change is occurring today, it will be increasingly imperative that organizations also incorporate the ability to generate innovations (new products and/or new ways of doing things) on a continuous basis.

According to Lubatkin et al. (2006), ambidexterity, understood as the human ability to use both hands with the same level of skill, has represented a metaphorical symbolism used by researchers to indicate the development of organizational competencies that are different and in some cases opposites, but can be applied simultaneously. Duncan (1976) was the first to use the concept of ambidexterity to explain the condition in which an organization develops dual structures that ensure the flexibility to adapt to change without losing formal alignment with objectives. This duality is based on the parallel implementation of organic structures that enable the generation and flow of ideas, along with mechanical structures that promote the implementation of those ideas (He & Wong, 2004; Raisch, 2008; Zhang, Linderman & Schroeder, 2012).

Based on this reasoning, the concept of the ambidextrous organization was born. These are companies that combine efficiency and innovation. In other words, those capable of exploiting the current business and exploring new business opportunities at the same time. This new concept of company implies an effort to systematize innovation and has to be integrated in the daily business life. Organizational ambidexterity refers to the routines and processes by which organizations jointly mobilize, coordinate and integrate exploration and exploitation efforts (Jansen et al., 2009). An ambidextrous company is empirically referred to as one that has high levels of exploitation and exploration simultaneously (He and Wong, 2004).

In the organizational literature, the concept of exploration and exploitation has been widely used, including studies on organizational learning, strategic renewal and technological innovation. As they are two different concepts, they require different structures, processes, strategies, capabilities and cultures, and may have different impacts on an organization's performance (He & Wong, 2004).

Exploration is about experimenting with new alternatives that have distant, uncertain and often negative returns. Conversely, exploitation is about expanding existing knowledge, competencies, improvement and technologies with positive, future and predictable returns (March, 1991). In terms of innovation, exploration is identified as a more radical innovation where the aim is

to achieve flexibility and novelty in product innovation through increased variation and experimentation with new alternatives (Rowley, Behrens and Krackhardt, 2000). We have to consider that future benefits are more distant and uncertain, as they are emergent innovations.

Exploitation is seen as the tendency of a firm to invest resources to improve and extend its existing knowledge to innovate in products, skills and processes (Atuahene-Gima, 2005). We can affirm that exploitation is an incremental innovation because the focus is on reducing the variety and improving the productivity of existing products. It means that exploitation emphasizes on reaffirming existing innovation, in order to gain efficiency in a particular area (Rowley et al., 2000), i.e. incremental innovation. A firm's focus on an exploitative environment implies that it makes efficient use of the firm's existing knowledge (March, 1991). Baum, Li and Usher (2000), explained exploitation as knowledge gained through local search, experimental refinement and the selection and reuse of existing routines.

It should be noted that organizational ambidexterity is a current in the academic literature on business management and is linked to organizational strategy to achieve success, efficiency, growth and long-term survival, among others (Guth & Ginsberg, 1990; Jansen, 2011). Ambidexterity concept is also included in the Theory of Resources and Capabilities, in the Dynamic Capabilities approach and analyzed through the prism of Strategic Management (Mintzberg & Waters, 1982; Guth & Ginsberg, 1990; Covin & Miles, 1999; Jiménez, 2009; Jansen, 2011; Kuratko, Morris & Covin, 2011). Simsek (2009) characterizes ambidexterity as the dynamic capability of an organization to manage paradoxes and tensions that allow knowledge to be exploited and explored simultaneously, achieving high standards in both activities. In this research we consider Organizational Ambidexterity as a dynamic capability. The benefits of adopting an ambidextrous view include: improved financial performance, sustainable competitive advantage and improved future survival rates (March, 1991; Tushman & O'Reilly, 1996; Benner & Tushman, 2003; He & Wong, 2004; Raisch & Birkinshaw, 2004; Jansen, 2011). Due to its great importance in the literature and its many benefits, ***we want to focus this thesis on studying broader this concept that is considered key to the survival and success of companies***. In addition, with ***this research we want to provide a series of managerial practices that managers and companies can keep in mind, in order to achieve higher levels of ambidexterity and performance.***

Decades of research have demonstrated that organizational ambidexterity is both beneficial and feasible for organizations, but the accumulated literature still tells us relatively little about how organizational ambidexterity can emerge and evolve when organizational members, individually and

collectively, promote paradoxical demands by reducing inertial tensions and harnessing the pursuit of exploration and exploitation in their daily business activities (Raisch et al., 2009; Mom et al., 2019). ***There is still a gap in our understanding of the micro-level of organizational ambidexterity, or the underlying collective and individual actions required to balance exploitation and exploration activities and align them with changing external and internal conditions*** (Nosella et al., 2012; Birkinshaw and Gupta, 2013). This has also made us ***want to analyze ambidexterity at a more individual level, such as leader and manager's ambidexterity.***

Within this theoretical framework is where this research analyses organizational ambidexterity. In this thesis, certain antecedents related to the ambidexterity of companies and ambidextrous managers and leaders are studied, both theoretically and empirically. This background, facilitates this ambidexterity in both organizations and their leaders, impacting the performance of the company, its survival or sustainability. It also analyzes the relationship between alliances and organizational ambidexterity. For this purpose, a literature review will be carried out, analyzing the characteristics from different perspectives proposed in the literature (e.g. O'Reilly & Tushman). In addition, this influence will be studied in a specific context such as the family business, whose specific characteristics can influence this relationship, and alternatively, its development in large companies will also be studied, where their large size can create a different context in the development of ambidexterity. The diverse samples of companies analyzed in this research include different business sectors.

Regarding the empirical analysis, different methodologies have been used, different hierarchical regression models (SPSS) and a fuzzy set qualitative comparative analysis (FsQCA) were used in this work.

This research is divided into 7 chapters. **Chapter one**, focuses on explaining the interests that have motivated us to carry out this research, the objectives we established and the structure of the research explained in detail. **Chapter two** establishes the general theoretical framework of the concept of organizational ambidexterity and more specifically the one that frames this research. In addition, in this chapter we developed in a theoretical way the background and concepts that we are going to see throughout the research. **Chapter three** focuses on organizational ambidexterity, the characteristics of family businesses and their leaders that foster this ambidexterity. In **chapter four**, we study the relationship between ambidexterity, alliances and the adoption of environmental management systems, specifically in Spanish hotels. In **chapter five**, we delve into the characteristics

that make an ambidextrous leader; while in **chapter six** we delve into ambidextrous managers, their background and antecedents and how they affect performance. Finally, in **chapter seven**, we compile all the conclusions obtained from the chapters that make up this research, what limitations we have had and what future directions can be followed to continue the line of this research. We also added a series of practices and implications for managers and companies.

This research has gone beyond the concept of organizational ambidexterity and analyze theoretically and empirically certain of the antecedents proposed in the literature (family business, ambidextrous leadership, alliances and integration mechanisms of ambidextrous managers), which help to achieve this ambidexterity and consequently greater benefits, such as higher performance or greater long-term survival. This has allowed us to study the influence of ambidexterity at the organizational and individual level, in different contexts and sectors.

After reviewing the features of family businesses, we can conclude diversity management and different degrees of family involvement in ownership and management require specific and familiar governance mechanisms to positively orient capacity and willingness in family businesses towards the achievement of ambidexterity. Multi-temporality allows family firms to take advantage of opportunities and reconfigure resources. The combination of age and experience diversity of the management team reinforces ambidexterity (Fernandez-Mesa et al., 2013). Family culture is also an important antecedent for promoting ambidextrous orientation. Moreover, ambidexterity represents a promising organizational construct to better understand the differences between family firms (Lubatkin et al., 2006; Stubner et al., 2012), and managers can promote the positive aspects of family firms that enable ambidexterity and long-term competitiveness.

At the empirical level, we conduct a study that deepens the understanding of how Spanish hotels can increase their environmental performance, providing a framework of the contributing effect of alliances and ambidexterity. The results confirm the importance of ambidexterity for its positive and direct effect on environmental performance, and for the mediating effect, which helps transform the benefits of firms' participation in strategic alliances into improved environmental performance. The drivers of environmental performance are also analyzed by introducing the integrated effect of hotel participation in alliances and ambidexterity.

Finally, we analyze ambidexterity at the managerial level (Smith and Tushman, 2005), we study certain characteristics of ambidextrous leaders and managers and their antecedents, theoretically and

by conducting an empirical study to see what combination of these antecedents affects managerial ambidexterity and how this ambidexterity affects organizational performance. We demonstrated empirically how the integration of a global and shared vision and the existence of incentivized reward systems allow managers to achieve ambidexterity and the positive effects it has on performance. In addition, the importance of managers' bottom-up knowledge inputs for exploration activities has been demonstrated (Mom, Van Den Bosh and Volberda, 2007). We have to consider managers as a key element for an organization to be ambidextrous (O'Reilly & Tushman, 2011).

1.2 Research Purpose:

The purpose of this research is firstly, to ***delve into the concept of organizational ambidexterity and delimit the theoretical framework on which this research is focused***, since in recent years, the concept has been used from many varying paradoxical approaches and there are different perspectives within the same concept (Benner & Tushman, 2015). Organizational ambidexterity has been studied from different academic streams, such as organizational learning, technological innovation, strategic management or organizational design, which have helped to broaden its knowledge base (Mintzberg & Waters, 1982; Guth & Ginsberg, 1990; Covin & Miles, 1999; Jiménez, 2009; Jansen, 2011; Kuratko, Morris & Covin, 2011). However, time has generated a disconnected and complex literature.

Secondly, this research ***analyzes specific antecedents of ambidextrous organizations and leaders proposed in the literature, which are necessary to achieve higher organizational performance and long-term survival***. Finally, we carried out different studies in companies, from different sectors, to empirically test the hypotheses proposed throughout the research and to be able ***to contribute results to the literature in order to clarify a little more the concept of ambidextrous organization and how to reach it.***

This research is useful for both the academic literature and the business management. At the academic level, it is a concept that has been growing steadily for some years now. A growing number of authors are investigating the benefits of ambidextrous firms and leaders in ensuring long-term survival and organizational performance (Adler et al., 1999; He and Wong, 2004; Atuahene-Gima, 2005; Gupta et al., 2006; Jansen et al., 2006; Lubatkin et al., 2006; O'Reilly and Tushman, 2008, 2013; Andriopoulos and Lewis, 2009; Jansen et al., 2009). We also contribute to the business management literature, as the resulting findings can help managers to take decisions helping to achieve higher organizational performance, in terms of financial results, consolidation of sustainable competitive

advantages, and survival over time. Finally, we analyze ambidexterity in family businesses, or the relation between this concept and ambidextrous leadership or alliances, contributing new information to the literature.

1.3 Research General Objectives:

The main objective of this research is to deepen the understanding of the concept of ambidexterity by studying organizational antecedents of leaders, organizational characteristics, as well as the consequences of the development of this ambidexterity. To do this, this research could be divided into two parts, a theoretical part and an empirical part, allowing us to formulate **two global objectives** in the following terms. On one side, ***we study at a theoretical level the importance of organizational ambidexterity, its evolution, its benefits and its background in order to clarify the concept and to contextualize this research and the results and conclusions obtained***. During the last years the concept of organizational ambidexterity has been studied from different perspectives, we intend to order the main ideas and concepts related to ambidexterity in order to facilitate the understanding of the concept. We pretend to develop a theoretical framework and study certain antecedents and contexts that facilitate organizational ambidexterity. This has allowed us to conduct studies that empirically analyze certain antecedents or contexts reviewed in the framework, contributing to both the literature and the business environment. Also, in order to contextualize the results obtained in the different studies of this research, the literature on the concept of ambidexterity is extensively reviewed. To analyze extensively, we break down the concept of organizational ambidexterity, its origins, its evolution, the different literary currents that study it, the definitions that we can find and the antecedents that facilitate the achievement of this ambidexterity. Also we will review the benefits of organizational ambidexterity and how managers play an important role in achieving this ambidexterity. So, this literature research consists of a theoretical framework that explains in detail the concept of organizational and manager ambidexterity, allowing us to clarify the meaning and scope of the construct. Family firms and alliances are also an important background in the literature of the ambidextrous organizations. We hope to contribute to the literature analyzing certain characteristics of family firms and their ambidextrous leaders that make an organization achieve higher ambidexterity and performance levels and also how alliances can play an important role for achieving ambidexterity.

At the empirical level, after reviewing the **literature we want to empirically analyze organizational ambidexterity in two different contexts and with different antecedents**; On the one hand, organizational ambidexterity, family firms and alliances, and on the other hand, organizational

ambidexterity, big firms and ambidextrous managers. To better understand how hotels can increase environmental management system (EMS) adoption by providing a framework of the contributory effect of alliances and ambidexterity, we analyze how alliances between firms help to achieve greater ambidexterity and influence the performance of the hotel's EMS. This provides us with more information of the drivers of EMS adoption by introducing the integrated effect of hotel participation in alliances and ambidexterity contributing to the literature and managers. Also, as we consider that managers are a key antecedent for an organization to become ambidextrous, certain antecedents related to ambidextrous leaders and managers are also analyzed in this research. We empirically analyze which set of the selected antecedents is the most optimal for achieving higher ambidexterity and performance.

In each chapter we establish more specific objectives allowing us to draw conclusions to advance in the knowledge and practice of organizational ambidexterity, both from the academic point of view, as well as from the point of view of its practical application in business management.

1.4 Research Structure and Specific Objectives:

In order to achieve the previously proposed objectives, this research work consists of seven chapters, each with its specific objectives:

Chapter 1: This chapter justify the choice of the object of study, as well as its delimitation around the concept of organizational ambidexterity. The general and specific objectives of the research are also detailed.

Chapter 2: In Chapter 2, ***we delve into the concept of organizational ambidexterity***. We establish a theoretical framework that goes from the origins of the concept to the antecedents that facilitate this ambidexterity***, in order to be able to establish a theoretical context for our research that will make us better understand the results and conclusions obtained***.

Chapter 3: Chapter 3, aims to ***analyze the relationship between the specifities of the family firms and organizational ambidexterity***. To this end, we review the literature that analyzes relationships between Family firm's specificities and organizational ambidexterity to propose a framework on how these characteristics influence ambidexterity in this context. The framework could

be a useful tool to better identify family firms specificities that help the long-term survival through their influence on organizational ambidexterity. The performance differences between family firms could be better explained considering these insights from the concept of organizational ambidexterity (Webb, Ketchen, & Ireland, 2010). The structure of the chapter includes an introduction to the ambidexterity concept and how it applies in family firms. This chapter also discusses the characteristics that could influence the development of ambidexterity in a family firm's context.

Chapter 4: The purpose of this chapter is to ***analyze how ambidexterity influences sustainable performance and how the combination of ambidexterity and inter-organizational alliances facilitates this sustainable performance***. Ambidexterity and exploration and exploitation are beginning to be analyzed as antecedents of environmental performance (e.g. Yu et al., 2016), and alliances are also studied regarding their effect on this outcome (Albino et al., 2012) or on environmental management practices (e.g. Hofmann et al., 2012). Nevertheless, to our knowledge, this is the first study to further knowledge of environmental issues by integrating the analysis of the role of alliances and ambidexterity in environmental performance in the hotel sector. The main contribution of this study is the empirical evidence of the positive effect of ambidexterity for achieving environmental performance and for transforming the benefits of alliances into better environmental performance.

The remainder of the chapter is structured as follows. First, the background of ambidexterity is introduced, together with the importance of strategic alliances. Then, hypotheses development is presented. Next, the data, measurement, and methodology are given in the Methods section, followed by the Results section and Data Analysis. Finally, implications of the study are derived, and limitations and future research lines outlined in the Conclusion section.

Chapter 5: In this chapter, we ***analyze certain characteristics or features that make a leader ambidextrous***. Given the importance of managers as leaders in the organization. It is intended to deepen into specific antecedents that allow managers dealing with complex trade-offs. To do this, in a first place the organizational ambidexterity concept is explained to contextualize manager ambidexterity. Then, the manager ambidextrous literature is reviewed, summarizing which are the key features that enable a leader to be ambidextrous.

Chapter 6: After reviewing the literature on managerial ambidexterity, the aim of this chapter, is to ***analyze which set of certain variables is the most optimal to facilitate managerial***

ambidexterity and consequently organizational performance. To do this, we review the organizational ambidexterity literature focused on managers and specific antecedents proposed in the literature that promote manager ambidexterity and high performance, helping us to a better understand of how this organizational ambidexterity is achieved and the importance of managers throughout the process and how it affects to performance. With the FsQCA methodology we study what combination of antecedents is the most optimal to achieve this manager ambidexterity or a higher performance. Finally, conclusions, limitations and future research are included.

Chapter 7: This chapter includes the main conclusions resulting from this research, as well as the limitations of the work, the lines of future research to advance in the subject and the organizational and managerial implications that may be useful both for the literature and also for the business environment. This chapter help us to have a global vision of the results and conclusions obtained throughout the research.

- The **bibliography** section contains the references used in the development of the research, organized according to the APA (American Psychological Association) criteria, which is the most widespread in the social sciences.

Finally, the **questionnaire**, sent in electronic format, was developed through Google forms and is available at the link:

https://docs.google.com/forms/d/1rVOaY88uNHMm8MPpmPSs14f430fR8mBCwmK2q6qJ4xc/edit?usp=forms_home&ths=true

CHAPTER 2:
INTRODUCTION TO THE ORGANIZATIONAL AMBIDEXTERITY CONCEPT: THEORETICAL FRAMEWORK

2.1 INTRODUCTION:

Each organization is the result of an entrepreneurial impulse, which must be continuously linked to the organizations, as its absence can lead to their disappearance. Once any organization has been set up, it is necessary to maintain entrepreneurial impulses, of varying intensity, to guarantee its growth and survival, as well as a clear orientation to be efficient in the product-market binomial at any given moment.

Any organization requires the development of a capability, which has come to be known as ambidexterity, that allows it to harmoniously balance and develop activities aimed at exploiting existing businesses and exploring new opportunities (Raisch & Birkinshaw, 2008), in order to maintain a sustainable competitive advantage. Understanding and managing the tensions between paradoxical objectives (exploitation vs. exploration), as well as the successful simultaneous achievement of high levels of the variables that cause such tensions, are essential for the competitiveness of firms and their survival (O'Reilly & Tushman, 2004, 2008).

Ambidexterity, from a traditional point of view, refers to the ability of an organization to pursue two disparate objectives at the same time such as: efficiency and flexibility (Adler et al., 1999), strategic positioning based on differentiation and low cost (Porter, 1996), global integration and local accountability (Barlett & Ghoshal, 1989). As Raisch & Birkinshaw, (2008:376) point out, studies that include concepts such as "reconciliation between exploitation and exploration, simultaneity of induced and autonomous strategic processes, the synchronization of incremental and discontinuous innovation, and the balance between search and stability" are referring to the same underlying construct, which is none other than organizational ambidexterity.

The study of ambidexterity is framed within the Resources and Capabilities Theory and is analyzed from the perspective of organizational learning, strategic management, organizational design, and innovation (Jansen, 2011) among others. These academic currents have contributed to broadening the knowledge base, although, at the same time, it has generated a disconnected and complex literature, not only because of the use of different terminology but also because of the different specific effects generated by the phenomenon, depending on the research current in which it is inserted.

It is a well-established discipline in the academic literature (O'Reilly & Tushman, 2013), with a wide array of antecedent variables, links to performance, solutions to develop it and moderating

factors. However, there are multiple gaps in this discipline, especially those related to how ambidexterity actually emerges in organizations, whether there are notable sectorial differences or the contextual characteristics linked to the organizational ambidexterity. Therefore, this chapter focuses on developing the concept of organizational ambidexterity, its origins, benefits, background.... This help us to analyze the concept from different perspectives, providing us with a global vision allowing us to carry out different studies related to ambidexterity in order to contribute new results and conclusions to the literature on organizational ambidexterity, ambidextrous managers, family businesses and alliances. We also analyze how ambidexterity affects both company and managerial ambidexterity on business performance, and what factors/antecedents can help organizations to achieve higher ambidexterity levels, long term survival and high performance and innovation results (March, 1991; Tushman & O'Reilly, 1996; Benner & Tushman, 2003; He & Wong, 2004; Raisch & Birkinshaw, 2004; Im & Rai, 2008; Anand, Mesquita & Vassolo, 2009; Sarkees, Hulland, & Prescott, 2010; Jansen, 2011; Chandrasekaran & Mishra, 2012).

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Researchers have already demonstrated that both exploitation and exploration are competences that enhance innovation and also contribute to improved organizational performance (Rosing & Zacher, 2017; Severgnini et al., 2018; Chen, 2017; Peng & Lin, 2019). The benefits of adopting an ambidextrous view include: improved financial performance, sustainable competitive advantage and improved future survival rates (March, 1991; Tushman & O'Reilly, 1996; Benner & Tushman, 2003; He & Wong, 2004; Raisch & Birkinshaw, 2004; Jansen, 2011).

2.2 THEORETICAL FRAMEWORK:

2.2.1 ORGANIZATIONAL AMBIDEXTERITY ORIGINS AND EVOLUTION:

Organizational ambidexterity comprises a key competence in improving organizational performance (O'Reilly & Tushman, 2013). While it has been a metaphorical term used to explain an organization's ability to simultaneously combine pairs of similar activities, there has been significant research progress (both theoretical and empirical) to demonstrate it as the development of exploitative and explorative capabilities (Andriopoulos & Lewis, 2009; Jansen, Simsek & Cao, 2012; Birkinshaw & Gupta, 2013; Günsel, Altındağ, Kılıçi, Kitapçı & Hızıroğlu, 2018; Lei, 1993)

Thus, ambidextrous firms are those that have the ability to exploit current resources and at the same time explore new capabilities (Benner & Tushman, 2003; O'Reilly & Tushman, 2013; Pertusa-Ortega & Molina-Azorín, 2018).

The first author to use the term ambidexterity was Duncan (1976), he was based on previous studies (Burns & Stalker, 1961; Thompson, 1967), to define the “organizational ambidexterity” concept. He considered that organizations manage the competing demands between exploitation and exploration through "dual structures", with certain business units focusing on alignment (exploitation) and others on adaptation (exploration). This solution was later called "structural ambidexterity" by Gibson and Birkinshaw (2004), who advanced the idea already put forward by other authors (Gresov & Drazin, 1997; Morgeson & Hoffman, 1999; Lewis, 2000), of the importance of balancing such contradictory tensions and shifting from a view of trade-offs (either/or) to a view of paradoxical thinking (both/and). Thus, Gibson and Birkinshaw (2004) developed the concept of "contextual ambidexterity" to refer to "the ability to demonstrate alignment and adaptability within an entire business unit", where alignment refers to the coherence between all activity models in the business unit as they work together to achieve the same objectives, and adaptability refers to the ability to reconfigure activities in the business unit quickly to adjust to changing demands in the environment. In this way, contextual ambidexterity is understood as the set of processes and systems that allow individuals to establish their own criteria for how to divide their time between conflicting demands of alignment and adaptability. The authors explain the term "contextual" as arising from the characteristics of the organizational context. To a large extent, they helped to establish a taxonomical distinction between structural ambidexterity and what they called contextual ambidexterity.

Benner and Tushman (2003, 2015) state that it is increasingly clear that structure is a necessary but not sufficient condition for dealing with the challenges of strategic paradox, thus advocating a transition from structural to contextual ambidexterity, in line with Jansen et al. (2009), with an emphasis on the role played by the top management team in managing paradoxes, as well as on the integration mechanisms.

Benner and Tushman were based on Abernathy (1978), another of the authors to lay the foundations of paradoxical thinking, who through his "productivity dilemma" based on the analysis of the automobile industry, concluded that a firm's ability to compete must be based not only on its ability to improve its efficiency, but also on its ability to combine it with effectiveness in innovation. His reasoning was very simple: the need to reduce costs conflicts with the need to introduce new products. The standardization needed to reduce costs allows intensive mechanization and specialization of the workforce which, in turn, become barriers to change, as the capital invested cannot easily be redirected towards the manufacture of new products.

O'Reilly and Tushman (2013) describe **contextual, sequential and structural** ambidexterity. However, only the structural one refers to the simultaneous development of a balance between exploitation and exploration, either through separate sub-units or through the development of competencies, processes and cultures associated with exploitation and exploration (O'Reilly and Tushman, 2008). These separate units are held together by a common strategic intent, an overarching set of values and specific structural linking mechanisms to leverage shared assets. These internally inconsistent alignments and associated strategic trade-offs are orchestrated by a senior team with a common target incentive system and team processes capable of managing these inconsistent alignments in a coherent manner (e.g. O'Reilly and Tushman, 2004; Smith and Tushman, 2005).

As mentioned by O'Reilly & Tushman (2013), some research has proposed interrelationships between the diverse ways of achieving ambidexterity. It is recognized that different factors and shapers of the environment can affect the relationship between the ways of achieving ambidexterity, and the results obtained by the firm. For example, Raisch, Birkinshaw, Probst, & Tushman (2009) found that mature firms create new businesses by initially employing structural ambidexterity, and then shifted to integrated designs as exploration units gain tradition. In turn, Kauppila (2010) highlights the possibility of achieving ambidexterity by taking into account an environment of analysis broader than the organization, given the possibility of firms achieving ambidexterity through a combination of structural and contextual forms at both the internal and inter-organizational levels. Therefore, as mentioned above, organizational ambidexterity follows the principle of equifinality. That is, organizations can achieve an appropriate balance of their exploration and exploitation orientations through a variety of paths starting from different initial conditions.

Conversely, Simsek et al. (2009) propose a typology in which there are four types of organizational ambidexterity: harmonic, cyclical, partitional and reciprocal. Each of these corresponds to combinations of two dimensions: temporal and structural. We highlight the temporal dimension, which contemplates that ambidexterity can be sequential or simultaneous, and the structural dimension, which can be independent -within the same unit- or interdependent -between units of the same organization or other organizations-. In the case of simultaneous organizational ambidexterity between units of different organizations, we speak of inter-organizational partitional ambidexterity.

The latter classification envisages an extension of the concept of organizational ambidexterity to the realm of inter-organizational relations (e.g. Kauppila, 2010). Inter-organizational ambidexterity involves the simultaneous development of exploitation and exploration by supporting inter-

organizational relationships (Kauppila, 2010). Parmigiani and Rivera-Santos, (2011), in their meta-review of the literature on Inter-organizational Relationships, introduce the concept of co-exploitation and co-exploration to describe two constitutive aspects of an inter-organizational relationship.

While ambidexterity was used to explain those dualities between pairs of organizational situations, such as flexibility and efficiency, adaptability and alignment, integration and accountability, change and stability (Birkinshaw & Gupta, 2013), there has been an important research development to understand such ambidexterity from the different paradoxes and contradictions raised between exploitation and exploration (Andriopoulos & Lewis, 2009; Peng & Lin, 2019; Mu, van Riel, & Schouteten, 2020; Knight & Cuganesan, 2020).

In 1991, the American author James G. March introduced the concepts of exploitation and exploration to explain how organizations generate adaptive processes through organizational learning. His basic thesis is that companies, in their evolutionary cycle, exploit old certainties and explore new opportunities in order to improve performance and maintain a sustainable competitive position. Based on this idea, the authors Tushman and O'Reilly (1996) later used the term ambidextrous organizations to explain the capability developed by companies to concurrently exploit current resources that promote incremental innovations and to explore new opportunities that make radical innovations possible, with an equal degree of ability and benefit for the organization.

Thus, since the 1990s, ambidexterity has begun to be studied as the joint effect of exploitation and exploration in the organization (O'Reilly & Tushman, 2013). According to the germinal ideas of March (1991), exploitation comprises actions towards production, efficiency, selection, implementation and execution, with a focus on refinement and extension of existing competencies, technologies and paradigms; the returns obtained are generally close in time and tend to be positive and predictable. Exploration involves actions toward search, variation, risk-taking, flexibility and discovery with a focus on experimentation with new alternatives; the returns obtained are more distant in time and tend to be negative and unpredictable.

In general terms, exploitation has a logic of stability and control, and exploration represents flexibility and risk-taking (Koryak, Lockett, Hayton, Nicolaou & Mole, 2018). Exploitation signifies routinization and standardization, and exploration implies a paradigm of experimentation to overcome obsolete practices (Koryak et al., 2018). Exploitation is associated with mechanical and bureaucratic structures, strongly coupled systems, path dependence, as well as stable markets and

technologies; whereas exploration is associated with organic structures, weakly coupled systems, path breaking, improvisation, autonomy, chaos, and emerging markets and technologies (Pertusa-Ortega & Molina-Azorín, 2018). Exploitation involves technology, understood as the application of knowledge to generate products and services, while exploration comprises science, in the sense of fundamental research to produce knowledge (Geiger & Makri, 2006; Li, Vanhaverbeke & Schoenmakers, 2008). Exploitation represents a strategy based on competitive advantage and current business practices, which expands the knowledge base to develop skills for commercial purposes; exploration represents a strategy based on achieved strategic learning, which aims to produce new knowledge by seeking new market opportunities (Sirén, Kohtamäki & Kuckertz, 2012; Sharma, Nguyen & Crick, 2018).

Regardless of the theoretical approach that has been developed in the field of organizational management, it is noteworthy that exploitation and exploration have represented two relevant logics for understanding adaptive processes in the organization (Kyrgidou & Petridou, 2011). Fundamentally, decisions about whether to exploit or explore are determined by requirements in terms of efficiency -optimization of resources- and in terms of effectiveness -achievement of results- (Burton & Obel, 2004; Auh & Menguc, 2005; Im & Rai, 2008). Given limited resources, firms have to choose to invest either in refining and extending existing knowledge, skills and processes, or in acquiring new knowledge, skills and processes (Atuahene-Gima, 2005; Katila & Chen, 2008). The need for choice causes firms to apply exploitation and exploration ambidextrously to seek sustained performance gains over time (Sahi, Gupta & Cheng, 2019).

Following Greve (2007), a preference for exploration activities might result in incremental costs due to failed experiments or insufficient benefits from successful cases. If the environment is stable, a preference for exploitation may not be detrimental in the long run, but it reduces the organization's ability to discover opportunities and respond to environmental changes. Therefore, an ambidextrous balance between exploitation and exploration is desirable to overcome operational drawbacks and enhance strategic possibilities. In this way, short-term adaptability can be balanced with the flexibility needed to ensure long-term endurance, leading to higher organizational performance (Cao, Gedajlovic & Zhang, 2009; Turner, Swart & Maylor, 2013; Li & Wang, 2019).

For these reasons, research on ambidexterity claims that the simultaneous balance between exploitation and exploration represents a fundamental condition for achieving superior performance at the organizational and individual levels (Turner & Lee-Kelley, 2013; Schnellbächer & Heidenreich, 2020). In this sense, several studies show that companies manage to improve performance,

represented by both operational and strategic returns, when they manage to exploit and explore simultaneously (Han & Celly, 2008; Cao et al., 2009; Turner & Lee-Kelley, 2013). As O'Reilly and Tushman (2013:326) remarked: the overall conclusion is clear: in uncertain environments, organizational ambidexterity is positively associated with increased innovation, better performance, and long-term survival.

The work of He & Wong (2004) was the first to empirically demonstrate the ambidexterity hypothesis in the field of innovation strategies. Their paper conclude that the interaction between exploratory and exploitative innovation strategies is positively related to the rate of sales growth and the imbalance between exploitation and exploration is negatively related to the sales growth rate.

Gibson and Birkinshaw (2004) also tested the ambidexterity-performance relationship using as a measure of performance managers' perception of the ability of the business unit to achieve its full potential, the employee satisfaction with the unit's level of performance, the unit's ability to meet customer needs and the manager's opportunity for development within the organization. This is a clear orientation of the authors towards contextual ambidexterity, more in line with the most recent approaches on the subject.

Atuaheme-Gima (2005), from a marketing point of view, finds that market orientation provides competencies in exploitation and exploration ensuring both incremental and radical innovations. Lubatkin et al., (2006), also using a clear contextual orientation, find positive results in the small and medium sized firm setting in relation to relative performance (relating it to that of other firms and rated by the CEO) related with sales growth rate, market share growth and other variables.

Lin, Yang and Demirkan (2007) find contingency factors in the ambidexterity-performance relationship, as factors such as size, environmental uncertainty and network centrality attenuate the effects of ambidexterity on performance. Moreover, such impact is stronger in the early years of alliance formation than in later years. A high degree of "structural gaps" in inter-firm networks negatively moderates the impact of ambidexterity on performance.

Revilla, Prieto and Rodriguez (2011), based on the knowledge management literature, propose that information technology facilitates ambidexterity. Moreover, they find strong evidence that ambidexterity mediates the relationship between information technology and performance in terms of new product development. On the opposite side, Venkatraman et al., (2007) fail to fully validate

the ambidexterity hypothesis. Sequential (cyclical or reciprocal) but not simultaneous (harmonic or structural) ambidexterity has a positive effect on sales growth. However, this effect is attenuated by the age of the company and its dominant position in the market. The positive effect is reduced when firms compete in multiple markets.

Uotila et al., (2009), taking up March's (1991) initial vision of considering exploitation and exploitation as the extremes of a continuous line, and not as orthogonal activities, conducted a longitudinal study covering five years, finding an inverted U-shaped relationship between a company's relative orientation towards exploration and its financial performance, also concluding that most companies were committed to a level of exploration lower than that considered as optimal. Similarly, they concluded that industry R&D investment intensity played a contingent role and thus moderated the relationship between exploration orientation and financial performance. Thus, as the sector's R&D investment intensity increases, so does the curvilinear effect between exploration orientation and performance.

The work of Solís-Molina et al., (2015), in addition to highlighting the role of inter-organizational relationships as a source that generates organizational ambidexterity, provides an interesting grouping of empirical studies on the relationship between ambidexterity and performance at both the organizational and inter-organizational levels. Both this paper and previous literature reviews (Simsek et al., 2009; Martini et al., 2012) show that the number of papers that empirically relate ambidexterity with performance is low in relation to the number of papers that attempt to define, explain and clarify the construct, as well as to analyze its antecedents.

Thornhill & White (2007) found that companies oriented towards either cost leadership or differentiation performed less well in the short term than those that simultaneously pursued both strategies. In addition, most of the companies analyzed followed a mixed strategy. Although companies following a pure strategy achieved higher profits in the short term, most of them pursued simultaneous strategies, because an intermediate position between two opposing strategies implies a rational decision reflecting the companies' preference for growth and survival over short-term profit maximization.

On the other hand, Pellegrinelli, Murray-Webster and Turner (2015) propose that in order to better understand how ambidexterity works in practice, in terms of structures, processes, routines and solutions (structural, contextual, leadership-based or inter-organizational), the use of a case

study-based methodology can be very useful. O'Reilly and Tushman (2013) also praise the advantages of this type of study because they allow capturing the complexity of ambidexterity and help to understand and materialize its variables in reality. Although this has not been the most common approach to analyze organizational ambidexterity in practice, in addition to Pellegrinelli et al., (2015) there are some articles that rely on this methodology. Thus, House and Price (2009) documented how Hewlett- Packard managed to make a successful transition from electronic instruments to technological services passing through computers and printers; Adler et al., (1999) focused on Toyota; O'Reilly, Harreld and Tushman, (2009), on IBM. Other articles conduct case studies without identifying the company under study (Zimmermann, Raisch & Birkinshaw, 2015). Most studies conclude similarly: in uncertain environments, organizational ambidexterity is positively related to greater business innovation, better financial performance and higher survival rates.

2.2.2 ORGANIZATIONAL AMBIDEXTERITY DEFINITIONS

The different perspectives and levels of analysis from which ambidexterity has been approached lead to a multitude of definitions, and after so many years of study there is still a great deal of confusion regarding the term "organizational ambidexterity" O'Reilly & Tushman (2013). The authors argued that its imprecise use to refer simply to a company's ability to do two things simultaneously also extends to the meanings of "exploit" and "explore", so that, as research progresses, the phenomenon loses its original meaning, becoming a Rorscharch test of management in which everyone sees what they want, as researchers apply the term to phenomena that have little to do with the tensions to ensure the survival of companies, which was its original meaning.

The following table summarizes some of the different definitions of the organizational ambidexterity concept and their authors:

Table 1. Organizational ambidexterity definitions. Own elaboration.

DEFINITIONS	AUTHORS
Dual organizational structure for innovation: a structure develops innovation activities and other implements innovation	Duncan, 1976
Ability to manage incremental and revolutionary changes and manage a suitable balance between exploitation and exploration	Tushman & O'Reilly, 1996
Ability to pursue both the development of products, markets and technologies in the long term (adaptability) as coordination and	Gibson & Birkinshaw, 2004

profitability in the short term (alignment).	
From the perspective of innovation, the need for companies to reach a balance between innovation strategies of exploitation and exploration.	He & Wong, 2004
Synchronous pursuit of exploitation and exploration through distinct sub-units or individuals, each specializing in exploration or exploitation.	Gupta, Smith & Shalley (2006)
Ambidextrous organizations are those that simultaneously pursue exploitation of existing resources and exploration of new opportunities with equal skill, rather than managing the trade-offs between exploitation and exploration to achieve balance.	Beckman, 2006
Organizational capability to be effective in the current demands of business and simultaneously be able to adapt to the changing environment.	Raisch & Birkinshaw, 2008
Dynamic capability referred to routines and processes by which an organization mobilizes, coordinates and integrates scattered and contradictory forces, besides assigning, reassign, combined and recombined resources and assets among different organizational units.	O'Reilly & Tushman, 2008
A set of routines and processes used by the organization to mobilize, coordinate and integrate conflicting efforts and to allocate, reallocate, combine and recombine resources and assets through the exploration and exploitation units.	Jansen et al., 2009
Strategic alternative that can be used to prevent crises or minimize losses during crises.	Akdogan, Akdogan & Cingöz, 2009
Ability to use and improve existing knowledge (exploration) while creating new knowledge to overcome identified gaps or lack of knowledge in job performance (exploration).	Turner & Lee Kelley, 2012
Ability of an organization to exploit and explore in order to compete in mature markets and technologies where efficiency, control and incremental improvements are very important and to compete in new markets and technologies where flexibility, autonomy and experimentation are needed.	O'Reilly & Tushman, 2013
System consisting of two different processes: process definition and execution process, which determine how an organization defines its activities and responsibilities and how to develop them.	Zimmerman, Raisch & Birkinshaw, 2015

Ambidexterity represents a mediating factor in the link between the dynamic capabilities of an organization and its competitiveness.	Jurksiene and Pundziene, 2016
The ability of organizations to simultaneously pursue contradictory goals.	Parikh**,** 2016
Ambidexterity refers to the ability and capacity of an organization to undertake two opposite things simultaneously well, ranging from exploration and exploitation, flexibility and efficiency, responsiveness and integration, alignment and adaptability, among others.	Wu et al., 2020
Ability to respond to changing environmental demands in a flexible manner while maintaining efficiency in current operations; that is, simultaneously pursuing efficiency and flexibility	Sun et.al., 2020

2.2.3 ORGANIZATIONAL AMBIDEXTERITY TYPES:

In order to understand the different ways of achieving ambidexterity, some research has attempted to describe the organizational structures, contexts, and leadership processes that enable organizations to deal with the contradictory orientations that arise from it.

Based on research by Raisch & Birkinshaw (2008) and O'Reilly & Tushman (2013) we present the main ways or forms of achieving organizational ambidexterity:

According to the traditional literature, there are three types of organizational ambidexterity:

- **Sequential organizational ambidexterity:** Sequential ambidexterity has been conceived by Raisch et al., (2009) or Venkatraman et al., (2007) as the temporal sequence between exploration and exploitation, which also following Tushman and Romanelli (1985); Burgelman (2002) and Gupta et.al. (2006) is a special case of discontinuous equilibrium. Moreover, according to the authors, it is a basic management requirement in dynamic markets, where organizations must seek a balance between paying attention to current customers and markets and recognizing

new opportunities and market segments, achieving superior effects on business results.

Duncan (1976) suggested that to accommodate the conflicting alignments necessary for companies to achieve innovation and efficiency, they need to change their structures over time, that is, organizations should align their structure according to the type of strategy selected (exploitation or exploration oriented), alternating between periods of exploitation and exploration.

In general, this way of achieving ambidexterity is usually useful in stable environments, where the speed of change allows the organization to modify its structures to respond to the needs generated in the environment. However, as mentioned by Tushman & O'Reilly (1996), sequential ambidexterity could be ineffective in rapidly changing environments because companies would not have the flexibility to change their structures to meet the needs of the environment.

- **Structural organizational ambidexterity:** Structural ambidexterity has been conceived as the separation between exploration and exploitation activities in separate organizational units, justified in the studies of Cristensen (1997) who proposes that one of the exploratory units must be separated from the exploitation units to achieve innovation in organizations, which, according to Gilbert, (2006) must coexist, be coordinated and interact and must be combined according to Eisendhardt and Martin, 2000; Jansen et al., 2008 and Teece, 2007. Thus, structural ambidexterity is achieved when two activities, exploitation and exploitation, are developed in different organizational units (Duncan, 1976; Tushman and O'Reilly, 1996, 1997; Bradach, 1997; Christensen, 1997; Benner and Tushman, 2003; Oreilly and Tushman, 2004, 2008); Tushman and O'Reilly (1996) and Smith and Tushman (2005), pointed out the need for managers to be in charge of ensuring the integration of differentiated units, which allow combining structural ambidexterity with integration mechanisms at lower levels to stimulate the flow of lateral knowledge in the units. (Gilbert, 2006; Jansen et al., 2009 and Raisch, 2008. Finally, structural ambidexterity for Tushman and O'Reilly (1996), is conceived as a simultaneous and interdependent phenomenon, which includes compartmentalization and synchronization of exploitation and exploration in different structured units or divisions of an organization.

Tushman & O'Reilly (1996) suggest that organizations can develop simultaneous exploitation and exploration orientations, which can be achieved by establishing autonomous subunits to explore and exploit within the same organization. These subunits will be structurally separate, each with its own alignment of people, structures, processes, and cultures, but with targeted integration to ensure that resources and capabilities are used appropriately. Integration of the subunits can be achieved through coordination at the top management level, and a strong and widely shared corporate culture (Raisch & Birkinshaw, 2008). Thus, in structural ambidexterity, organizations evolve through incremental innovations changes in the operating units, and through radical innovations driven by the exploration units (O'Reilly & Tushman, 2008).

- **Contextual organizational ambidexterity:** The precursors of contextual ambidexterity are Gibson and Birkinshawn (2004) who defined it as the behavioral capacity of a business unit to simultaneously demonstrate alignment and adaptability across the business unit. Contextual ambidexterity is based on research on organizational context and culture (Burgelman, 1991; Ghoshal and Bartlett, 1994; Barlett and Ghoshal, 1998) and has focused on contextual and behavioral explanations for the phenomenon of ambidexterity (Adler, et al., 1999; Gibson and Birkinshaw 2004; Corso and Pellegrini, 2007; Simsek et al., 2009). Research on contextual ambidexterity has aimed to seek contextual and behavioral explanations of ambidexterity in organizations. Adler, et al., (1999); Corso and Pellegrini, (2007); Simsek et al., (2009); and Gibson and Birkinshaw, (2004) who stand out for being considered the ones who initiated the proposal of this type of ambidexterity, for which they define the behavioral capacity of a business unit that allows the simultaneity, alignment and adaptability necessary to develop contextual ambidexterity in which managers create the favorable context within the business unit that allows and promotes that collaborators are able to decide for themselves how to distribute time between activities aimed at exploration and exploitation. This is complemented by Gibson and Birkinshaw (2004) who propose that when contextual ambidexterity is achieved, each employee delivers value to current customers in their functional area, but, at the same time, they are immersed in the task of seeking changes and acting accordingly, which also requires an interaction between alignment capabilities and adaptability

capabilities. Finally, Ghoshal and Bartlett (1994) and Gibson and Birkinshaw (2004) recommend the creation of organizational contexts that are characterized by a combination of drive, discipline, support and trust. Organizations with this type of context require maintaining a balance between hard elements focused on performance, pressure, and discipline and soft elements focused on social support and trust.

In summary, in contextual ambidexterity, the balance is based on an organizational context that supports and enables individuals to judge for themselves how best to divide their time between the conflicting demands of exploitative and explorative orientations. Context refers to the systems, processes, and beliefs that shape behaviors at the individual level in an organization. To achieve ambidexterity, the organizational context must be characterized by effort, discipline, support, and trust, so that the tensions generated by the need to develop these conflicting orientations can be resolved at the individual level through the ability to simultaneously demonstrate alignment and adaptation across the entire business unit (Gibson & Birkinshaw, 2004).

O'Reilly and Tushman (2013), and other authors, describe contextual, sequential and structural ambidexterity. However, only the structural refers to the simultaneous development of a balance between exploitation and exploration, either through separate sub-units or through the development of competencies, processes and cultures associated with exploitation and exploration (O'Reilly and Tushman, 2008). These separate units are held together by a common strategic intent, an overarching set of values and targeted structural linking mechanisms to leverage shared assets. These internally inconsistent alignments and associated strategic trade-offs are orchestrated by a senior team with a common target incentive system and team processes capable of managing these inconsistent alignments consistently (O'Reilly & Tushman, 2004; Smith & Tushman, 2005). Our research is framed within structural ambidexterity.

In recent years, ambidexterity has begun to be studied not only at the global level of the organization but also at other levels:

Organizational ambidexterity based on Leadership: Leadership-based ambidexterity proposes that the senior management team is responsible for responding to the tensions generated

by the need to develop exploitation and exploration activities. Therefore, senior executives are called upon to play an important role in fostering ambidexterity in the organization. Lubatkin et al., (2006) highlight that the degree of integration in the top management team as an important factor in achieving organizational ambidexterity depends on a collaborative climate where there is a general predisposition to exchange information, and an emphasis on joint decision making, and serves as a forum in which top executives can exchange knowledge, resolve conflicts, and create a set of solutions that facilitate the development of ambidexterity in the company.

Organizational ambidexterity based on strategic alliances: Research such as that conducted by Holmqvist (2004), Rothaermel & Deeds (2004) and Lavie & Rosenkopf (2006) suggests, resolving tensions generated by the pursuit of ambidexterity by outsourcing exploitation and/or exploration activities through external contracting or by developing strategic alliances with other companies. Strategic alliances can be used either to exploit complementary resources, reduce risks and promote stability, and/or to access and acquire new knowledge, explore new technologies and markets, and adapt to technological changes (Hill & Rothaermel, 2003; Grant & Baden-Fuller, 2004). However, Benner & Tushman (2003) warn that this way of achieving ambidexterity can be damaged by the difficulties involved in integration between independent companies.

2.2.4 DISCIPLINES RELATED TO ORGANIZATIONAL AMBIDEXTERITY:

Organizational ambidexterity has been extensively studied within multiple disciplines (Raisch & Birkinshaw, 2008) such as organizational learning (March, 1991); technological innovation (Tushman & O'Reilly, 1996; He & Wong, 2004); strategic management (Burgelman, 2002; Jansen et al., 2008), or organizational design (Tushman & O'Reilly, 1996). In the following section we develop the theory of organizational learning, going deeper into the theory of resources and dynamic capabilities and finally we briefly explain the disciplines named before, that also analyze organizational ambidexterity and are relevant in the literature.

2.2.4.1 ORGANIZATIONAL LEARNING:

The concept of organizational learning was originally addressed by Cyert and March (1963) to explain how organizations adapt to environmental stimuli. Using concepts from behavioral psychology, the authors develop a theory of company behavior that explains how companies modify their decisions, objectives and internal rules based on their own experience and the experience

observed in other companies. From this approach, learning is considered to occur when there is a change in the organization's behavior.

Later, authors assume a cognitive approach that considers that learning occurs when there is a change in the knowledge possessed by the organization, although this does not imply a change in its behavior. This approach focuses on the transformation of the organization's cognitive structure as a result of the integration of new information, considering aspects such as memory, learning incentives and belief structures (March and Olsen, 1975).

Fiol and Lyles (1985) present a review of both approaches and identify their complementary influence. The authors suggest the need to differentiate the concepts of learning and adaptation, taking into account their behavioral and cognitive dimensions. Thus, they define learning as the development of ideas, knowledge and associations between past and future actions, while they define adaptation as the ability to make incremental adjustments to changes in the environment or the organization's goal structure.

Other authors have criticized theories that assign human attributes to organizations. Simon (1991) considers it incorrect to say that an organization has "learned" something. For him, learning in the organization only occurs when its members, individually, acquire knowledge or when new members enter the company with new knowledge; however, the idea that learning can be a collective process and the knowledge generated in a group or organization is more than the sum of the individual knowledge of its members has prevailed.

In this line, Shrivastava (1983) considers that organizational learning is a collective process in which individuals acquire knowledge in the first place, but the process is affected by a wide set of social, political and structural variables that involve sharing knowledge and beliefs among them. Hedberg (1981) emphasizes that organizations do not have a brain as such, but they have cognitive systems and memories, so that individual habits and beliefs become shared views and ideologies. Individuals change, but organizational memory preserves certain behaviors, mental maps, norms and values over time. It is then posited that learning and organizational memory reside not only in the minds of individuals, but also in organizational routines (Levirt and March, 1988).

Considering these conditions, some models have emerged that try to explain how knowledge acquired by individuals becomes collective knowledge that can be exploited by the whole

organization. Huber (1991) considers that organizational learning occurs when the organization modifies the range of its potential behaviors through information processing, which includes four key processes: knowledge acquisition, information distribution, information interpretation and organizational memory. Crossan, Lañe and White (1999) propose another model that attempts to explain how individual learning becomes group and organizational learning through four psychological and social processes: intuition, interpretation, integration and institutionalization of knowledge. Intuition and interpretation occur at the individual level, integration at the group level and institutionalization at the organizational level.

Parallel to these descriptive models, which seek to answer the question "How do organizations learn?" and which are of greater interest in the academic communities, there is another, more pragmatic approach, which generates greater interest in companies, consultants and practitioners, which seeks to answer the question “What characterizes organizations that learn better?” This approach is known as "the learning organization".

The concept of learning organization became popular following the publication of The Fifth Discipline (Senge, 1990), a text that proposes five disciplines that characterize companies open to learning: personal mastery, mental models, building a shared vision, team learning and systems thinking. In general terms, the learning organization is defined as an organization that is competent in the creation, acquisition and transfer of knowledge, and also in modifying its behavior to reflect the new knowledge (Garvín, 1993).

Thus, multiple theoretical proposals of attributes, practices and values that characterize the learning organization are emerging. As the literature on organizational learning and the learning organization expands, other theoretical currents emerge that address similar problems and whose boundaries are blurred. They are theoretical approaches with their own models and concepts, but they tend towards convergence and, at bottom, analyze the same phenomenon: the way organizations acquire and manage knowledge and the importance it has for business success. Some of these currents are the resource-based approach, intellectual capital, dynamic capabilities, knowledge management, absorptive capacity and, more recently, the ambidextrous organization.

First, the resource-based approach can be considered a broader theory than that of organizational learning, since its objective is to identify the potential of an organization to develop a sustainable competitive advantage or to understand its business growth processes based on the

resources it possesses (Penrose, 1959), so that learning is approached simply as one of the mechanisms through which the organization develops these resources. It is considered that an organization can develop a sustainable competitive advantage when it possesses resources that are considered valuable, durable, scarce, complementary to each other, difficult to imitate or replicate, difficult to substitute, difficult to transfer and whose rents can be directly appropriated by the organization (Grant, 1991; Barney, 1991; Peteraf, 1993; Amit and Schoemaker, 1993). From this perspective, the resources and capabilities that meet these characteristics are generally intangible, socially complex and require internal development through organizational learning processes.

Second, intellectual capital theory can be seen as a complement to the resource-based approach, which recognizes the existence of two types of resources with unequal strategic value: tangible and intangible. Intellectual capital refers to knowledge-based resources which, by definition, are intangible in nature and include three types of assets that can generate value for the organization: human capital (individuals' skills, attitudes and aptitudes), structural capital (organizational routines) and relational capital (relationships with customers and the environment) (Stewart, 1997; Edvinsson, 1997; Youndt, Subramaniam and Snell, 2004). In this context, organizational learning is a mechanism for the organization to develop and strengthen such intellectual capital.

Third, dynamic capabilities theory also complements and extends the scope of the resource-based approach. Dynamic capabilities are abilities that a firm has to integrate, build and reconfigure its internal and external competencies to manage rapidly changing environments (Teece, Pisano and Shuen, 1997). They are capabilities that make it possible to detect and seize opportunities in the environment and maintain competitiveness, through the improvement, combination, protection and reconfiguration of the firm's tangible and intangible resources (Teece, 2007, 2009). Organizational learning can be a dynamic capability of this type, since it not only allows the organization to develop its current activities more efficiently, but also favors the identification of new opportunities for innovation and the development of future competencies.

Fourth, knowledge management theory analyzes how organizations create knowledge from the interactions and transformations that occur between tacit and explicit knowledge (Nonaka and Takeuchi, 1995; Nonaka, 1994; Nonaka and VonKrogh, 2009). This approach suggests that individuals share their tacit knowledge among themselves through socialization, transform it into explicit knowledge through externalization, enrich it with other explicit knowledge through combination, and

convert explicit knowledge into new tacit knowledge through internalization. The spiral generated by these processes allows the organization to create new knowledge and become more competitive.

Fifth, absorptive capacity is defined as the organization's ability to recognize the value of new information, assimilate it and apply it for business purposes (Cohén and Levinthal, 1990). It can be seen that this concept is quite close to that of organizational learning; however, the main difference is that absorptive capacity refers to the acquisition, assimilation and use of knowledge external to the organization, while organizational learning includes both external knowledge and internal knowledge gained from experience. More recent models of absorptive capacity have had greater convergence with organizational learning theories. Zahra & George (2002), identifies two dimensions: potential absorptive capacity, which includes the acquisition and assimilation of new knowledge, and realized absorptive capacity, which includes the transformation and exploitation of that knowledge. Lichtenthaler (2009), proposes a model according to which absorptive capacity is made up of three processes: exploratory learning, which includes the recognition and assimilation of new knowledge; transformative learning, which includes its maintenance and reactivation; and exploitative learning, which includes its transmutation and application.

Finally, in recent years the theoretical approach of the ambidextrous organization has emerged, which addresses the dilemma faced by organizations in trying to reconcile two apparently contradictory objectives: to be efficient in their current business, taking advantage of their present knowledge, and to be flexible in acquiring new knowledge from external sources to take advantage of future opportunities (Raisch and Birkinshaw, 2008; Simsek, 2009).

In general, the interdisciplinary nature of the organizational learning literature has generated multiple theoretical approaches to the role of knowledge in organizations and the strategies to manage it. Among the most current approaches, attention is drawn to the emerging approach of the "ambidextrous organization", which proposes a model that attempts to reconcile the conflicting objectives between exploitative and explorative learning, and can be considered as a current that marks the evolution of the traditional approach of the "learning organization".

2.2.4.2 RESOURCE BASED VIEW THEORY AND DYNAMIC CAPABILITIES

The theory of the growth of the firm proposed by Penrose in 1959, starts from the consideration that companies are not defined in terms of products, but in terms of resources, thus laying the foundations of the Resource-Based Approach, which has acquired great relevance in recent decades within the field of strategic management (Wernerfelt, 1984; Grant, 1991; Barney, 1991). Business growth can be induced by external causes such as demand conditions, but also some internal causes like resource accumulation and knowledge gain can be more determinant. Resources, provide multiple services to the firm and their effective use occurs when they are combined with each other, providing new knowledge that can be exploited in new markets. Resources are defined as the stock of productive factors or assets (tangible or intangible) that belong to, are semi-permanently linked to, or are controlled by the firm (Wernerfelt, 1984). Capabilities, on the other hand, refer to the competencies that a firm develops to deploy and combine its resources to perform an activity in order to achieve a given objective; they are processes that develop over time through complex interactions between the firm's resources (Grant, 1991).

From this approach, a firm is considered to develop a competitive advantage when it implements a value creation strategy that is not being implemented simultaneously by any direct or potential competitor, and this advantage is sustainable when, in addition, no direct or potential competitor is capable of replicating the benefits of this strategy (Barney, 1991).

Thus, the sustainability of the competitive advantage depends on certain attributes of the resources and capabilities possessed by the firm, such as their value, durability, scarcity, imperfect imitability, imperfect substitutability, imperfect transferability, complementarity and appropriation of their rents (Grant, 1991; Barney, 1991; Peteraf, 1993; Amit and Schoemaker, 1993). Considering that the resources and capabilities that fulfill these characteristics are generally intangible and socially complex, organizational learning plays a fundamental role in their development.

The Dynamic Capabilities Theory complements and extends the scope of the Resource-Based Approach. Based on common principles, this approach considers that the sustainability of competitive advantage depends not only on the strategic resources an organization possesses, but also on the capabilities it develops to integrate, build and reconfigure its core competencies, the latter being a result of the combination of these strategic resources (Teece et al., 1997). This theory is also strongly influenced by the evolutionary theory of the firm, identifying organizational routines as the basic unit of analysis of organizational behavior (Nelson and Winter, 1982).

Organizational learning can be understood as a dynamic capability of the firm that involves the exploration of new knowledge and the exploitation of its current knowledge, through processes of knowledge acquisition, distribution, shared interpretation and organizational memory, in order to modify its cognitive structure and positively influence organizational change and business results (López-Zapata et al., 2016).

This definition illustrates the complexity surrounding the concept and raises several implications. First, it recognizes the ambidextrous nature of learning that allows the firm to simultaneously acquire novel knowledge to anticipate the future (exploration) and deepen its current knowledge to be more efficient in the present (exploitation) (March, 1991; García-Muiña and García-Moreno, 2012). Secondly, the existence of a set of interrelated processes through which such learning occurs is noted: the acquisition of knowledge that arises at the level of the individual through intuition, the distribution of knowledge and its shared interpretation that occurs at the level of the group through language and social dynamics, and organizational memory that occurs at the level of the organization through the institutionalization of such knowledge (Huber, 1991). Thirdly, the dual behavioral and cognitive dimension of learning is considered, recognizing that an organization not only learns when it adapts to the environment through its actions, but also when it modifies its knowledge base and its way of interpreting it collectively (Fiol and Lyles, 1985). The consideration of organizational learning as a dynamic capability has an even more important implication: it can be a source of sustainable competitive advantage (Barney, 1991; Amit and Schoemaker, 1993).

Taking these arguments into account, during the last decades there has been a growing scientific interest in analyzing the real impact of learning capabilities on competitiveness and performance. According to Jansen (2011), the study of ambidexterity is framed within the Resources and Capabilities Theory and is analyzed from the perspective of strategic management and organizational design, innovation and learning.

The Theory of Resources and Capabilities is based on the idea of generating competitive advantage through a set of unique, valuable and hardly imitable or substitutable resources (Barney, 1991). The appropriate combination and integration of these resources gives rise to a set of distinctive organizational capabilities (Teece, 2007). The effectiveness of this theory in environments with a high degree of uncertainty leads to extend this theory to the Dynamic Capabilities Approach (Teece, Pisano & Shuen, 1997), defining dynamic capability as the ability of the company to generate new forms of

competitive advantage from the reconfiguration of competencies or organizational resources. In this way, it will be possible to achieve sustainable competitive advantages.

The organizational ambidexterity approach has been analyzed within the framework of the Dynamic Capabilities Approach by a large number of authors (He & Wong, 2004; O'Reilly & Tushman, 2008; Raisch, Birkinshaw, Probst & Tushman (2009); Jansen, Tempelaar, van den Bosch & Volberda, 2009; Güttel & Konlechner, 2009; Rothaermel & Alexandre, 2009; Kriz, Voola & Yuksel, 2014).

From a strategic perspective, long-term success requires that companies not only use the competencies and capabilities required to compete in today's markets, but also need to recombine and reconfigure assets and organizational structure to adapt to technology and emerging markets (O'Reilly & Tushman, 2008). In this sense, Teece (2007) characterizes dynamic capabilities as the distinctive skills, procedures, organizational structures, decision processes and disciplines that enable senior managers to identify threats and opportunities and reconfigure assets to address them.

Thus, Teece et al., (2007) consider that winners in the global marketplace have proven to be organizations that can pursue both rapid and flexible innovation and management capabilities to effectively coordinate external and internal competencies, therefore, dynamic capabilities are at the heart of an organization's ability to achieve ambidexterity, competing simultaneously in existing and emerging markets (O'Reilly & Tushman, 2008).

O'Reilly and Tushman (2008; 2011) conceive ambidexterity as a dynamic capability that enables the firm to orient itself towards exploration and exploitation according to environmental conditions. Ambidexterity is a dynamic capability that emphasizes the role of management in adapting, integrating and reconfiguring the organization's skills and resources in order to adjust to constantly changing environments (Teece, Pisano & Shuen, 1997; Eisenhardt & Martin, 2000; O'Reilly & Tushman, 2008; Heavy & Simsek, 2010). Conceiving ambidexterity as a dynamic capability highlights the possibility for ambidextrous firms to adjust to changes in the environment (O'Reilly & Tushman, 2008 and 2011). Thus, changes in environmental conditions will lead to alterations in the degree of orientation of the firm towards efficiency (exploitation) and/or towards innovation and change (exploration), increasing or decreasing it. We consider in our research, ambidexterity as a dynamic capability.

2.2.4.3 TECHNOLOGICAL INNOVATION, ORGANIZATIONAL DESIGN AND STRATEGIC MANAGEMENT:

The study of ambidexterity is framed within the Resources and Capabilities Theory and is analyzed not only from the perspective of organizational learning; the perspective of innovation, organizational design and strategic management (Jansen, 2011) also analyze the ambidexterity concept.

- The concept of i**nnovation** has had different meanings. Initially, Schumpeter (1934) considered innovation as the introduction of a new good or production process, the development of a new market, the conquest of a new source of supply or the creation of a new organization. The OSLO manual defines innovation as the application of new knowledge and technologies, which, developed internally or in collaboration with external organizations, produce significant changes in products, processes, marketing or organization of the company, with the aim of improving organizational performance (OECD, 2005).

  In general, innovation has been understood as a condition referring to both the formulation of new ideas and the development of new behaviors (Gopalakrishnan, Kessler & Scillitoe, 2010). In this line, a key aspect of innovation is that it corresponds to the planned and intentional introduction and implementation of novel ideas, a circumstance that differentiates it from creativity, which is more a spontaneous and inconsequential generation of ideas (Kamasak & Bulutlar, 2010). Although the character of novelty inherent to innovation can be a very ethereal notion, Cabello-Medina, López-Cabrales and Valle-Cabrera (2011) state that it is innovation if a process, product or service created, is new or improved for the company, the market, the industry or the world.

  In view of its condition of novelty, innovation has been studied in different ways; among them as knowledge production (Drucker, 1985), as a capability developed from the absorption of external knowledge (Cohen & Levinthal, 1990), as an organizational strategy determining competitive advantages (Damanpour & Gopalakrishnan, 1999), as an exploitative and explorative competence (Jansen, Van, & Volberda, 2006), as a result of human resources management (Cabello-Medina et al., 2011) and as a process of organizational transformation (Tushman & O'Reilly, 1996), among others.

A part of research in the literature on ambidexterity, is focused on innovation and its distinction between incremental and radical innovation. Incremental innovation is related to exploitation and radical innovation to exploration. Thus, He & Wong (2004) develop a model to distinguish exploitative innovation strategies from exploratory innovation strategies, analogous to what Jansen et al., (2009) do in distinguishing between exploratory innovation and exploitative innovation. Some studies have separately shown the impact of ambidexterity on innovation (Patel, Terjesen, & Li, 2012; Calantone & Rubera, 2012) and of ambidexterity on performance (Im & Rai, 2008; Anand, Mesquita & Vassolo, 2009; Sarkees, Hulland, & Prescott, 2010; Chandrasekaran & Mishra, 2012).

- In the conceptual framework of **Organizational design**, Thompson (1967), describes the efficiency-flexibility binomial as the "paradox of management". Burns & Stalker (1961) point out that mechanistic structures (centralized, standardized and hierarchical) generate efficiency while organic structures (decentralization, autonomy and mutual adjustment) generate flexibility. Duncan (1976) suggests that organizations require both structures: organic structures to generate innovation and mechanistic structures to implement and develop it. Some authors point out that it is difficult to reconcile both types of structure in a single organizational unit (O'Reilly, Harrell & Tushman, 2009). From this perspective, ambidexterity can be defined as the ability of an organization to develop complex designs that allow efficiency in the short term and innovation in the long term (Tushman & O'Reilly, 1996).

  Conversely, some studies claim that organizations can resolve this paradox by combining organic and mechanistic features in an organization or by developing a collective organizational context (Goldoftas & Lavie, 1999; Gibson & Birkinshaw, 2004; Birkinshaw & Gibson, 2004; Lubatkin et al., 2006; Beckman, 2006).

- **Strategic management** is the discipline from which the analysis of ambidexterity has been most intensively approached, especially in recent years. The precursors of ambidexterity, Duncan (1976) and March (1991), were part of the framework of corporate design and corporate learning, respectively.

  Subsequently, Burgelman (1991), in his internal ecology model of strategy, distinguishes between induced strategic processes of variation-reduction and autonomous strategic processes of variation-creation, explicitly relating them in his 2002 work to exploitation

(induced) and to exploration (autonomous). Burgelman can therefore be considered the first author to approach the study of ambidexterity from the perspective of strategy. Since then, there are very numerous studies dealing with strategic ambidexterity or trying to resolve strategic paradoxes from an ambidexterity perspective (Smith & Tushman, 2005; Wareham, Fox & Cano-Giner, 2014) or integrating it with entrepreneurship and strategic management (Jansen, 2011).

Most of the literature is focused on different elements of organizational ambidexterity, such as "the ability to simultaneously achieve double and single learning loops", "radical and incremental innovation", "stability and transformation in organizational adaptation, induced versus autonomous strategic processes", and "efficiency and flexibility in organizational design". However, less research focuses on trying to decipher how organizations achieve ambidexterity (Zimmermann & Cardinal, 2015) and even less on how ambidexterity is initiated (Zimmerman, Raisch & Birkinshaw, 2015).

2.2.5 ORGANIZATIONAL AMBIDEXTERITY ANTECEDENTS:

Most published studies focus on structural antecedents and the effect of ambidexterity on firm performance. Findings on other relevant constructs or on more complex relationships moderated by additional variables are scarcer (Raisch & Birkinshaw, 2008).

Organizational ambidexterity is increasingly being analyzed from the perspective of leadership (Lubatkin et al., 2006; O'Reilly & Tushman, 2011) and inter-firm alliances (Hill & Rothaermel, 2003; Grant & Baden-Fuller, 2004), due to recent studies showing that they are important antecedents to achieve ambidexterity and consequently higher levels of organizational performance and also the relationship between alliances and ambidexterity helps to improve environmental performance (Golob and Kronegger 2019). The family business can also be considered an antecedent that facilitates ambidexterity due to its peculiarities, achieving higher levels of performance and long-term survival (Gedajlovic et al., 2012; Miller & Le Breton-Miller, 2005). Ambidextrous managers are considered a crucial element to be able to achieve ambidexterity within an organization and in turn, these managers require a set of integration mechanisms that will help them to achieve ambidexterity and ambidextrous managers will contribute to achieve higher performance (O'Reilly & Tushman 2008, 2011; Smith & Tushman, 2005).

Due to its importance in the literature, in this point, we analyze in depth these organizational ambidexterity antecedents to establish a theoretical framework that facilitates the understanding of the results obtained and conclusions in the next chapters.

2.2.5.1 LEADERSHIP AND ORGANIZATIONAL AMBIDEXTERITY:

The most studied established leadership theory in recent times is transformational leadership (Marques, 2015). This type of leadership emphasizes the motivation and inspiration of followers (Von Krogh et al., 2012), and has been defined in terms of individualized consideration, intellectual stimulation, inspirational motivation and idealized influence (Bass, 1999). Transactional leadership, on the other hand, focuses on the exchanges between the leader and followers (Von Krogh et al., 2012), and has been defined in terms of contingent reward and active management by exception (Bass, 1999).

Analyzing from a contingent perspective, the requirements, responsibilities and challenges of leadership depend to a large extent on internal and external factors (Baškarada et al., 2014). These contingency factors include previous organizational performance (March & Simon, 1953); environment (Jansen et al., 2006) and organizational life stage (Vera & Crossan, 2004). It is generally accepted in the literature (O'Reilly & Tushman, 2013) that organizations with more organic systems (lateral relationships and flexible roles and responsibilities) are more effective in dynamic environments (Burns & Stalker, 1961), while organizations with mechanistic management systems (hierarchical relationships and well-defined roles and responsibilities) are more effective in stable environments. Researchers believe that mechanistic management systems enable exploitation, which is rewarded in stable environments, whereas organic systems are believed to enable exploration, which is rewarded in dynamic environments (March, 1991; Tushman and Reilly, 1996; Jansen et al., 2009). Consequently, transformational leadership has been associated with relatively poor organizational performance and periods of start-up, turbulent and uncertain environments, and organizational decline/renewal, whereas transactional leadership is more suited to predictable and stable environments, satisfactory organizational performance, and mature organizations. As such, transactional leadership applies primarily to situations that require institutionalization, reinforcement, or refinement of existing knowledge, whereas transformational leadership is more appropriate for situations that require change of the status quo (Jansen et al., 2009). Although, it should be noted that some empirical studies suggest that the relationship between transformational leadership and exploratory innovation may not be direct (Keller, 1992; Jung et al., 2003; Shin and Zhou, 2003; Jaussi and Dionne, 2003; Elenkov et al., 2005; Jansen et al., 2009; Schweitzer, 2014). As this

leadership, focuses on standardization, formalization, control and training, transactional leaders can have a positive impact on feedback learning and institutionalized learning (Vera and Crossan, 2004). These leaders tend to prefer closed cultures, mechanistic structures, and rigid systems and procedures (Shrivastava, 1983; Vera and Crossan, 2004).

On the other hand, transformational leaders can facilitate exploration by providing their staff with contextual support to develop their ideas (Berson et al., 2006). By encouraging individuals to be to embrace change, to be creative, to question assumptions, to participate in strategy development, and to take calculated risks, transformational leaders can have a positive impact on feedback learning that challenges institutionalized learning (Vera and Crossan, 2004). These leaders prefer organic structures, open cultures, flexible procedures, and adaptive systems.

Some authors support that senior executives play an essential role in the generation of ambidexterity, either through the internal processes of the top management team (Tushman & O'Reilly, 1996), through the role they play in providing an effective context for developing ambidexterity (Gibson & Birkinshaw, 2004) or through the integrative mechanisms by which management teams can manage the contradictions that arise when organizations adopt structural separation (Smith & Tushman, 2005). In line with Tushman & O'Reilly (2011) and Smith and Tushman 2005, **we study empirically these integrative mechanisms more deeply in chapter six, analyzing how these mechanisms affect to the manager's ambidexterity and consequently to the organizational performance.**

These contributions emphasize the important role played by leadership in supporting structural ambidexterity; however, other authors are committed to giving even greater relevance to leadership processes by giving them the status of independent antecedents of organizational ambidexterity. Within this trend, some authors relate exploitation-exploration activities to different hierarchical levels of management: Floyd and Lane, (2000) link exploration to operational levels where managers experiment with novel solutions to emerging problems and on the other side, the authors link exploitation to top management levels where novel solutions are considered and valued. Volberda, Baden-Fuller and van den Bosch (2001) and Smith (2006) assign to the top management team the ability to simultaneously pursue exploitation and exploration.

In summary, ambidexterity as a leader capability (Tushman and O'Reilly, 1996; Mom et al., 2009) can be defined as a manager's behavior oriented toward the combination of exploration and

exploitation activities; we would be referring to a transformational leadership style characterized by charismatic behavior, inspirational motivation, intellectual stimulation, and individualized consideration of followers (Jansen et al., 2008) in order to facilitate the pursuit of seemingly contradictory collective goals such as exploration and exploitation.

At the heart of this question is the idea of what the composition of these top management teams should be like, in order to generate ambidexterity. Beckman (2006) emphasizes that the composition of the founding team - in particular, the previous background of the members - is an important antecedent of exploitative and exploratory behavior. In conclusion, teams formed by members with varied backgrounds show a higher degree of ambidexterity. Lubatkin et al., (2006) describe "behavioral integration" as the degree of integrity and unity of effort of the senior management team as an important antecedent of ambidexterity. Behavioral integration, which depends on the level of collaborative team behavior, the amount and quality of information exchanged, and the emphasis on joint decision-making, has positive effects on both exploitation and exploration.

An emerging group of researchers has conceptualized leadership processes as an independent antecedent of organizational ambidexterity (Lubatkin et al., 2006). Some believers in this theory relate exploration and exploitation activities to different hierarchical levels of management in an organization. For example, Floyd and Lane (2000), relate exploration to operational levels where managers experiment with novel solutions to emerging problems and subsequent exploitation to top management levels where promising solutions are selected and exploited. Other authors suggest that top management may also pursue exploration and exploitation simultaneously. Volberda et al., (2001) note that "top management explicitly manages the balance between exploration and exploitation by bringing new competencies to some units while utilizing well-developed competencies in others" (p. 165). Smith (2006) finds that top management teams dynamically shift their resources between existing products and innovations to support both simultaneously.

2.2.5.2 FAMILY FIRMS FEATURES AND ORGANIZATIONAL AMBIDEXTERITY:

Most commonly, multi-criteria definitions are used to characterize a company as a family firm. Definitions based on a single criterion, such as those of traditional authors such as Barry (1989), based on control, or Barnes and Hershon (1976), based on ownership, give way to combined criteria, such as the authors Corona, Martí and Roca (2005), who state that the family business is one in which a family group is in a position to appoint the top manager of the company, to set the business strategy

and all this with the objective of generational continuity, based on the joint desire of founders and successors to keep ownership and management control in the family".

Family firms comprise a deeply heterogeneous set of organizations, belonging to different sectors, business models, strategies and with very different sizes, although they are usually associated with small and medium-sized companies and not with large companies (Vallejo, 2007), wrongly so, since at European level they account for 25% of the top 100 companies.

Despite this heterogeneity, family firms share some particular distinctive features that come fundamentally from the interaction of three systems - family, ownership and business - initially alluded by Davis & Tagiuri (1982) and later extended by Gersik, Davis, Hampton & Lansberg (1997) and known as the Three Circles Model, which has served to describe the situations that can occur in family businesses as a consequence of the interrelation of the three systems mentioned. In addition to facing the problems of any company, they have to deal with those derived from the characteristic presence of the family.

From the agency theory point of view, following Poza (2004), family firms possess one of the most costly forms of organizational governance. The altruism of owner-managers generates higher agency costs due to their inability to manage conflict among owners and between owner-managers and non-family managers. On the other hand, from the point of view of the capabilities-based approach, organizational competencies, rooted in internal processes, human resources or other intangible assets, may constitute competitive advantages for the company. In a family business, one of these resources may be the overlap and synergy between the responsibilities of owner and manager, which can generate advantages derived from streamlining and effective monitoring mechanisms. Advantages could include lower administrative costs, agility in decision making, and longer time horizons for measuring the company's performance. Therefore, the family character is a particular feature that generates both disadvantages or weaknesses and advantages or opportunities in the competitive environment.

Ambidexterity, understood as dynamic capability, is extremely important in family businesses, since, due to their specific characteristics, there are critical moments when their survival may be endangered, especially in succession processes or in periods of crisis (Bañegil, Barroso & Sanguino, 2013).

Hiebl (2015) puts forward a set of propositions to try to investigate the circumstances that can help family firms to reach high levels of ambidexterity in the generations following that of the founder and, in this way, guarantee their survival through different generations. Specifically, the issues it raises to study are the dispersion of the firm's ownership within the family, as well as its deficient investment in R&D by the generations following the founder as a possible explanation for the imbalance in favor of exploitation, and lower levels of ambidexterity, which lead some family firms to their demise, in line with Miller et al., (2011), who launch the same research proposal under the premise that it is to be expected that the founding generation has a greater exploratory orientation than future generations more concerned with exploiting in order to maintain continuity, a trap that leads them to precisely the opposite.

Although some authors have highlighted that family firms represent a typology of firms well suited to generate high levels of ambidexterity (e. g Webb, Ketchen & Ireland, 2010), which positively impact to organizational results (Chrisman, Chua, Pearson & Banett, 2012; Dyer, 2006; Rutherford, Kuratko & Holt, 2008). Stubner et al., 2012 find a positive relationship between family business status and ambidexterity and an also positive and increasing relationship between ambidexterity and performance. Specifically, their results indicate that an increase in family influence, especially in terms of family culture and family power, generates higher levels of ambidexterity in an organization.

Tushman & O'Reilly (1996) state that companies with a long-term orientation avoid myopic bias towards exploitation, while also avoiding an overemphasis on exploration. Family firms with a clear long-term orientation (Lumpkin & Brigham, 2011) make decisions and maintain them over long periods of time, therefore, these strategic decisions are reviewed less frequently than in other firms with a less long-term orientation. This explains why family businesses make important adjustments to their strategy when decisions are reviewed. Hence, their exploitation-exploration combination to generate ambidexterity is maintained over long periods of time and is modified through a pattern of discontinuous change. Dolz, Iborra and Safón (2014), analyze the moderating role of family diversity for the particular case of family SMEs, finding that the most ambidextrous companies are those in which ownership and management coincide and do not present diversity of generations but do have diverse management teams on issues such as age and experience.

In this line, the literature on family firms has recently analyzed and highlighted the importance of organizational ambidexterity in this context. According to De Massis, et al., (2013), the issue of ambidexterity in family firms requires further development. Much importance has been attached to

organizational ambidexterity for the long-term survival of firms and the effect of ambidexterity on performance has been analyzed in some studies (e.g., Moss, Payne, & Moore, 2014). However, so far, knowledge on how family involvement and organizational factors interact with ambidexterity to influence the performance of Family Firms is underdeveloped (Hughes et. al, 2018).

According to Le Breton-Miller and Miller (2006), the specificities of family firms make them a beneficial environment for achieving continuity and focus, as well as for reorienting and reinventing themselves when necessary. Both continuity and renewal are the essence of ambidexterity, as it involves managing current business demands while adapting to future challenges. The long-term vision and entrepreneurial spirit that characterize family businesses are specific traits that could be beneficial for the achievement of ambidexterity (Stubner et al., 2012; Hughes et al., 2018). Although they do not show homogeneous success in terms of exploration and exploitation (Hughes et al., 2018), family involvement in ownership and management, these are specificities of family firms that provide an additional perspective to analyze ambidexterity (Stubner et al., 2012). **In the chapter three of this research, we analyze these characteristics in depth.**

2.2.5.3 ALLIANCES AND ORGANIZATIONAL AMBIDEXTERITY

The intent to exploit growth opportunities and adapt product markets can best be formulated by integrating a firm's existing knowledge with new externally acquired knowledge. This is an example of how alliance-wide knowledge routines can help formulate a clear strategic intent with the specificities of the areas of exploitation and exploration that a firm intends to pursue in its strategic relationships (Bierly, Damanpour and Santoro, 2009). Similarly, the intention to explore new opportunities together with the partner and to quickly generate innovative products can be better planned by integrating the knowledge of both companies (Bierly et al., 2009).

However, conducting exploration and exploitation activities simultaneously can make the trade-off of ambidexterity challenging for firms (Gibson and Birkinshaw, 2004), because of potential tensions, such as trade-offs between performing one activity and the other (Simsek, Heavey, Veiga, and Souder, 2009). With knowledge routines in place, firm managers, as knowledge brokers, can differentiate simultaneous activities (Chiambaretto et al., 2019), and thus be able to deal with trade-offs in relationships according to the firm's intention. Consequently, scholars argue that when strategic intent is complemented by knowledge flows, managers can think and act ambidextrously so that their firm achieves exploitation and exploration goals simultaneously (He and Wong, 2004), with better strategic control and coordination (O'reilly and Tushman, 2011).

Knowledge flows can also strengthen communication, coordination, and decision making, both within and across organizations (Fan & Ku, 2010), it ensure clear communication about the strategic processes and initiatives that constitute strategic intent, and guide decision makers (managers and other stakeholders) in their efforts to realize strategic intent (Haugstetter & Cahoon, 2010).

It has also been highlighted that among the motives that lead firms to engage in strategic alliances (Glaister & Buckley, 1996; Simonin, 2004), knowledge sharing/transfer and subsequent learning are crucial (Dyer & Singh, 1998; Simonin, 2004 Bouncken & Kraus, 2013; Devarakonda & Reuer, 2018). Knowledge often contains information related to markets, products, product/service development efforts, intelligence related to firms' strategy, planning functions (Nelson, 1982; Sher & Lee, 2004; Devarakonda & Reuer, 2018). Firms in a strategic relationship expect to learn and acquire skills, technologies and knowledge from each other through the exchange of varied knowledge that would otherwise not be available outside of that relationship (Lei, 1993). Given the value that knowledge adds, it is essential that firms seeking to engage in relationships are able to share knowledge (Soekijad and Andriessen, 2003), as this strongly motivates firms to engage in strategic relationships and to learn from those relationships (Soekijad and Andriessen, 2003; Bouncken and Kraus, 2013; Bouncken and Fredrich, 2016). As a dynamic capability, strategic intent seeks to perform exploration and exploitation of opportunities/activities (O'reilly LLL & Tushman, 2008). These exploration and exploitation activities may require knowledge flows necessary to support the firm's intent and align it with that of the partner (Norman, 2004). Knowledge routines at the alliance level facilitate arriving at a clear strategic intent with the specifics of the areas of exploitation and exploration that a company intends to pursue in its strategic relationships. For example, the intention to exploit growth opportunities and adapt product markets can best be formulated by integrating a firm's existing knowledge with new externally acquired knowledge (Bierly, Damanpour and Santoro, 2009).

Similarly, the intention to explore new opportunities together with the partner and to quickly generate innovative products could be planned by integrating the knowledge of both firms (Zahra, Ireland, & Hitt, 2000; Bierly et al., 2009). But running the conflicting activities of exploration and exploitation simultaneously can make the trade-off of ambidexterity challenging for firms (Gibson & Birkinshaw, 2004), due to potential tensions such as trade-offs between performing one activity and the other (Simsek, Heavey, Veiga, & Souder, 2009). With knowledge routines in place, firm managers, as knowledge brokers, can differentiate simultaneous activities (Chiambaretto et al., 2019), and treat

trade-offs in relationships according to the firm's intent. thus, scholars argue that when strategic intent is complemented by knowledge flows, managers can think and act ambidextrously so that their firm achieves exploration and exploitation goals simultaneously (He and Wong, 2004), with better coordination and strategic control (Veliyath, 1992; Bodwell and Chermack, 2010). As knowledge flows can strengthen communication, coordination and decision-making, both within and across organizations (Fan & Ku, 2010), it could also ensure clear communication about strategic initiatives and processes that shape strategic intent, and guide decision-makers/managers and other stakeholders in their efforts to realize strategic intent (Haugstetter & Cahoon, 2010). **In line with Vrontis et al., (2017), for this research, we consider a firm's participation in alliances as beneficial to ambidexterity, as such alliances can act as a source of access to new knowledge or knowledge in which the company has no expertise.**

2.2.5.4 INTEGRATIVE MECHANISMS FOR ACHIEVING AMBIDEXTERITY

Smith and Tushman (2005), O'Reilly & Tushman (2011) and Mom et. al (2006) explore some of the integrative mechanisms by which leadership teams might successfully manage the contradictions that arise from structural separation in ambidextrous organizations. In this line, we selected certain antecedents that are considered relevant in organizational ambidexterity literature:

2.2.5.4.1 SHARED VISION

According to Senge (1990), Sinkula, Baker and Noordewier (1997) and Patterson et al. (2005) we can define shared vision as the set of organizational values and norms that promote the overall active involvement of organizational members in the development, communication, dissemination and implementation of organizational goals.

Shared vision provides organizational members with a sense of objective and direction and helps to keep a loosely connected system together promoting also the integration of an entire organization (Orton and Weick, 1990). Moreover, the shared vision can be seen as a mechanism for organizational resource change and integration (Tsai and Ghoshal, 1998), particularly when several opportunities arise while limited organizational resources are available for deployment.

The concept of shared vision is highlighted relevant for proactive learning because it guides the focus and direction for learning. At the same time, this fosters energy, commitment and purpose among the members of the organization. There is a strong link between shared vision and organizational performance: Calantone et al., (2002) found in their study that shared vision has a

positive effect on an organization's innovativeness, which in turn affects organizational performance. Shared vision also influences organizational performance, as measured by growth in sales, profits, employment and net worth (Hoe, 2007).

Managing through a Shared Vision can have a broad positive impact on an organization, promoting change, improving performance, providing a basis for a strategic plan, providing a context for decisions and motivating individuals (Lipton, 1996). Other researchers explain that Shared Vision plays a central role in the innovation process of teams (Pearce and Ensley, 2004), plays a role in promoting extra-role or advocacy behaviors in mergers and acquisitions (Clayton, 2009), amplifies the impact of emotional intelligence on IT team engagement (Mahon, 2008), and physician leadership (Quinn, 2012).

Stated by several researches and studies, the shared vision is a critical element of successful ambidexterity (Jansen, 2006; Lubatkin, et al., 2006; Sidhu, et al., 2004). Without a clear consensus in the senior team about the strategy and vision, there will be less information exchange, more unproductive conflict, and a diminished ability to respond to external change (Hambrick, 1994). A senior team shared vision embodies the collective goals and aspirations of senior team members promoting the developmental path for an organization's future (Larwood et al., 1995; Tsai and Ghoshal, 1998). This shared set of targets and values is needed to achieve a common strategic direction and helps to decrease the adverse effects of divergent goals, disagreements and conflicting perspectives among senior team members for the exploratory and exploitative units (Brewer and Miller, 1984; Mackie and Goethals, 1987). Furthermore, common goals and shared values in ambidextrous organizations motivate senior team members to generate opportunities for resource exchange and combination across exploratory and exploitative units (Brown and Eisenhardt, 1995; Tsai and Ghoshal, 1998; Tushman and O'Reilly, 1996). They contribute to a collective understanding of how senior team members might resolve contradictory agendas and engage in productive behaviors towards overarching goals (Orton and Weick, 1990; Sinkula et al., 1997; O'Reilly and Tushman, 2004).

Conversely, an absent of shared values can lead to mistrust and speculation within senior teams and throughout the organization, making it hard to draw common characteristics and to identify, extract and combine diverse skills, abilities, and perspectives within exploratory and exploitative units (Tsai and Ghoshal, 1998; Tushman and O'Reilly, 1996). Without a shared vision there will be no common identity to promote trust, cooperation, and a long-term perspective (O'Reilly and Tushman, 2011).

2.2.5.4.2 CONTINGENCY REWARDS SYSTEM

In the organization management literature, Contingent reward system (CRS) has been widely applied and has gained prominence in public and private companies, where it has been successfully developed. CRS has resulted in remarkable performance improvements through increased flexibility, innovation, creativity, productivity, development, quality, and overall employee readiness to face market and competitive events (Schermerhorn, 2009).

Reward management is associated with motivation and job engagement by valuing people depending on their contribution. According to Amstrong (2009), an effective reward system involves to accomplish and exceed employee expectations by rewarding everyone in the organization according to their level of effort. This reinforcement measurement motivates employees to complete their tasks effectively and accomplish their objectives in a professional and opportune way (Whetten & Cameron, 2002).

According to previous studies, executive pay patterns can influence outcomes and interactions of senior teams (Gomez-Mejia et al., 1987; Baron and Pfeffer, 1994; Siegel and Hambrick, 2005). Some of these studies have remarked how the contingency rewards that reflect the degree to which benefits for individual team members depend on their team's outcome, are beneficial for mutual adjustment in senior teams confronted with pressures (Wageman and Baker, 1997; Shaw et al., 2002; Harrison et al., 2002).

Many authors have highlighted different benefits related to team contingency rewards, in the following table, we summarize some of these benefits:

Table 1. Own elaboration

BENEFITS	AUTHORS
Foster collaboration and create commitment to organizational goals.	Bloom, 1999
With a team contingency rewards, the attention of senior team members will be focused on interdependent rather than individual activities.	Siegel and Hambrick, 2005
Team contingency rewards create an outcome interdependency among senior team members.	Wageman, 1995; Slavin, 1996
Encourage senior team members to achieve integrative value through identifying ways to use shared resources across exploratory and exploitative units.	Smith and Tushman, 2005

In line with Smith and Tushman (2005), team contingency rewards encourage senior team members to go beyond their unit's direct interests and to establish methods to allocate resources to both exploratory and exploitative activities. In addition, they set up norms that motivate senior team members to transcend their thinking and participate in clarifying problems and proposing solutions to complex issues (Wageman, 1995). Pfeffer (1995) describe how team contingency rewards reduce interpersonal competition and facilitate the negotiation and mutual adjustment necessary for exploratory and exploitative units to coexist. This contingency rewards systems create an outcome interdependency within senior management teams (Wageman 1995; Slavin 1996) and encourage members to direct behavior and attention toward interdependent rather than individual activities (Siegel and Hambrick 2005). In this sense, ambidextrous organizations generate commitment to complex organizational goals (Harris and Bromiley 2007) and promote collaboration across senior team members responsible for differentiated exploitative and exploratory units. Additionally, team contingency rewards promotes senior team members to integrate and mobilize operational capabilities across differentiated units by identifying ways to encourage new combinations (Smith and Tushman 2005).

In ambidextrous organizations, senior team contingency rewards are likely to drive executives to move beyond their unit's direct interests and allocate resources to achieve integrative value in exploratory and exploitative units (Smith and Tushman, 2005). The absence of a common fate reward system and the lack of relentless communication of the ambidextrous strategy can further undermine cooperation and foster unproductive conflict (O'Reilly & Tushman, 2011).

2.2.5.4.3 SOCIAL INTEGRATION

Social integration increases collaboration among senior team members, providing the trust and constructive interaction that become the basis for members to address divergent views and enhance trusting relationships among senior team members. Strong trusting relationships positively influence the extent to which members share information from the external environment that redefines the assumption of how to balance exploration and exploitation. These relationships increase the volume of information that is shared and transferred within groups (Dirks, 1999) and openness in communications (Smith and Barclay, 1997). Thus, social integration provides an invisible platform that allows managers to understand the realistic differences of each point of view (Jehn, Chadwick and Thatcher, 1997). This fosters recognition of the distinctive effects and synergies of exploration and exploitation, which benefits organizational ambidexterity.

Manager social integration also reflects senior group members' cohesion, social interaction and mutual satisfaction, providing senior teams with more opportunities to cooperate and mutually benefit from each other. As social integration is built among senior team members, the negative effects of intra-group conflicts that hinder organizational ambidexterity are effectively diminished. Since a socially integrated TMT usually has high efficiency in task coordination, collaborative teamwork and problem solving (O'Reilly et al., 1989; Smith et al., 1994), the team is expected to have less interpersonal competition, conflicts and selfish behaviors, thus enhancing the benefits of diverse senior teams to build ambidextrous organizations, increasing their performance as well.

Social integration can be defined as a multifaceted phenomenon that reflects attraction to the group, satisfaction with other members of the group, and social interaction among the group members (Katz and Kahn, 1978; O'Reilly, Caldwell, and Barnett, 1989). Social integration, differs from shared vision, in that social integration is directly related to affective factors or social strengths among senior team members, whereas shared vision refers to shared values and common understanding of collective goals (Smith et al., 1994). Therefore, previous studies have distinguished between these two types of managerial team attributes when examining team effectiveness and performance (e.g. Ensley and Pearson, 2005; Klein and Mulvey, 1995). According to Dailey (1978) social integration is based on social interaction and trust among senior team members, increasing collaborative problem solving. It is also directly related to social forces or affective factors between the senior team members (Smith et al., 1994). Social integration is related to increased compromise, negotiation and collaboration across organizational units (Michel and Hambrick, 1992). In this line, is expected senior team members have to work harder to identify opportunities and synergies, leading to combine exploratory and exploitative activities (Smith et al., 1994). Senior team members shows higher efficiency in task coordination and work for team success (O'Reilly et al., 1989; Smith et al., 1994). Social integration also stimulates critical debate, as senior team members are more likely to evaluate alternative ways of reconciling conflicting objectives associated with exploration and exploitation activities. It also provides comfortable and familiar platforms that routinize thorough consideration of conflicting strategic agendas, increasing the confidence of senior executives to engage with conflicting points of view (Jehn et al., 1997).

2.2.5.4.4 KNOWLEDGE INFLOWS

Previous studies indicate that knowledge acquisition is an important explanatory factor for exploration and exploitation-related activities within a firm. Studies in the field of organizational learning, for example, indicate that knowledge acquisition is a primary mechanism by which firms, units or organizational members learn from each other (Levitt and March, 1988; Huber, 1991). Also these studies, indicate that exploratory activities aid the creation of variety in experience (Levinthal and March, 1993; McGrath, 2001; Bontis et al., 2002; Holmqvist, 2004), associated with the broadening of a manager's existing knowledge base (cf. Katila and Ahuja, 2002; Levinthal and March, 1993; Sidhu et al., 2004). Examples of such exploratory activities of managers are the search for new organizational norms, routines, structures and systems (Crossan et al., 1999; Nooteboom, 2000; Zollo and Winter, 2002), experimenting with new approaches to technologies, business processes or markets (McGrath, 2001), innovating and adopting a long-term orientation (Duncan, 1976; Tushman and O'Reilly, 1996) and reconsidering existing beliefs and decisions (Floyd and Lane, 2000; Ghemawat and Ricart I Costa, 1993; Rivkin and Siggelkow, 2003).

This learning through knowledge acquisition can be exploratory (Nonaka, 1994; Tsai, 2001), which is reflected in an increase in the variety and breadth of the knowledge base of the knowledge receiver, and/or exploitative (Levin, 2000). In the field of technological innovation, scholars (Rosenkopf and Nerkar, 2001; Nerkar, 2003) have examined the impact of knowledge acquisition by firms, as reflected in citation patterns within patent applications, in terms of the extent to which innovations should be incremental or radical. Related to managers, some theoretical investigations and researches in the field of strategic process research indicate that managers' exploration and exploitation activities are facilitated by vertical knowledge flows within the firm, for example, by managers' top-down and/or bottom-up knowledge inflows (Van Cauwenbergh & Cool, 1982; Floyd & Lane, 2000; Rivkin & Siggelkow, 2003). A manager's top-down knowledge inflows are associated with knowledge coming from people or units at higher hierarchical levels than the manager receiving the knowledge, while bottom-up knowledge inflows are associated with knowledge coming from people or units at lower hierarchical levels.

Research in the knowledge literature indicates the importance of also examining horizontal knowledge inflows to understand managers' exploration and exploitation activities (Gupta and Govindarajan, 1991; Hedlund, 1994; Kogut and Zander, 1996). Horizontal knowledge contributions do not follow traditional hierarchical lines, but are associated with the knowledge of peers in the same

organizational unit or in other departments or units at the same hierarchical level. Ambidextrous firms need to use integration mechanisms to increase knowledge inflows between exploitative and explorative organizational units (Jansen et al., 2009). There are empirical studies that analyze manager ambidexterity, its antecedents and consequences. These antecedents include knowledge flows (Mom, van den Bosch and Volberda, 2007), formal, personal and structural coordination mechanisms (Mom, van den Bosch and Volberda, 2009), work context and tenure (Mom, Fourne and Jansen, 2015) and finally, organizational culture (Hodgkinson, et. al, 2017; Awojide et. al, 2018).

Managers can think and act ambidextrously to achieve the firm's exploitation and exploration goals simultaneously (He & Wong, 2004; Gibson & Birkinshaw, 2004) with better strategic coordination and control, when strategic intent is accompanied by knowledge flows (O'reilly Lll & Tushman, 2011). This can be achieved because knowledge flows can strengthen communication, coordination and decision-making, both within and outside organizations (Fan & Ku, 2010). For these reasons we choose Knowledge inflows as an antecedent of ambidextrous managers.

From the knowledge perspective (Kogut and Zander, 1992; Grant, 1996; Gupta and Govindarajan, 2000; Schulz, 2001), this study investigates how a manager's acquisition of knowledge from other people and/or units in the same organization influences knowledge exploration and exploitation activities. Drawing on studies of intra-organizational knowledge flows (Gupta and Govindarajan, 2000; Schulz, 2003), and following Mom et. al, (2006) we conceptualized and operationalized a manager's acquisition of knowledge in terms of the manager's knowledge inflows.

2.2.5.4.5 MANAGER'S AMBIDEXTERITY

The literature has revealed that companies that focus too much on exploitation may risk losing exploration of new ideas, and those that focus too much on exploration may lose underdeveloped new ideas, as their potential benefits are not realized in markets. Each of these practices, separately, leads to long-term underperformance. Therefore, firms that engage in both exploration and exploitation activities through ambidexterity are more likely to achieve superior business performance compared to firms that focus on only one of the two dimensions (Tushman and O'Reilly, 1996; Raisch and Birkinshaw, 2008). In addition, to achieve both short- and long-term success, managers must strike an optimal balance between exploitation and exploration activities, in summary be ambidextrous. Organizational ambidexterity is an important antecedent of sustained competitive advantage for firms (Raisch et al., 2009; Junni, Sarala, Taras and Tarba, 2013). An ambidextrous

manager is more likely to perform better in business than other managers who only focus on exploitative or explorative activities (Soto-Acosta et al., 2018). In short, managers have to recognized the opportunities in the market and engage from internal operations to achieve excellent business performance (Wincent, 2016).

Ambidextrous managers are individuals who need to be highly motivated to be able to engage in a wide variety of different and opposing activities (Mom, Fourné and Jansen, 2015) such as exploration and exploitation activities (Mom et al., 2009; Mom, van den Bosch and Volberda, 2007). In terms of dynamic capabilities, to achieve ambidexterity, companies need their managers to perform ambidextrous tasks (O'reilly LLL and Tushman, 2008). This implies that managers face trade-offs between simultaneous exploitation and exploration (O'reilly LLL & Tushman, 2011), as well as being able to perform complex task differentiation and integration routines.

Exploratory activities are based on expanding managers' knowledge base (Levinthal & March, 1993; Mom et al., 2007), including new organizational norms, structures, routines, learning, systems and adaptability, among others (Mom et al., 2007; Zollo & Winter, 2002). On the other hand, exploitative activities deepen managers' existing knowledge base; such as applying, improving and extending existing competencies, products and processes and technologies (March, 1991), and enhancing their existing knowledge base (Levinthal & March, 1993; Mom et al., 2007; Mom et al., 2009). Studies confirm the role of managers in developing capabilities to manage various paradoxical functional activities such as value creation and value appropriation (Bengtsson & Johansson, 2014; Dagnino & Rocco, 2009; Fernandez & Chiambaretto, 2016), balance resource sharing and protection (Bengtsson, Raza-Ullah, & Vanyushyn, 2016), integrate and coordinate conflicting demands (Eisenhardt, Furr, & Bingham, 2010) and manage paradoxical tensions (Bengtsson, Raza-Ullah, & Vanyushyn, 2016). Moreover, according to O'Reilly and Tushman, 2011 if leadership is unable to manage the conflicts and trade-offs that ambidexterity requires, the necessary decision-making processes will be compromised and end in confusion and conflict. For these reasons, this study also examines managerial ambidexterity.

However, executing exploitation and exploration activities at the same time or over time creates tensions throughout the organization (Boumgarden, Nickerson, & Zenger, 2012), as each action requires different organizational designs (Tushman & O'Reilly, 1996; Winnen & Wilms, 2014; Raisch & Birkinshaw, 2008), as well as different types of management and leadership (Benner & Tushman, 2003; Gibson & Birkinshaw, 2004; Jansen, Vera & Crossan, 2009; Rosing, Frese & Bausch

2011; Zacher & Wilden, 2014). This means that top managers not only need to fully understand and appreciate each activity, but also embrace their connectedness and manage their integration in a value-enhancing way.

Many studies underline that a company's top management has an enormous influence on corporate strategy and thus on the degree of ambidexterity (Smith & Tushman, 2005; Lubatkin et al., 2006; Eggers & Kaplan, 2013; Bromiley & Rau, 2016).

2.2.6 ORGANIZATIONAL AMBIDEXTERITY CONSEQUENCES:

Organizations that combine exploitation and exploration activities with their operational activities (ongoing business) gets a **higher financial performance** (Tushman & O`Reilly, 1996; He & Wong, 2004; Lubatkin et al., 2006). Organizations that currently enjoy competitive advantages in their domains but do not investigate new opportunities expose themselves to the risk of changing markets and may see their revenue generation reduced (Ireland et al., 1993). Levinthal and March, (1993) concluded that **long-term survival and success** depend on an organization's ability to engage in a sufficient degree of exploitation to ensure the organization's current viability and a sufficient degree of exploration to ensure its future viability.

Research on ambidexterity claims that the simultaneous balance between exploitation and exploration represents a fundamental condition for achieving **superior performance at the organizational and individual levels** (Schnellbächer & Heidenreich, 2020; Turner & Lee-Kelley, 2013). In this sense, several studies show that companies manage to improve performance, represented by both **operational and strategic returns**, when they manage to simultaneously exploit and explore (i.e., Cao et al., 2009; Han & Celly, 2008; Turner & Lee-Kelley, 2013). As O'Reilly and Tushman (2013) remarked, "the overall conclusion is clear: in uncertain environments, organizational ambidexterity is positively associated with **increased innovation, better performance, and high survival rates**" (p. 326). Studies consider this underlying construct as a prerequisite for organizational **success and survival** (Raisch &Birkinshaw, 2008). The ability to adopt an ambidextrous orientation is at the core of an organization's dynamic capabilities (Eisenhard & Martin, 2000).

Regarding performance, it is evident that one of the issues with which organizational ambidexterity is most associated is related with innovation and, in particular, with technological innovation (He and Wong, 2004). In this sense, the literature on organizational learning has been used to explain ambidexterity from its exploitative and explorative dimensions, incorporating concepts such

as the firm's learning capability (Lin et al., 2012). Another aspect of performance to be addressed has to do with the strategic management literature. From this point of view, organizational ambidexterity allows the holder to have a competitive advantage over other organizations. In this sense, the resource-based theory of the firm (Wernerfelt, 1984), with its extensions of the resource- and capability-based firm (Barney, 1991), and the knowledge-based firm (Grant, 1996; Kogut and Zander, 1992, 1996), help to explain why ambidextrous organizations obtain sustained performance above the industry average.

Ambidexterity, proactivity, innovativeness and risk-taking in a company's actions reflect its active engagement in ambidextrous activities to identify and capture market opportunities ahead of its competitors and to respond to external challenges with bold resource commitment in anticipation of market changes (Tuan, 2016). In other words, **through exploitation, companies refine and improve their existing knowledge, practices and skills to ensure sustainability and environmental friendliness in business processes as well as products.** On the other side, **exploration enables firms to seek new knowledge, opportunities, technologies and resources to build inimitable competencies sustained through a unique configuration of newly captured firm resources and capabilities with existing ones to achieve innovative ecological changes in processes and products** (Shafique et. al, 2021). Moreover, organizational ambidexterity also **fosters active learning and knowledge growth, which, in turn, enhances a firm's ability to innovate, take risks and anticipate future sustained green opportunities before its competitors** (Jansen et al., 2012; Hill and Birkinshaw, 2014).

In this research we observe other benefits of organizational ambidexterity:

Combining different types of knowledge fosters innovation (Rosenzweig, 2017), and the increasing global dispersion of knowledge in the current dynamic environment (Bresciani et al., 2015) requires collaboration between different actors (Vrontis et al., 2017). More specifically, external knowledge can be a source for fostering exploration as well as exploitation (Rothaermel and Alexandre 2009; Vrontis et al., 2017). **Environmental performance** will be higher if the firm has the ability to cope with constant environmental changes. Indeed, Judge and Elenkov (2005) show that the more organizations adapt and change, the higher the environmental performance, while Carayannis et al., (2015) propose that ambidexterity is essential for sustainability. Lin and Ho (2016) specifically tested this positive association between ambidexterity and environmental performance in the automotive industry. Chen et al., (2014) focus on ambidexterity for green developments and, in a sample of the electronics industry, demonstrate how ambidexterity is useful for increasing green innovation

performance. Ambidexterity must cope with multiple demands, such as alignment and adaptability (Gibson and Birkinshaw 2004) or efficiency and flexibility. This experience also increases the likelihood that organizations will achieve multiple objectives, for example, by focusing on environmental objectives in addition to financial ones (Collins and Porras, 1994; Judge and Elenkov, 2005).

Following to Smith and Tushman (2005), **sustained organizational performance** depends on the top management team exploring and exploiting them effectively. However, these strategic agendas are associated with contradictory architectures. Senior managers and/or their teams have to articulate a paradoxical framework, differentiating between existing product strategy and architecture and those of innovation, and integrating between these strategies and architectures. On the other hand, the locus of paradox in top management teams resides in the senior leader or in the whole team.

CHAPTER 3: Family Firm Competitiveness and Organizational Ambidexterity.

3.1 INTRODUCTION

Long-term survival is one of the main goals of a family firm (FF). The firm's founder usually wants to maintain control for their successors. In fact, FF succession is common in these firms (Chrisman, Chua, Pearson, & Barnett, 2012; Hiebl, 2015). Nevertheless, fewer than 15% survive into the third generation (Hiebl, 2015; Ward, 1987).

The concept of organizational ambidexterity could add insights into the explanation of FF long-term survival (Hiebl, 2015; Stubner, Blarr, Brands, & Wulf, 2012). March (1991), from an organizational learning perspective, stated that to survive in the long term, firms should explore and exploit. In his seminal paper, March (1991) interpreted exploitation and exploration as different learning activities between which organizations should divide their attention. In his definition, exploitation refers to "refinement, efficiency, selection, and implementation," whereas exploration is interpreted as "search, variation, experimentation, and discovery" (March, 1991, p. 71).

Organizational ambidexterity is the capability to combine these two activities, explore new opportunities, processes and knowledge, and exploit current ones (Raisch, Birkinshaw, Probst, & Tushman, 2009; Simsek, 2009; Tushman & O'Reilly, 1996). This will achieve a greater competitive advantage and ensure the survival of the company. In other words, ambidextrous firms successfully manage short-term success while paying attention to their long-term success. Firms with high levels of exploration and exploitation achieve superior performance because they manage current business demands and adapt to future challenges to achieve long-term survival (Cao, Gedajlovic, & Zhang, 2009; Gibson & Birkinshaw, 2004; O'Reilly & Tushman, 2013). Higher levels of organizational ambidexterity lead to a better economic performance (Stubner et al., 2012).

Consequently, ambidexterity promotes competitiveness. Nevertheless, difficulties of achieving ambidexterity are based on the fact that exploration and exploitation require different resources and processes, and therefore, they compete for scarce firm resources (Simsek, 2009). Recently, the literature about the FF has recognized and analyzed the importance of organizational ambidexterity in this context. According to De Massis, et al., (2013), the topic of ambidexterity in FFs requires further development. There has been high importance set on organizational ambidexterity for the long-term survival of firms and the effect of ambidexterity on performance have been analyzed in some studies (e.g. Moss, Payne, & Moore, 2014). However, until now, knowledge about how family involvement and organizational factors interact with ambidexterity to influence performance in FFs is

underdeveloped (Hughes, Filser, Harms, Kraus, Chang, & Cheng, 2018). Only six studies on this topic have been developed in the context of FFs until 2014 (Hiebl, 2015). After this date, a growing body of research has focused on this analysis (Dolz, Iborra. & Safón, 2019; Goel & Jones, 2016; Hiebl, 2015; Hughes et al., 2018).

According to Le Breton-Miller and Miller (2006), the specificities of FFs make them a benefiting arena for achieving continuity and focus, as well as reorienting and reinventing themselves when needed. Both, continuity and renewal are the essence of ambidexterity, since it implies managing current business demands while adapting to future challenges. The long-term vision and entrepreneurial spirit that characterize FFs are specific traits that could be beneficial in the achievement of ambidexterity (Hughes et al., 2018; Stubner et al., 2012). Although they do not exhibit homogeneous success regarding exploration and exploitation (Hughes et al., 2018), family involvement in ownership and management, are specificities of FFs that provide additional angle to analyze ambidexterity (Stubner et al., 2012).

Therefore, the aim of this proposal is to review the literature that analyzes relationships between FF specificities and organizational ambidexterity to propose a framework on how these characteristics influence ambidexterity in this context. The framework could be a useful tool to better identify FF specificities that help the long-term survival through their influence on organizational ambidexterity. The performance differences between FFs could be better explained considering these insights from the concept of organizational ambidexterity (Webb, Ketchen, & Ireland, 2010). The structure of the proposal includes a review of the ambidexterity concept and how it applies in FFs. Then, the proposal discusses the characteristics that could influence the development of ambidexterity.

3.2 ORGANIZATIONAL AMBIDEXTERITY AND FAMILY FIRMS

Duncan (1976) was the first to use the term “organizational ambidexterity.” However, March’s (1991) landmark paper has been frequently cited as the catalyst for the current interest in exploration and exploitation. Building upon earlier work by Duncan (1976), Tushman and O’Reilly (1996) first presented a theory of organizational ambidexterity. They suggested that superior performance is expected from the ambidextrous organization, describing structural mechanisms to achieve ambidexterity.

From a strategic perspective, achieving long-term success requires firms to possess operational capabilities and competencies to compete in existing markets. In addition, they require the ability to recombine and reconfigure assets and organizational structures to adapt to emerging markets and technologies. In fact, Teece (2006) characterized dynamic capabilities as the distinct skills, processes, procedures, organizational structures, decision rules, and disciplines that enable senior leaders of a firm to identify threats and opportunities and reconfigure assets.

Organizational ambidexterity is a dynamic capability. It includes the ability of companies to handle the contradictions and paradoxes that arise from simultaneous exploration and exploitation activities, adjusting them to changes in the environment (O'Reilly & Tushman, 2011). As a dynamic capability, organizational ambidexterity emphasizes the management role in the adaptation, integration, and reconfiguration of the organization's skills and resources to adjust them in changing environments (Eisenhardt & Martin, 2000; Heavy & Simsek, 2010; O'Reilly & Tushman, 2008; Teece, Pisano, & Shuen, 1997). Exploitation is associated with refinement, production, efficiency, and short-term orientation.

Exploration is related with searching, variation, innovation, and long-term orientation (March, 1991). Exploration consists of experiments with new alternatives with distant, uncertain, and often negative returns. Conversely, exploitation is about the expansion of existing competencies, improvement, and technologies with positive, upcoming, and predictable returns (March, 1991). Ambidextrous organizations can develop both exploitation and exploration activities. They exploit their current knowledge, staying open to the exploration of new knowledge and opportunities (O'Reilly & Tushman, 2008).

Despite its importance for the success of companies, it is not easy to be ambidextrous. Thus, the literature links ambidexterity to the idea of conflict and tension, with a dilemma between enhancing innovation and focusing on efficiency. Difficulty exists in the reconciliation of the short and long term due to the complexity of choosing between the security of the known and the uncertain potentialities of the unknown while competing for the scarce resources of a company (March, 1991). The two activities require different structures, processes, strategies, capacities, and cultures. Therefore, they can have different impacts on the performance of an organization (He & Wong, 2004).

On the other side, the study of FFs has been largely rooted on theoretical approaches that are also useful in this study. Two dominant paradigms are considered (Chua, Chrisman & Steier, 2003b). The first approach, which is based on the theory of agency, uses this paradigm to postulate a "dark side" of family ownership, emphasizing the risks of "agency transfers" within the family unit (Lubatkin, Schulze, Ling & Dino, 2005; Schulze, Lubatkin, & Dino, 2003). Nevertheless, the second approach suggests that altruism, as well as its consequences, complicates decision making in FFs (Schulze, Lubatkin, Dino, & Buchholtz, 2001). They argue that concentrated ownership may have a negative effect on firm performance:

1. Altruism of family chief executive officers (CEOs) creates the opportunity for family members to act freely (Schulze, Lubatkin, & Dino, 2002).
2. When the CEO of the firm is a member of the family, nonfamily managers feel more excluded and identify less with the firm.
3. The combination of a family CEO with a subset of family executives reinforces the perception that nonfamily managers have limited opportunities for professional advancement (Chua, Chrisman & Sharma, 2003a).
4. The presence of a family CEO could aggravate tensions created by strong representation of both the family and nonfamily factions in the top management team (TMT).

If the altruism is moderate and the consequences of the joint utility are well managed, agency costs can be reduced considerably. This can lead to a superior performance of the company (Minichilli, Corbetta, & MacMillan, 2010).

The second approach uses the resource-based view (RBV) of the firm. It raises a "positive/bright side" of family ownership and management through the concept of "Familiness," stating that FFs differ from non-FFs due to unique resources and capabilities (Habbershon & Williams, 1999; Habbershon, Williams, & MacMillan, 2003). This approach also analyzes how such idiosyncratic resources can generate abnormal financial returns for the FF (Habbershon et al., 2003). Familiness has emerged from the resource-based view as a crucial idea to explain the complexity of resources and capabilities in this context. Specifically, familiness is "a resource unique to a FF because of the interactions between the family, its individual members, and the firm" (Habbershon & Williams, 1999, p.11). Increased owner- ship by family members can achieve better performance for different reasons:

1. When family members are owners and managers at the same time, the interest converges. Therefore, conflicts of interest decrease, having a positive effect on performance (Jensen & Meckling, 1976).

2. Even when controlling block holders are not involved in management, they are more capable of monitoring and controlling managers (Shleifer & Vishny, 1986).
3. Family-owned firms may make better investment decisions because they have more firm-specific knowledge, are less myopic, and have longer investment horizons (Stein, 1989).

Moreover, socioemotional wealth (SEW) states that the goals of family-oriented objectives can preserve or create socioemotional wealth (Berrone, Cruz, & Gomez-Mejia, 2012). Willingness, comprised goals, intentions, and motivations drive the family-controlled firm, influencing the company in directions that differ from those pursued by firms without family involvement (De Massis, Kotlar, Chua, & Chrisman, 2014). The possible causes of behavioral heterogeneity among FFs, as well as the integration of these noneconomic objectives into strategic decision-making, will be shaped by management configurations that allow for the alignment of pecuniary and nonpecuniary objectives (Corbetta & Salvato, 2004; Veider & Matzler, 2016).

FFs are based on the functional and dynamic interrelation between family and business subsystems. The traditional goals of these firms include the achievement of long-term survival of both, as well as the transmission of the business to future generations (Anderson & Reeb, 2003; Chua, Chrisman, & Sharma, 1999).

The most recent literature extends the theory of social capital to family construction (Arregle, Hitt, Sirmon, & Very, 2007). It studies how the unique resources and capabilities of FFs are created through interactions between the family and the firm (Pearson, Carr, & Shaw, 2008; Sharma, 2008). In this sense, some studies based on the theory of resources and capabilities suggest that FFs have superior skills to manage certain tensions and conflicts (Habbershon & Williams, 1999; Tokarczyk, Hansen, Green, & Down, 2007). This could represent an advantage to manage tensions to achieve ambidexterity.

Decisions in FFs are focused on meeting the objectives of both the family and the firm. These goals are often different from nonfamily companies (Yu, Lumpkin, Sorenson, & Brigham, 2012). In fact, some studies found evidence of the relationship between ambidexterity and family ownership (Lubatkin, Simsek, Ling, & Veiga, 2006). Others found positive results between family influence, especially related to family culture and family power, achievement of organizational ambidexterity, and components like innovation (Stubner et al., 2012; Tanewski, Prajogo, & Sohal, 2003). Still others analyzed the influence of variables that made a difference between FFs, like Sciascia, Mazzola, and Chirico (2013), who evaluated the influence of generational involvement on the entrepreneurial

orientation of FFs. Nevertheless, the focus of the present chapter is on the characteristics of FFs that could benefit ambidexterity. Therefore, the next section discusses the specificities of FFs to achieve ambidexterity that have been outlined in the studies reviewed, that mainly are rooted on Agency, Resource, and Socio emotional arguments. The chapter reviews the literature and studies that measure ambidexterity in FFs. After reviewing these specificities, the following section outlines also different characteristics that appear in the studies reviewed about of how various degrees of family participation in the decision-making process and of diversity could affect the way in which these specificities influence ambidexterity.

3.3 SPECIFICITIES OF FFs AND THEIR RELATIONSHIP WITH AMBIDEXTERITY

3.3.1 Ownership and Management in FFs

Lubatkin et al. (2006) were the first to find a positive relationship between family ownership, TMT, and ambidexterity. The family who owns and manages the company generates a series of effects. For example, lower agency costs derived from the alignment of objectives of the main responsible parties contribute to better functioning. This effect is underlined by Jensen and Meckling (1976), for which it provides strong incentives for cost containment. In the same sense, Gedajlovic et al. (2004) affirmed that companies managed by owners have the necessary incentives and discretion to exploit opportunities. In fact, ability is studied as the "discretion of the family to direct, allocate, add to, or dispose of a firm's resources" (De Massis et al., 2014, p. 346). This ability is achieved through the participation of family in the main governance dimensions, as well as membership in the TMT and board of directors (Carney, 2005; Chrisman, Chua, Pearson, A. & Barnett, 2012). This discretion provides freedom to choose between the range of strategic, tactical, and structural feasible options, giving family-controlled firms an unusual ability to behave idiosyncratically (Chrisman, Chua, De Massis, Frattini, & Wright, 2015). Veider and Matzler (2016) argued that the ability of FFs will be reflected in the idiosyncratic agency situation and endowment of company resources. These will determine the ability of the company to decide how to allocate resources for exploration and exploitation (Dolz et al., 2019) to become an ambidextrous organization.

The family power level (measured through a family's share of ownership, as well as the percentage of family members within the management and governance board) positively influences a firm's ambidextrous orientation (Stubner et al., 2012). Likewise, when the property participates in the management, it will have incentives to closely control the operations of the company and make decisions that ensure that costs are contained, production is efficient, and resources are allocated in

a rational manner (Carney, 2005). Family management facilitates the company's involvement in long-term innovation practices and the construction of internal knowledge structures to finding new opportunities (Patel & Fiet, 2011). Managers who hold the property of the company are usually well-rooted in it and are difficult to replace. Therefore, they will have a strong incentive to invest in activities and projects with good potential for long-term benefits. Professionalized management, which is less rooted, has a more short-term or exploitative orientation. Family members involved in the management are more willing to make investments of which they can obtain benefits beyond the duration of their professional career, favoring both the company and the family. This responds to the wish of continuity that defines these companies. The presence of familiar managers increases the company's exploration capability by increasing the CEO's discretion, allowing him/her to make opportunistic investments or rely on intuition when making decisions. They will be more able to create products, enter new markets, and adapt to changes in the environment (Gedajlovic, Lubatkin, & Schulze, 2004; Schulze & Gedajlovic, 2010). This conjunction increases the ability of senior managers to set a strategic agenda and resist pressure from other interested parts who try to influence or change the company's direction (Gedajlovic et al., 2012).

TMT is usually divided between family and nonfamily members. Family members share common values, norms, and a culture inherited from their parents and relatives, including similar education. They generally feel satisfied and rewarded with their occupation in FFs (Chua et al., 2003a). Family members have a stronger emotional bond with the company. Emotional attachment increases the level of commitment and participation that people have with organizations because they identify with the organization (Sharma & Irving, 2005). Some papers discuss the importance of engaging nonfamily externals to the TMT to provide diversity in knowledge and backgrounds needed for achieving organizational ambidexterity (Gupta, Smith, & Shalley, 2006; Taylor & Greve, 2006; Veider & Matzler, 2016). For example, O'Reilly and Tushman (2011) remarked on the importance of having a common vision and value within the TMT to achieve ambidexterity.

Nevertheless, FFs tend to have an appearance of "schisms," which advances disagreements and tensions between family and nonfamily members. The existence of failures between family and nonfamily executive leads to behavioral interruptions and harm to the performance of the company (Li & Ham- brick, 2005). When there are few members of a group, the minority group has less power to challenge decisions. Conflicts and interruptions between family and nonfamily factions increase as the proportion of both factions in the corporate elite increases. This supports the existence of a U-shaped relationship. Companies with TMT whose family-to-nonfamily relationship is high or low will

perform better than companies with a solid representation of both factions. Hiebl (2015) also explains that risk aversion is a factor that appears in FFs with lower percentage of external investors and that the presence of non-family investors promotes riskier activities and enhance ambidexterity.

3.3.2 Long-Term Orientation

Long-term orientation is the propensity to prioritize long-term involvement, as well as the impact of decisions and actions resulting after a certain period (Lumpkin, Brigham & Moss, 2010). FFs have a long-term orientation, mainly due to their desire to pass the business to the next generation (Carney, 2005; Patel & Fiet, 2011). This long-term vision provides the desire to maintain the family heritage for future generations (Le-Breton Miller and Miller, 2006; Stubner et al., 2012). As a consequence, FFs in often surviving across two or three generations. The experience gained in the family in managing the firm is also beneficial in achieving ambidexterity (Stubner et al., 2012), with an orientation in protecting efficiency to overcome short term difficulties but also to preserving the long-term survival of the firm.

Le Breton-Miller and Miller (2011) noted the advantage of multitemporality in FFs due to the ability to achieve lasting success by balancing short- and long-term orientation. Thus, in these companies, ambidextrous orientation should prevail. The familiar nature of the companies gives them a greater concern to combine the requirements of different time periods, emphasizing issues like current incentives and dividends, employment security of family members, reputation of the company, and/or the legacy of a robust company for future generations (Gómez-Mejía, Núñez-Nickel, & Gutierrez, 2001). On the other side, owners who do not belong to the family (or professional managers) have a psychological and social distance from the larger company. Their relationship tends to be transitory, individualistic, and utilitarian. Allison, McKenny, and Short (2014) showed that FFs can align their exploration and exploitation over time. Others suggest that these companies can reduce cognitive and affective conflict (Webb et al., 2010). Therefore, FFs must adopt a long-term vision in the decision-making process (Le Breton-Miller & Miller, 2006). There is a need to balance and align the family and company dimensions. FFs have the resources and family government influence in the decision-making process (Carney, 2005).

Due to these inherent characteristics, as compared to managers of non-FFs, family members who are involved in FFs have confidence in the networks and information channels built over generations. They involve the most effective combination of tacit and procedural knowledge, exploit

and organize accumulated knowledge, and participate in investments that can generate benefits that extend beyond the individual career to support the company.

The lack of knowledge related to how temporary factors influence the ambidexterity of FFs generates a gap between what is known and what should be known about ambidexterity in these companies. The lack of knowledge is problematic because time plays an important role in the culture of the organization, innovation, and intergenerational succession of firms. In addition, the balance between exploitation and exploration can change over time (Craig & Moores, 2006).

Lumpkin and Brigham (2011) argued that the long-term orientations of FFs create stability and continuity. Companies with a short-term orientation tend to emphasize exploitation activities which result in a solid short-term performance and a long-term obsolescence (March, 1991). Given that companies with a long-term orientation make decisions and support them for long periods of time, those decisions are reviewed less frequently. This could, in turn, lead the company to make major adjustments when such decisions are re-examined.

Ambidexterity must be achieved through dynamic processes (Ketchen, Thomas, & Snow, 1993). This must be maintained by rebalancing exploration against exploitation in response to internal and external changes (Siggelkow, 2002). Managers should make conscious decisions about the allocation of resources to maintain ambidexterity (Raisch et al., 2009).

FFs, as compared to non-FFs, are better positioned to find and explore new opportunities in either static or dynamic environments (Patel & Fiet, 2011). This advantage is due to a combination of a long- term orientation in FFs along with low turnover, long manager durations, and predominant family ties (Chrisman, Kellermanns, Chan, & Liano, 2010).

Nevertheless, some disadvantages could be also linked to this long-term vision in some contexts when risk aversion appears. For example, Dolz et al. (2019) found a negative relationship in a context of economic crisis in which the goal of firm survival leads to FFs to prioritize efficiency.

3.3.4 Culture in FFs: Low Turnover and Family Ties

As proposed in the three-circle model by Tagiuri and Davis (1996), FFs are special in their context because they are made up of members of the family (property), the family itself, and business interaction (Chrisman, Chua, & Sharma, 2005). This interaction between the members of the family and the company allows for a higher level of trust, reciprocity, and exchange of information. The shared history and potential shared future creates a group identity between family workers (Gómez-Mejía et al., 2001; Mazzelli, De Massis, Petruzzelli, Del Giudice, & Khan, 2019). This notion of trust between relatives could be considered an advantage, especially in the accumulation of resources, the transfer of tacit knowledge, protection, the use of reputation, and the construction of solid relationships (Le Breton-Miller & Miller 2015; Habbershon & Williams 1999; Pearson et al., 2008).

Family power and culture have a positive influence on the ambidextrous orientation in FFs. When FFs show a high level of cultural alignment, the family is committed to the company. In addition, the family and firm goals are aligned (Klein, Astrachan, & Smyrnios, 2005). Some specific cultural traits affect organizations in an ambidextrous way.

Le Breton-Miller and Miller (2006) suggested how different characteristics of FFs play a key role in allowing managers to balance exploitation with exploration. Low levels of turnover and the presence of strong family ties suggest a management preference for the eventual change in ambidexterity (Chrisman et al., 2005).

Low levels of employee turnover suggest high levels of organizational inertia. If altering organizational premises dislocates, this should be clearly manifested in turnover, especially among the most senior employees within an organization. Turnover is an especially appropriate indicator of the disruptive effects of organizational change because retaining key human assets in firms is often viewed by senior management, investors, and other informed parties as a crucial requirement for organizational survival and success (Baron, Hannan, & Burton, 2001).

Family ties can facilitate the exchange of knowledge structures and innovation (Patel & Fiet, 2011). It can also make managers prefer less risky change trajectories. This option reduces the risk of losing socio emotional wealth, preserves the company for next generations, and maintains some free resources for family purposes (Gómez-Mejía et al., 2001).

Increased cooperation and communication established as a way in which family firms interact, acts as a facilitator in decision making processes, nurturing loyalty and commitment that in turn benefits ambidexterity (Veider & Matzler, 2016).

Family members are tied with bonds of affection, loyalty, and shared values (Gómez-Mejía, Cruz, Berrone, & De Castro, 2011). Their loyalty and affection are shown through high-quality performance in their companies as they set aside selfish motivation (Lubatkin et al., 2007). In fact, they are often willing to work for long hours with a minimum wage (Le Breton-Miller & Miller, 2015; Gómez-Mejía et al., 2011). In addition, family members feel more secure as they are enriched by experiences and the ability to explore opportunities (Sardeshmukh & Corbett, 2011).

The main studies that explicitly analyze these specificities of FFs and their relationship with ambidexterity are summarized in Table 1.

Table 1. Specificities of FFs and ambidexterity

Specificities	Authors	Theoretical approach	Arguments	Effect founded
Ownership and management	Lubatkin et al. (2006)	Ambidexterity Upper echelon view Group process theory	Family ownership and management (control variable) provides the ability to control decisions	Positive effect
	Dolz et al. (2015)	Upper echelon theory Agency theory arguments	Positive effect of having the same ownership and management in ability to assign resources and in agency costs reduction	Positive effect
	Dolz et al. (2019)	Ambidexterity Upper echelon view	Ability favors ambidexterity while willingness is restricted in a context of restrictions	Negative effect
	Stubner et al. (2012)	Ambidexterity	Power concentration facilitates decision making	Positive effect
	Hiebl (2015)	Agency theory	Different degrees of family involvement in ownership and management produces different levels of ambidexterity	(Conceptual paper)
	Veider and Matzler (2016)	Agency theory RBV	Ownership and management give FFs the ability to decide and produce agency advantages and disadvantages	(Conceptual paper)
Long-term perspective	Stubner et al. (2012)	Ambidexterity	Long term focus benefits exploration and exploitation	Positive effect
Culture	Mazzelli et al. (2019)	Behavioral theory of the firm Ambidexterity	Social interactions, communication and shared experiences affect how organizations search for solutions	Different effects founded on exploration and on exploitation
	Veider and Matzler (2016)	Agency theory Resource Based View SEW	The commitment of the family and the convergence of different goals provide a distinctive behavior to FFs	(Conceptual paper)

Source: Own elaboration

3.4 DEGREES OF FAMILY CONTROL AND DIVERSITY AND THEIR RELATIONSHIP WITH AMBIDEXTERITY

Apart from the previous FFs specificities, family firm are not a total homogeneous group. There are different degrees of family participation in the decision-making process and of diversity that literature have studied in their effect of ambidexterity. Specifically, in the present section we outline how some studies have proposed the participation in the council and the degree of diversity in different aspects can affect ambidexterity

3.4.4 Family and Nonfamily Members in the Council

García-Castro and Sharma (2011) considered it relevant to capture the presence of family in the management council. It provides the formal link between owners and managers responsible for the daily operations of the company. This is described as “the top of the company’s decision control system” (Fama & Jensen, 1983, p. 311).

The council focuses on monitoring executives and providing resources and competencies to top management (Hillman & Dalziel, 2003). Monitoring involves observing, measuring, and evaluating the behaviors and decisions of managers, avoiding that they use their position for their own benefit (Tosi & Gómez-Mejía, 1989). In FFs, family can use the management council to strengthen their control over the company and pressure managers to pursue family goals. Muskataillo, Autio, and Zahra (2002) found that most board positions in FFs are held by family members or their representatives. Gersick et al. (1997) pointed to the small number of nonfamily council members in FFs.

Le Breton-Miller, Miller, and Lester (2011) argued that a greater presence of family in the council increases the propensity to prioritize family issues, including controlling the business by the family, having family occupy executive positions, and ensuring security for future generations (Bertrand & Schoar, 2006; Chrisman et al., 2005; Gómez-Mejía et al., 2011). In contrast, FFs that incorporate external members often use the council as a form of strategic development (Fiegener, 2005). When not subjected to the routine of daily operations, they can think more freely about strategic alternatives for the company (Forbes & Miliken, 1999). Their experiences in different contexts help to generate new expectations and ideas that increase cognitive diversity, provide multiple sources of data (e.g., about markets or competitors), and offer different perspectives of analysis and interpretation styles. This allows them, at a strategic level, to participate in decision making, identify new directions, discover opportunities for change, and provide information and

advice during the process (Brunninge, Nordqvist, & Wilklund, 2007). In other words, they provide an ambidextrous orientation.

3.4.2 Generational Diversity

Generally, founders are more entrepreneurs than their successors. Therefore, they are more likely to be emotionally linked to the business. It would be expected that companies managed by their founders are more oriented toward organizational growth, risk taking, and exploration of opportunities (Zhara, 2005). They encourage the expansion of the company because it provides personal benefits of power and prestige. They often view the company as an extension of themselves (Carney, 2005). Thus, exploring opportunities can contribute to both personal and corporate growth (Miller, Le Breton-Miller, & Scholnick, 2008). On the other hand, the literature links family management with risk aversion in the case of second and subsequent generations (Pérez-González, 2006). These are less emotionally linked. The business becomes more important to the detriment of the family, losing vision of continuity and placing greater interest in the short term. Generational diversity incorporates knowledge diversity to the company due to the different competences and perspectives generated by the generations (Chirico, Sirmon, Sciascia, & Mazzola, 2011; Milliken & Martins, 1996).

Generational diversity is positively related to entrepreneurial behavior, expanding the range of strategic options to be considered by the TMT and increasing the novelty of strategic decisions (Kellermans & Eddleston, 2006; Salvato, 2004). As a result, multigenerational family TMTs perceive more aspects, do it differently, and are more likely to propose alternative actions. These factors foster debate and encourages long-term thinking, giving the TMT the cognitive flexibility to improve decision making, execution, and ability to take advantage of opportunities (O'Reilly & Tushman, 2008). This attitude is essential to create new businesses, renew operations, recombine resources, and build organizational capabilities that improve the efficiency of the company by compensating for short- and long-term decisions, exploration, and exploitation.

Regarding next generation operations, CEOs tend to transmute into a superior capability as they aim to achieve a broader exploitation and a more narrow exploration. In contrast, the founding CEOs were more capable of performing both an exploration and exploitation search or ambidexterity search (Mazzelli et al., 2019).

3.4.3 Age and Experience

In the same line, the literature discusses other diversity types that affect organizational ambidexterity. Diversity in the age and experience of TMT managers is related to their ability to perceive changes and assume different levels of risk for responding to changes in the environment. Neither seniority nor age have been negatively related to the TMT's ability to take risks. This influences the orientation toward efficiency (the known) and the capability to accept uncertainty associated with the search for alternatives through risk. FFs are characterized by a greater homogeneity of points of view in decision-making processes when sharing common roots, values, and beliefs (Webb et al., 2010). This hinders the enrichment of the information they handle and the use of alternative points of view. Therefore, diversity in the TMT can be beneficial from a decision-making perspective (Minichilli et al., 2010; Nielsen, 2010). Diversity in age in the TMT has been related to its capacity to assume greater risks. Decision-making processes include managers with different career horizons and degrees of commitment to new projects. Older age has been linked to risk aversion and the search for alternatives with short-term results (exploitative behavior). The incorporation of young people, as well as the increase in diversity in age, can promote the TMT to take advantage of opportunities related to the environment and demanding changes in the company. Some studies suggest the influence of heterogeneity in age on the search for more proactive behaviors and assumption of risks (Wiersema & Bantel, 1992).

Age diversity in the TMT can also be a negative source of conflict as it can affect the capacity to reach consensus and increase conflict between its members. However, in FFs, family identity and trust between family members reduce the possibility that affective conflict affects decision-making processes, allowing them to take advantage of the functional benefits of cognitive conflict (Webb et al., 2010). Diversity in experience or seniority in the company are associated with the wealth of information sources and breadth and variety of analysis. Wiersema and Bantel (1992) argued that similar teams in antiquity will have had the same process of socialization, sharing the same managerial experiences and problems. However, heterogeneous TMTs will provide varied sources of information. Therefore, the points of view and alternatives will increase, favoring the exploration of ideas and compensating the tendency for exploitation. Diversity in seniority will be reduced, resulting in group thinking (Milliken & Martins, 1996). Diversity in TMT provides different perspectives and criteria (Gedajlovic et al., 2012). Ambidexterity requires divergent thinking to identify and evaluate exploration opportunities and convergent thinking to identify and evaluate exploitation opportunities (Lubatkin et al., 2006). This implies carrying out exhaustive environmental analysis processes to discover, identify, and evaluate multiple opportunities and alternatives. The difference in experiences

derived from the diversity in seniority provides the wealth of points of view and criteria to identify and evaluate alternatives, favoring the presence of more comprehensive processes. Ambidexterity requires the ability to take risks, be proactive, and reconfigure resources with the ability to perceive changes and signals from the environment (Lubatkin et al., 2006; O'Reilly & Tushman, 2008).

3.5 FUTURE RESEARCH DIRECTIONS

This study theoretically analyzes antecedents of ambidexterity. Future research could empirically study how these antecedents interact to achieve ambidexterity. Furthermore, to deeply understand how each of the antecedents contribute to the success of ambidexterity, future research should explain how to minimize the outlined disadvantages. To this end, case studies of successful FFs can offer a more complete vision of their evolution and the promotion of their positive role.

3.6 CONCLUSION

After reviewing the literature on ambidexterity in FFs, this chapter outlines the specificities these firms may require to achieve ambidexterity.

The effect of family control on organizational ambidexterity is not univocal. It depends on the ability and willingness of these firms to engage in specific demeanors (Veider & Matzler, 2016). The corresponding ability originating from FFs serves as a prerequisite to arriving at organizational ambidexterity. Heterogeneity among this type of company will depend on their willingness to face family-induced challenges with actions to mitigate associated deficiencies (Veider & Matzler, 2016).

Veider and Matzler (2016) remarked on the importance of incorporating both the ability and willing- ness of family-controlled firms to achieve organizational ambidexterity. A firm's ability and willingness allow for an exploration of how family structure and behavior affect the innovation process and drive the heterogeneity of FFs in the context of organizational ambidexterity (Chrisman et al., 2015; Lumpkin & Brigham, 2011).

The family character aligns incentives of managers with owners by benefiting from both short- and long-term financial impacts of strategic decisions. The combination of ownership and management gives greater power to launch the necessary actions to implement changes in the company. This allows for exploiting opportunities and an incentive to survive to realize the long-term results (Gedajlovic et al., 2012; Miller & Le Breton-Miller, 2005). Excessive family concentration in

ownership or presence in a management team could negatively affect the firm's performance due to a schism or altruism.

The family character provides the necessary discretion to make a strategic agenda and avoid other interested parts from changing their course. In addition, this character permits monitoring and correcting of deviations (Gedajlovic et al., 2004). These companies have managerial elites with greater power and faculties to carry out their strategic agendas. Being multitemporal allows them to take advantage of opportunities and reconfigure resources. The joint diversity of age and experience of the management team reinforces ambidexterity (Fernández-Mesa et al., 2013). As there is diversity within the management team or the council, difficulties could be generated to achieve consensus among members.

Long-term value in FFs depends on the ability to dynamically recombine resources to balance exploration and exploitation. These firms tend to participate in long periods of exploitation interrupted by radical strategic exploration (Salvato & Melin, 2008). Changes in strategy over time are facilitated in FFs where managers have greater social capital with employees. This facilitates faster acceptance among those who will implement these strategic changes (Salvato & Melin, 2008). Lack of knowledge could cause uncertainty in the firm. Family culture is also an important antecedent to promote ambidextrous orientation. A series of essential values and goals should be shared when working to attain ambidexterity. Family culture also create ties between the firm and its members, producing an exchange of knowledge. Therefore, the positive aspects of FFs outlined in theories such as SEW or Resource-based View, have also a positive effect on ambidexterity. There is growing evidence of ambidextrous implications in business performance with the singular abilities of FFs to balance exploration with exploitation. Nevertheless, more research is needed to analyze how to minimize the negative effects of agency costs that arose when nepotism or negative altruism appears. For example, the question of which governance conditions trigger ambidexterity in FFs need deeper understanding. Moreover, more research is also needed to analyze how different degrees of involvement and diversity can enhance or hinder the positive aspects.

Managing diversity and various degrees of family involvement in ownership and management requires specific governance mechanisms and family governance mechanisms to positively direct the ability and willingness in FFs to the achievement of ambidexterity.

Practitioners could benefit of knowing the importance of achieving ambidexterity. This study also outlines how the specificities of FFs have a positive effect on ambidexterity if they are conveniently directed towards a positive willingness to ambidexterity.

Furthermore, ambidexterity represents a promising organizational construct to better understand the differences between FFs (Lubatkin et al., 2006; Stubner et al., 2012), and managers can promote the positive aspects of FFs that allow ambidexterity and long-term competitiveness.

CHAPTER 4: Ambidexterity, Alliances and Environmental Management System Adoption in Spanish Hotels

4.1 INTRODUCTION

The main purpose of this study is to further understanding of how alliances and ambidexterity help improve environmental performance. Of the three main pillars of sustainability, according to the triple bottom line (Elkington, 1998) (economic, environmental, and social), the focus of this study is on the environmental. The tourism industry plays a significant role in maintaining natural surroundings (Pérez et al., 2013; Martínez et al., 2013; Timur and Getz, 2009). In the hotel sector, often with establishments located in special natural settings with constraints on resources (Bohdanowicz et al., 2011), it is even more important to integrate environmental issues into management to reduce damage and to positively contribute to the preservation of natural resources. Furthermore, by managing environmental performance, hotels both contribute to society and increase their competitiveness with better market opportunities toward increasingly environmentally conscious consumers (Golob and Kronegger, 2019), with cost reductions, and with access to better resources (Yu et al., 2016). In terms of environmental performance, we specifically focus on environmental management systems (e.g. ISO14001 and EMAS), recognized by the OECD (2013) as an important innovation for a green economy in the tourism industry. This consideration is also in line with the literature that includes environmental certification as indicators of environmental innovations (e.g. Martínez-Pérez et al., 2015).

Environmental requirements demand frequently contradictory processes for firms, such as efficiency and flexibility or alignment and adaptability (Lin and Ho, 2016), which should be managed adequately. Ambidexterity has been proposed from the organizational learning perspective as a concept that integrates conflicting demands. It could therefore contribute to the study of environmental management needs (Lin and Ho, 2016; Yu et al., 2016). Ambidexterity is defined as the firm's capability to simultaneously achieve high levels of exploration and exploitation (Cao et al., 2009). March (1991), introduced the concepts of exploration and exploitation as the two connected sides of organizational learning. Scholars subsequently started to coin the concept of ambidexterity applied to the capability of combining or balancing both to ensure the firm's long-term success (Raisch et al., 2009; Simsek, 2009; Tushman and O'Reilly, 1996).

Furthermore, environmental challenges usually require collaboration with other organizations that can provide knowledge and skills in which the firm has no expertise (Albino et al., 2012; Seuring and Müller, 2008). According to the resource-based and dynamic capabilities view (Dierickx and Cool, 1989; Grant, 1991; Barney, 1986; Teece et al., 1997; Wernerfelt, 1984), firm-specific capabilities are the main source of sustainable competitive advantage. Inter-firm resources are also the key to accessing new knowledge and to increasing firm competitiveness, from the perspective of the relational view (Dyer and Singh, 1998). The complexity of environmental issues requires such inter-

firm collaborations (Albino et al., 2012) in support of the firm's orientation toward increasing environmental performance (Hofmann et al., 2012).

Ambidexterity and exploration and exploitation are beginning to be analyzed as antecedents of environmental performance (e.g. Yu et al., 2016), and alliances have also been studied regarding their effect on this outcome (Albino et al., 2012) or on environmental management practices (e.g. Hofmann et al., 2012). Nevertheless, to our knowledge, this is the first study to further knowledge of environmental issues by integrating the analysis of the role of alliances and ambidexterity in environmental performance in the hotel sector. The main contribution of this study is the empirical evidence of the positive effect of ambidexterity for achieving environmental performance and for transforming the benefits of alliances into better environmental performance.

The remainder of the research is structured as follows. First, the background of ambidexterity is introduced, together with the importance of strategic alliances. Then, hypotheses development is presented. Next, the data, measurement, and methodology are given in the Methods section, followed by the Results section and Data Analysis. Finally, implications of the study are derived, and limitations and future research lines outlined in the Conclusion section.

4.2 CONCEPTS AND HYPOTHESES DEVELOPMENT

In dynamic environments, organizations must be ambidextrous to have success in the long term (Gibson and Birkinshaw, 2004). That involves exploring new knowledge, future processes, competencies, and skills, while efficiently exploiting their current knowledge, competencies, and processes (Raisch, Birkinshaw, Probst, Tushman, 2009; Tushman and O'Reilly, 1996). March (1991), explained the concepts of exploration and exploitation in organizational learning. While exploration refers to risk taking and variance-increasing activities in learning, experimentation, flexibility, discovering and distant search, exploitation refers to refinement, efficiency, variance-decreasing activities, learning by doing, and local search (March, 1991; Smith and Tushman, 2005). Although they are different processes, both exploration and exploitation involve learning and knowledge (Baum et al., 2000; Benner and Tushman, 2002; He and Wong, 2004). In fact, both are presented by March (1991) as two facets in organizational learning. The difference between them lies in the type or degree of knowledge on which they are focused (Gupta et al., 2006; Simsek 2009). Whereas exploration is about the creation of new knowledge through distant search, and learning through variation and experimentation, exploitation refers to the refinement and extension of knowledge, local search, and learning through experimental refinement (Gupta et al., 2006; He and Wong, 2004; Menguc and Auh, 2008). Furthermore, both processes are mutually reinforcing (Andriopoulos and Lewis, 2009). These activities should be combined, since focusing on exploration to the detriment of exploitation can cause

a “failure trap” without obtaining rewards for the variation-seeking activities, while excessive exploitation over exploration can lead to a “success trap” with only short-term returns (Levinthal and March, 1993).

The concept of ambidexterity, first stated in organizational studies by Duncan (1976) referring to dual structures, was then applied to the simultaneous pursuit of exploration and exploitation (Tushman and O’Reilly, 1996; O’Reilly and Tushman, 2008) and studied by scholars in organizational learning perspective (e.g. Levinthal and March, 1993), strategic management literature (e.g. Ghemawat and Ricarti Costa, 1993; Lubatkin et al., 2006), innovation (e.g., He and Wong, 2004; Jansen et al., 2006; Smith and Tushman, 2005), and in environmental studies (e.g. Chen et al., 2014; Yu et al., 2016). We follow the view of ambidexterity as a dynamic capability. Teece et al., (1997) define dynamic capabilities as “the firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997: 516). Ambidexterity is then considered a dynamic capability that facilitates new resource configurations (O’Reilly and Tushman, 2008) and involves combining the attainment of exploration and exploitation (Simsek, Heavy, Veiga and Souder, 2009), which is a challenge because both usually require different processes and resources (He and Wong, 2004).

Furthermore, alliances are an important source of learning and access to new knowledge and to upgrading relevant skills (Branzei and Vertinsky, 2006; Teece, 2007; Dyer and Singh, 1998). The literature on strategic alliances, as well as on the innovation and open innovation paradigm (e.g. Grant and Baden-Fuller, 1994; Larsson et al., 1998; Mowery et al., 1996; Chesbrough et al., 2006; Cassiman and Veugelers, 2006) suggests the importance of firms’ external knowledge sourcing. Combining different types of knowledge fosters innovation (Rosenzweig, 2016), and the increasing global dispersion of knowledge in the current dynamic environment (Bresciani et al., 2015) requires collaboration between different actors (Vrontis et al., 2017). More specifically, external knowledge can be a source for fostering exploration as well as exploitation (Rothaermel and Alexandre, 2009; Vrontis et al., 2017). Although several studies differentiate between exploration and exploitation alliances (e.g. Rothaermel and Deeds, 2004; Lavie and Rosenkopf, 2006), few have analyzed the effect of alliances on ambidexterity as a whole capability. In line with Vrontis et al. (2017), we take into account a firm’s participation in alliances as beneficial for ambidexterity, since such alliances can act as a source of accessing new knowledge or knowledge in which the firm has no expertise.

We therefore address a literature gap by providing an analysis of ambidexterity as an antecedent of environmental performance and as a mediating effect between firm participation in alliances and environmental performance.

So, participation in alliances provides access to wider external knowledge, which could be different or specialized in other areas in which the firm has expertise. For example, hotels can collaborate with technological firms to apply and integrate new advances (e.g. applying the Internet of Things or artificial intelligence to its processes) in pollution prevention, efficiency, digital transformation of buildings, or even to develop new processes. Contact with richer information and knowledge enhances ambidexterity (Dezi et al., 2019). Access to external knowledge enables firms to expand their knowledge base, which could be integrated with internal knowledge to foster ambidexterity. In both exploration and exploitation, new learning occurs (Baum et al., 2000; Benner and Tushman, 2002; He and Wong, 2004) through the improvement of current skills and processes or through the development of new ones, and access to new knowledge is beneficial for both (Vrontis et al., 2017). Alliances expand the possibilities of accessing different sources and perspectives that could be incorporated into the firm (Xie et al., 2020). The amount and cognitive variation that external knowledge provides (Baum et al., 2000; Gilsing and Nooteboom, 2006) is essential to exploration, since it could be difficult for a single firm to have the full range of necessary skills for the latest research breakthroughs (Powell et al., 1996). Through interaction with new external knowledge, new ideas could be generated, addressing new challenges with new perspectives, fostering exploration, as well as reducing or sharing potential risks and uncertainty (Im and Rai, 2008; Demirkan and Demirkan, 2012). Moreover, for improving existing processes and skills, collaboration allows firms to complement and refine their knowledge base, thereby aiding exploitation (Xie et al., 2020; Rosenkopf and Almeida, 2006). Kauppila (2010), shows how partnerships increase efficiency and improve existing knowledge, and that the internal exploitation is also necessary to recognize potential partners that could also achieve exploitation. Therefore, collaboration provides a source of knowledge that impacts positively on the implementation of exploration and exploitation (Xie et al., 2020; Hernández-Espallardo, Sánchez-Pérez, and Segovia-López, 2011; Petruzzelli, 2019). Knowledge exchanges with external sources could benefit the firm for the development of new products or services and new markets, and for the improvement of existing ones (Dezi et al., 2019). Partners support and complement firm exploration and exploitation with new resources (Bresciani et al., 2017). Some researchers have tested the way in which alliances are crucial for managing their approach to ambidexterity (e.g. Bresciani et al., 2017; Kauppila, 2010). Bresciani et al., (2017) tested whether firms combine external with internal knowledge to enhance ambidexterity. By analyzing a case study, Kauppila (2010), showed how a Finnish firm achieves ambidexterity through the internal balance of exploration and exploitation while maximizing both thanks to its partnerships. Considering these antecedents, we propose the following hypothesis:

H1. A firm's participation in alliances has a positive effect on its organizational ambidexterity.

Ambidexterity is the capability of combining and achieving exploration and exploitation. Exploitation means that hotel firms develop and strengthen their knowledge and skills and improve the efficiency and productivity of their operations, whereas exploration involves learning and new knowledge in new domains. Both can contribute to environmental performance through new ways of solving environmental problems or through improving efficiency in their processes and in the use of resources. Change, improvement, and continuous learning is necessary to achieve sustainability (Arend, 2014; Eikelenboom and De Jong ,2019). The changing environment constantly demands new adjustments, and organizational capabilities are necessary to cope with these demanding changes around sustainability (Arend, 2014; Chen and Chang, 2013; Eikelenboom and De Jong, 2019), and specifically, ambidexterity "enables a firm to adapt over time" (O'Reilly and Tushman, 2008: 185). Environmental performance will be higher if the firm has the capability to cope with constant environmental changes. In fact, Judge and Elenkov (2005), demonstrate how the more organizations adapt and change, the higher the environmental performance, whereas Carayannis et al. (2015) propose ambidexterity as essential for sustainability. Lin and Ho (2016), specifically tested this positive association between ambidexterity and environmental performance in the automotive industry. Chen et al., (2014) focus on ambidexterity for green developments and, in a sample from the electronics industry, demonstrate how ambidexterity is helpful for increasing green innovation performance. Demanding challenges for the environment need short- and long-term improvements (Lin and Ho, 2016); this is precisely what ambidexterity is able to achieve. The risk of obsolescence, or alternatively, the risk of overemphasis on totally new activities, in organizations that fail to develop organizational ambidexterity (Menguc and Auh, 2010) could be detrimental to achieving higher standards of environmental performance (Lin and Ho, 2016). Exploitation enables adjusting and improving existing processes, which is beneficial for reducing environmental problems and refining their environmental standards, mainly in the short term, whereas exploration pursues new developments and processes, which could result in new knowledge to solve new environmental challenges in the long term (Lin and Ho, 2016). Both exploration and exploitation are mutually reinforcing and correspond to two inseparable aspects of learning (Baum et al., 2000; Benner and Tushman, 2002; He and Wong, 2004; Gupta et al., 2006). While developing innovative solutions to new challenges stimulates creativity, it also enables potential improvements to existing knowledge (Menguc and Auh, 2010). Alternatively, improving knowledge and processes could prevent disturbances in the new developments for future challenges (Li and Huang, 2012; Lin and Ho, 2016). Furthermore, ambidexterity must cope with multiple demands, such as alignment and adaptability (Gibson and Birkinshaw, 2004) or efficiency and flexibility. This experience also enhances the likelihood of organizations achieving multiple goals, for

example, by focusing on environmental as well as financial goals (Collins and Porras, 1994; Judge and Elenkov, 2005).

Therefore, achieving higher environmental performance is based on the firm's ambidextrous capability (Lin and Ho, 2016). To adapt the firm to environmental challenges involves exploiting existing and exploring new knowledge. We then state the following hypothesis:

H2. A firm's ambidexterity has a positive effect on its environmental performance.

The two previous hypotheses relate participation in alliances with ambidexterity and ambidexterity with environmental performance. If we consider the previous hypotheses as a set, it states that the relationship between the participation in alliances and environmental performance is mediated by ambidexterity. We propose the mediating effect, since using external knowledge acquired through alliances for improving environmental performance requires the firm to be able to integrate it in order to increase the efficiency of its operations, develop new skills, or find new environmental solutions. Internal firm capabilities are necessary to recognize and integrate external knowledge (Cohen and Levinthal, 1990). The ambidexterity capability requires an effort to simultaneously achieve internal exploration and exploitation, which in turn enhance the skills needed to absorb new knowledge and information (Jansen et al., 2005; Fernhaber and Patel, 2005). A firm's participation in alliances would not affect environmental performance if the firm is unable to integrate the benefits of alliances through its own capabilities. Internal ambidexterity is a necessary complement for the participation in alliances to have a positive effect on environmental performance. In agreement with the main postulates of the resource-based view and dynamic capabilities approach, which state that the differences between firms lie in the bundle of resources and capabilities that they are able to develop, not all firms could benefit equally from participation in a strategic alliance. If a hotel wants to transform the benefits of alliances into higher environmental performance, it needs an internal filter to interpret and use the acquired external knowledge. The ambidexterity capability constitutes this filter, which allows the firm to integrate external knowledge to produce novel ideas (Chen et al., 2014). Lucena and Roper (2016), demonstrate that ambidexterity is one of the essential internal capabilities of a firm for realizing the benefits of alliances. Furthermore, in the context of tourism cultural clusters, Martínez-Pérez et al. (2016) showed a mediating effect of ambidexterity between external relationships and innovation. Together this leads us to hypothesize that:

H3. A firm's ambidexterity mediates the relationship between participation in alliances and environmental performance.

Figure 1 depicts the proposed model.

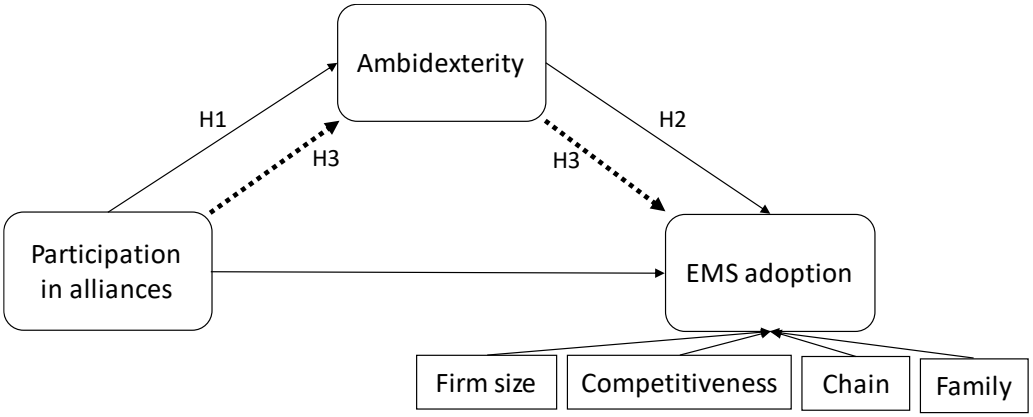


Figure 1. Hypothesized model. Continuous line represents direct effects; dotted line represents the mediating effect.

4.3. METHODOLOGY

4.3.1. SAMPLE AND DATA COLLECTION

Following recommendations in the literature about survey research design and data gathering (Dillman, 1978; Podsakoff and Organ, 1986), data was collected through a survey completed by the owner, manager, or CEO of tourism firms in Spain from the reference universe provided by the National Statistics Institute's Central Directory of Spanish Companies. The survey instrument was pretested (eight managers, five academics) before the final version was applied. It includes reversed items and some similar questions in different sections to control for response reliability, as well as mixed questions from different constructs. Between December 2009 and March 2010, 1,019 usable responses were obtained from the tourism sector universe, which reflects a statistical margin of error of ±3.1 percent (confidence interval of 95.5 percent). Non-response bias was checked by comparing early and late responses (Armstrong and Overton 1977) and no problems were detected. This sample is composed of different sub-sectors (e.g. hotels, restaurants, or travel agencies). As this research is focused on hotel firms, the final sample for the present study includes 306 firms.

4.3.2. VARIABLE MEASUREMENT

4.3.2.1. DEPENDENT VARIABLE

Environmental management systems have represented a trigger for firms responding to environmental challenges (Zutshi and Sohal, 2004). Their aim is to manage environmental firm performance by continuously improving it though a planned strategy (Ayuso, 2006). ISO 14001 and EMAS represent the most important systems (Watson and Emery, 2004; Miret et al., 2011; García-

Pozo et al., 2015), and some authors have used them as an indicator of implementation of good environmental practices. Arimura et al. (2008) specifically demonstrate that ISO14001 help firms reduce environmental impacts. In line with Martínez-Pérez et al. (2015), who consider all types of innovation leading to environmental improvements as eco-innovations in the tourism sector and include the implementation of environmental certificate systems among them, we focus on these systems as our measure for environmental performance. This is also in line with the OECD (2013) inclusion of environmental management systems as one of the important innovations in tourism for the transition to a green economy.

The International Organization for Standardization (ISO) developed standards of environmental management included in ISO 14001, whereas the European Union promoted EMAS (Eco-management and Audit Scheme) certification. Therefore, we take these systems into account in our variable measurement.

Thus, Environmental performance is measured as a binary variable. It takes the value of 1 if the firm has been certified with environmental systems like ISO 14001 or EMAS, and 0 otherwise. Other authors use similar approaches to measuring environmental management systems implementation (Lannelongue and González-Benito, 2012; Kim et al., 2016) and the same measure has been adopted in studies with hotels (e.g. Rivera and De León, 2005; Segarra-Oña et al., 2012).

4.3.2.2. INDEPENDENT VARIABLE

The variable Alliances takes the value of 1 if the hotel has technological, innovation, or environmental alliances, and 0 otherwise. Other studies have used similar measures for alliances. In a study of R&D alliances, Sampson (2007) uses an analogous approach to measure alliance experience. In another recent study, Yang and Meyer (2019) use a dummy variable where 1 represents firms that use alliances and 0 firms that do not. Moreover, the study by Rossmannek and Rank (2019) uses dummy variables to control participation in alliances, tests for differences between distinguishing dummies and different types of alliances, or creates a dummy variable for participation or not in all types of alliances. Alam et al. (2019) also create a dummy variable for firm participation in alliances to then divide the sample according to this variable.

Table 1. Measurement of variables.

Variable	Measurement	Authors
EMS	Binary coded (1 if the hotel has EMS certification ISO 14001 or EMAS; 0 otherwise)	[88–90]

Alliances	Binary coded (1 if the hotel has technological or environmental alliances; 0 otherwise)	[91,92,95] [93,94]
Ambidexterity	*Exploration: Over the last three years, to what extent has your firm…"* 1. Acquired manufacturing technologies and skills entirely new to the firm? 2. Learned product development skills and processes (such as product design, timing of new product introductions, and customizing products for local markets) entirely new to the industry? 3. Acquired entirely new managerial and organizational skills that are important for innovation (such as forecasting technological and customer trends; identifying emerging markets and technologies; coordinating and integrating R&D; marketing, manufacturing and other functions; managing the product development process)? 4. Learned new skills in areas such as funding new technology, staffing R&D function, training and development of R&D, and engineering personnel for the first time? 5. Strengthened innovation skills in areas where it had no prior experience? *Exploitation: Over the last three years, to what extent has your firm…"* 1. Upgraded current knowledge and skills for familiar products and technologies? 2. Invested in enhancing skills in exploiting mature technologies that improve productivity of current innovation operations? 3. Enhanced competencies in searching for solutions to customer problems that are near to existing solutions rather than completely new solutions? 4. Upgraded skills in product development processes in which the firm already possesses significant experience? 5. Strengthened its knowledge and skills for projects that improve efficiency of existing innovation activities?	[96,97]
Size	Logarithm of number of employees	[98]
Competitiveness	Our company has relatively strong competition Competition in our local market is extremely high Price competition is a hallmark of our local market	[99]
Chain affiliated	Binary variable (1 if the hotel belongs to a chain; 0 otherwise)	[98,100][101–103]
Family firm	Binary variable (1 if the firm is a family firm; 0 otherwise)	[104]

4.3.2.3. MEDIATING VARIABLE

Ambidexterity is calculated as a multiplicative term of exploration and exploitation, in line with Gibson and Birkinshaw (2004), who consider whether exploration and exploitation complement each other, and ambidexterity as the non-substitutable combination of both. Other authors have also used a multiplicative approach for measuring ambidexterity (e.g. Gibson and Birkinshaw, 2004; Lin and Ho, 2016).

In this study, exploration and exploitation are based on the scales by Camisón et al. (2018) and Atuahene-Gima (2005), which follow the conceptualization of exploration and exploitation in the seminal paper by March (March, 1991), and which have shown their appropriateness for tourism studies (Camisón et al., 2018). Each scale is calculated through the mean scores of the scale's items to

generate composite scores (Hair et al., 1998). Exploration and exploitation are calculated as the average of five items, respectively. With a seven-point Likert scale in answers, in the case of exploration, the following items compose the scale (Cronbach alpha = 0.889): “Over the last three years, to what extent has your firm…” 1. Acquired manufacturing technologies and skills entirely new to the firm? 2. Learned product development skills and processes (such as product design, timing of new product introductions, and customizing products for local markets) entirely new to the industry? 3. Acquired entirely new managerial and organizational skills that are important for innovation (such as forecasting technological and customer trends; identifying emerging markets and technologies; coordinating and integrating R&D; marketing, manufacturing and other functions; managing the product development process)? 4. Learned new skills in areas such as funding new technology, staffing R&D function, training and development of R&D, and engineering personnel for the first time? 5. Strengthened innovation skills in areas where it had no prior experience? And in the case of exploitation (Cronbach alpha = 0.924): 1. Upgraded current knowledge and skills for familiar products and technologies? 2. Invested in enhancing skills in exploiting mature technologies that improve productivity of current innovation operations? 3. Enhanced competencies in searching for solutions to customer problems that are near to existing solutions rather than completely new solutions? 4. Upgraded skills in product development processes in which the firm already possesses significant experience? 5. Strengthened its knowledge and skills for projects that improve efficiency of existing innovation activities? Principal component analysis was also performed to assure validity, and the amount of variance explained is 71.491%, thus exceeding 50%, with the loading factors loading in the appropriate scale and with values higher than 0.6, exceeding the cut-off point of 0.5 (Hair et al., 1998). Given the fact that Cronbach’s alpha for both scales exceeds the threshold point of 0.7 (Nunnally 1978), reliability is also assessed.

4.3.2.4. CONTROL VARIABLES

Size. Firm size has been shown to affect ambidexterity (e.g. Lubatkin et al., 2006; Cao et al., 2009; Dolz et al., 2019), as well as environmental proactivity (e.g. Yu et al., 2016). We therefore use firm size as a control variable. As with other studies in ambidexterity in the hotel sector (e.g. Úbeda-García et al., 2018), we take the logarithm of number of employees as a measure of the variable Size.

Competitiveness. External pressures affect ambidexterity (Auh and Menguc, 2005; Jansen et al., 2006) and environmental performance (Lin and Ho, 2016; Yu et al., 2016). We therefore use it as a control variable. This study uses Chang et al.’s (2011) environmental competitiveness scale (Cronbach’s alpha = 0.662).

Chain Affiliated. Since belonging to an hotel chain has been demonstrated to influence environmental performance (Chen, 2019) or environmental commitment (Bohdanowicz, 2006; Claver-Cortés et al., 2007), we include a dichotomous variable to measure whether hotels belong to a chain, a measure adopted in other hotel studies (e.g. Bonilla-Priego and Avilés-Palacios, 2008; Marco-Lajara et al., 2014) and in studies that specifically analyze ambidexterity in hotels (e.g. Úbeda-García et al., 2018) or environmental strategies in hotels (Claver-Cortés et al., 2007; Park and Kim, 2014).

Family Firm. The specific characteristics of family firm ownership would influence ambidexterity (e.g. Lubatkin et al., 2006; Stubner et al., 2012), as well as environmental performance (Berrone et al., 2010; Block and Wagner, 2014); we also control for family ownership. In line with Lubatkin et al., (2006), we use a dichotomous variable coded as 1 if the firm is a family firm and 0 otherwise. The criteria for distinguishing between both depend on the manager interviewed, as in other studies of family firms in the tourism context (e.g. Getz and Carlsen, 2000).

4.3.3. METHODS

Given the dichotomous nature of the dependent variable, binary logistic regression analysis is used to test hypotheses H2 and H3, whereas linear regression is used to test H1, where the dependent variable is ambidexterity. Other studies in these topics, also with a different nature of dependent and mediating variables, follow a similar approach (e.g. Röd, 2019; Heimericks and Duysters, 2007). We apply the procedure proposed by Baron and Kenny, (1986) to test the mediating effect by estimating different regressions, an approach also used in studies on this topic (e.g. Lin and Ho, 2016).

Furthermore, we confirm the results by applying bootstrapping techniques (Zhao et al., 2010) with the PROCESS Macro (Hayes, 2017) in SPSS, which allow for testing mediating effects. Other environmental studies also use these techniques (e.g. Zappalà et al., 2019).

4.4 RESULTS

Table 2 shows descriptive statistics of variables and correlations.

Table 2. Descriptive statistics and correlations.

	Variable	Mean	S.D.	1	2	3	4	5	6
1	EMS adoption	0.25	0.44						
2	Alliances	0.27	0.44	0.23**					
3	Ambidexterity	16.35	9.22	0.29**	0.25**				
4	Size	1.23	0.73	0.29**	0.37**	0.33**			
5	Chain	0.32	0.47	0.12*	0.15**	0.01	0.48**		

6	Family firm	0.53	0.50	0.08	0.04	0.31**	0.05	−0.12*	
7	Competitiveness	4.50	1.05	0.09	0.17**	0.29**	0.24**	0.06	0.10

Note: Env. Performance = Environmental performance; S.D. = Standard Deviation; ** $p < 0.01$; * $p < 0.05$; N = 306.

Results are presented in Table 2. Linear regression is used in Model III (Table 2), where the dependent variable is Ambidexterity. Binary logistic regression analysis is used in all the other models (Table 2) with the dependent variable Environmental performance. In Model I, only the control variables are introduced. Model II adds the independent variable (Alliances) for their effect on environmental performance. Model III tests the effects on ambidexterity. In Model IV, again the dependent variable is environmental performance and the mediating variable, ambidexterity, is introduced. The variance inflation factor (VIF) gives a maximum of 1.459 within all models, below the cut-off threshold of 10 for linear regression models (Hair et al., 2010), or 2.5 for logistic regression (Allison 1999), thereby indicating the unimportance of multicollinearity. As for control variables, although the effect is not significant in models where Environmental performance is a dependent variable (except in Model 1, where the variable Size is significant), and the Chain affiliation variable has shown no significant effect in any of the models, control variables have shown their importance in Model III, supporting the effects on Ambidexterity of Size, Competitiveness, and Family Firm, proposed in the literature.

Testing hypothesis 1 involves analyzing the coefficient of firm participation in alliances on the regression with ambidexterity as a dependent variable. Thus, observing Model III (Table 2), the coefficient of alliances on ambidexterity is positive and significant ($\beta = 0.190$; $p<0.01$), thereby supporting hypothesis 1.

Hypothesis 2 is also supported, showing ambidexterity as a predictor of environmental performance, given the positive and significant effect of ambidexterity on environmental performance (Table 2) shown in Model IV (B = 0.046; $p<0.05$; Lower 95% CI = 1.006; Upper 95% CI = 1.090).

H3 predicts a mediating effect of organizational ambidexterity in the relationship between alliances and environmental performance. According to Baron and Kenny (1986), testing the mediation effect involves three steps. The first step is to examine the effect of the independent variable on the dependent variable, which is shown in Model II in Table 2. It gives a positive and significant coefficient of alliances (B = 0.801; $p<0.05$; lower 95% CI = 1.150: upper 95% CI = 4.316). The next steps in the process were performed when testing Hypotheses 1 and 2, since it involves analyzing

the effect of the independent variable on the mediator variable (H1) and confirming the positive effect of the mediator variable on the dependent one (H2). The additional step required is to confirm whether the introduction of the mediator variable in the model renders the effect of the independent variable (alliances) on the dependent variable (environmental performance) insignificant. Model IV in Table 2 shows that the introduction of the mediator variable reduces the effect of alliances shown in Model II, which is no longer significant (B = 0.659; p>0.05; lower 95% CI = 0.0.985; upper 95% CI = 3.792), thus testing Hypothesis 3 of the mediator effect and specifically resulting in a full mediation effect.

Table 3. Results of the regression models.

	Model I	**Model II**	**Model III**	**Model IV**
	(Logit regression)	**(Logit regression)**	**(Linear regression)**	**(Logit regression)**
Dependent variable	*EMS adoption*	*EMS adoption*	*Ambidexterity*	*EMS adoption*
Variables	**B (SE)**	**B (SE)**	***B* (t)**	**B (SE)**
Intercept	−2.378** (0.735)	−2.432** (0.749)		−2.619 (0.766)
Size	0.779** (0.260)	0.599* (0.275)	3.309*** (4.326)	0.453 (0.286)
Chain	0.111 (0.358)	0.159 (0.366)	−0.032 (−0.468)	0.203 (0.368)
Family firm	0.227 (0.321)	0.241 (0.327)	0.141* (2.360)	0.154 (0.334)
Competitiveness	0.060 (0.161)	0.063 (0.163)	1.190** (3.143)	−0.033 (0.171)
Alliances		0.801* (0.337)	0.190** (3.017)	0.659 (0.344)
Ambidexterity				0.046* (0.020)
Coc &Snell R^2	0.065	0.088		0.110
Nagelkerke R^2	0.093	0.126		0.157
Adjusted R^2			0.232	

Notes: *** p <0.01; ** p < 0.01; * p < 0.05; figures in parentheses show standard errors (SE) in logistic models. (Models I, II and IV) and t statistics in linear regression (Model III).

To confirm this mediating effect, we also apply the bootstrapping procedure (Zhao et al. 2010) by running the PROCESS Macro with 5,000 bootstrap samples. Results confirm the previous analysis and show that the mean indirect effect is positive and significant (p<0.05), with a 95% confidence interval that does not include zero (LLCI = 0.0201; ULCI = 0.4320), whereas the confidence interval for the direct effect is not significant (p>0.05) and the 95% confidence interval includes zero (LLCI = -0.0156; ULCI = 1.3329). Therefore, the full mediating effect is confirmed.

4.5 CONCLUSIONS AND LIMITATIONS

Hotels play an important role in preserving the natural environment. Their competitiveness is also linked with their green behavior: it could reduce costs and the use of resources. Also, increasing environmental performance could enhance a firm's reputation (Berg et al., 2018), consumer identification with the firm (Du et al., 2010) and therefore firm positioning, competitiveness, and access to better resources (Yu et al., 2016).

This study focuses on environmental performance in the hotel sector. For better environmental performance, hotels should develop capabilities that allow them to balance conflicting environmental demands with new environmental challenges (Lin and Ho, 2016). Among the different dynamic capabilities proposed in the literature, we analyze ambidexterity because it is a capability that facilitates the reconciliation of conflicting demands and is therefore useful for coping with environmental requirements (Lin and Ho, 2016; Yu et al., 2016). Furthermore, hotels should regularly collaborate with external partners to confront increasingly complex environmental challenges (Albino et al., 2012; Hofmann et al., 2012; Seuring and Müller, 2008), by accessing knowledge outside their area of main expertise.

The results of this study confirm the proposed hypotheses with a Spanish sample. They show that hotel participation in alliances has a positive effect on ambidexterity and ambidexterity a positive effect on environmental performance, in addition to acting as a mediating variable between both. These results therefore advance on the recent line of research that proposes the importance of ambidexterity for managing environmental requirements (e.g. Chen et al., 2014; Yu et al., 2016; Lin and Ho, 2016). Hotel managers that devote resources for simultaneously managing and enhancing exploration and exploitation (i.e. for developing the ambidexterity capability) can improve firm environmental results. Scholars have proposed that, though ambidexterity supposes a challenge for firms, it is necessary for their long-term success (Raisch et al., 2009; Simsek, 2009; Tushman and O'Reilly, 1996). This study expands this line by also showing its positive effect on environmental performance, thereby confirming the importance of developing this capability for firms, and specifically for hotel establishments.

Furthermore, ambidexterity is not only relevant for its positive effect on environmental performance. For hotels participating in alliances, it exerts a mediating effect, that is, it is beneficial for transforming the benefits of alliances into better results in terms of environmental performance.

In the complex and dynamic competitive arena, where it is difficult for a firm to obtain all the knowledge necessary for managing environmental challenges, collaboration with other firms is often required (Grant and Baden-Fuller, 1994; Chesbrough et al., 2006; Cassiman and Veugelers, 2006). The results of this study reveal that a firm's ambidexterity capability is also fundamental for incorporating the benefits of alliances. In other words, alliances are beneficial for environmental management when a hotel has developed the ambidexterity capability (full mediation effect). It constitutes a filter for firms integrating the knowledge they have accessed to improve their environmental performance. This research contributes to the literature on ambidexterity by highlighting the importance for firms to develop this capability.

This study also contributes to a better understanding of the drivers of environmental performance by introducing the integrated effect of hotel participation in alliances and ambidexterity. Although recent studies have advanced the importance of ambidexterity in this outcome (e.g. Lin and Ho, 2016; Yu et al., 2016), we contribute by testing how ambidextrous hotels attain higher degrees of environmental performance and transform their participation in alliances into positive effects.

These results have important implications for hotel managers. Their decision to enter into an alliance to access new knowledge to improve environmental performance should take into account that their collaboration may not render the expected rewards, unless they develop their own firm's ambidexterity capability. Furthermore, per se, ambidexterity is also beneficial for better environmental performance. Therefore, though difficult, investing in the development of ambidexterity will only have positive effects.

The limitations of this study also uncover avenues for future research. First, the study does not distinguish between types of alliance or examine in-depth the knowledge generated or accessed through the alliance. Focusing on the specific outcomes of particular alliances should provide further understanding on how hotels can specifically benefit from each partnership. Second, though absorptive capacity is not included, its analysis can aid understanding of how knowledge acquired in alliances is internalized by the hotel. Third, the data analyzed are cross-sectioned and collected through a survey. Reaching conclusions on causality is therefore difficult, and subjectivity is present. Longitudinal research including objective indicators, such as waste or pollution reduction, could provide further insights. Even so, the relationships proposed have been tested and contribute to the analysis of the fundamental role of organizational ambidexterity in explaining the degrees of environmental performance in firms.

CHAPTER 5: LEADERS' AMBIDEXTERITY TRAITS

5.1 INTRODUCTION

In a dynamic environment firms could only be successful if they are enough aligned with their current knowledge and capabilities while also explore new opportunities (Gibson and Birkinshaw, 2004; Jansen et al., 2006). Organizational ambidexterity has been analyzed as a capability that allows balancing and developing activities oriented to the exploitation of existing businesses and the exploration of new opportunities (Raisch & Birkinshaw, 2008). Ambidexterity is difficult to achieve because it requires the management of contradictory processes associated with exploration and exploitation (March, 1991). It requires leaders that promote and encourage organizational members to achieve ambidexterity. Managers are therefore proposed as one of the principal actors in catalyzing this tradeoffs in order to be enough successful in exploring new opportunities and knowledge at the same time that they exploit current knowledge and capabilities (Mom et al., 2006; O'Reilly and Tushman, 2011).

Given the importance of mangers as leaders in the organization, **in this study, it is intended to deepen into the antecedents that allow managers dealing with complex trade-offs.** To do this, in a first place the organizational ambidexterity concept will be explained to contextualize manager ambidexterity. Then, the manager ambidextrous literature will be reviewed, summarizing which are the key features that enable a leader to be ambidextrous.

5.2 LEADER'S AMBIDEXTERITY TRAITS

Whereas Duncan (1976) was the first to use the term organizational ambidexterity, it is March's (1991) seminal paper which acted as the catalyst for the current interest in exploration and exploitation in the management literature. Building upon earlier work by Duncan (1976), Tushman and O'Reilly (1996) were first to present a deepen analysis of organizational ambidexterity.

March's seminal paper (1991) started from a definition of exploitation and exploration in the framework of organizational learning as two different activities. Exploitation was understood as "refinement, choice, production, efficiency, selection, implementation and execution" in contrast to exploration, understood as "search, variation, risk taking, experimentation, game, flexibility, discovery and innovation" (p. 71).

From a strategic perspective, companies need competencies and capabilities to be able to guarantee their survival and long-term success. These capabilities are also required to compete in today's markets and allow companies to recombine and reconfigure assets and organizational structure for adapting to technology and emerging markets (O'Reilly & Tushman, 2008). In this sense,

Teece (2007) characterized dynamic capabilities such as skills, procedures, organizational structures, decision processes and disciplines that are distinctive and enable senior managers to identify threats and opportunities and reconfigure assets to address them.

O'Reilly & Tushman (2004), argue that the understanding and management of the tensions between paradoxical objectives (exploitation vs. exploration), as well as the success in the simultaneous achievement of high levels in the variables that cause such tensions, are essential for the competitiveness of companies and their survival.

Organizational Ambidexterity is a dynamic capability referred to the routines and processes by which an organization mobilizes, coordinates and integrates dispersed and contradictory forces, besides assigning, reallocating, combining and recombining resources and assets between differentiated organizational units (O'Reilly & Tushman, 2008).

The underlying idea of achieving the simultaneity of objectives is justified under the premise that actions aimed at radical change could generate chaos in the organization if companies do not think about the current moment. Likewise, an approach that is too focused on the present would provoke an organizational inertia (Huy, 2002). This is why ambidexterity is considered as a dynamic capability, which allows ambidextrous companies to adjust to the changes that take place in the environment (O'Reilly & Tushman, 2008 and 2011).

This capability enables to pursue two sets of completely different objectives simultaneously: exploitation vs. exploration, stability vs. adaptability, short-term benefit vs. growth over the long term (Benner & Tushman, 2003). While these sets of objectives are different and paradoxical, they are not alternative. Ambidexterity is the capability that allows these objectives to be reached, not only simultaneously but also to a high degree and in a balanced way (Simsek et al., 2009). These tensions may not be completely eliminated, but the most successful organizations manage to reconcile them to a great extent, which allows them to be competitive in the long term (Gibson and Birkinshaw, 2004).

The design of the educational process has significant consequences for people involved in innovative activities. On the one hand, education provides technical competence and mastery of currently available analytic tools to future entrepreneurs and others who will participate in activities related to innovation and growth. On the other hand, education can stimulate creativity and imagination and facilitate its use (Baumol, 2005).

Policy makers in Europe and the United States believe that more entrepreneurship or exploratory activities are required to reach higher levels of economic growth and innovation. Many business skills can be taught and are not fixed personal characteristics. In fact, it has been shown that

the effect of general education as measured in years of schooling on entrepreneur performance is positive (Van der Sluis et al., 2006; Van der Sluis and Van Praag, 2007) and business training is effective for the performance of people who applied for microfinance to start their own business (Valdivia and Karlan, 2006).

On the other side, is essential for senior executives to manage completely varied and inconsistent organizational alignments. Efficiency, discipline, incremental improvement and continuous innovation, in the exploitation demand with a short-term perspective, are the crucial success factors needed to succeed in exploitation. Exploration focus in a longer time perspective, more autonomy, flexibility, risk taking and experimentation (March, 1991).

The importance of investigating managers' ambidexterity stands out in studies that analyze the ability of a company to become ambidextrous in the manager decision-making processes (Rivkin and Siggelkow 2003), manager collective and creative actions (Sheremata, 2000) and the extent to which managers engage in routine and non-routine activities (Adler et al., 1999).

As key leaders in organizations, senior executives are considered to play an important role in promoting ambidexterity. Tushman and O'Reilly (1997) state that ambidexterity is facilitated by the top management team's internal processes. Some studies describe leadership processes as a supporting factor in the implementation of structural or contextual ambidexterity, for example Smith and Tushman (2005) explored the integrative mechanisms by which leadership teams can successfully handle the contradictions that arise from structural separation in ambidextrous organizations. In this way, Gibson and Birkinshaw (2004), noted the "important role played by senior executives in making an organization context effective and developing ambidexterity" (p. 223). In this sense, managers must act as a leaders in the achievement of ambidexterity.

Recently, researchers have begun to investigate the characteristics and processes that allow senior managers to simultaneously seek exploitation and exploration (Beckman, 2006; Peretti and Negro, 2006; Lubatkin et al., 2006).

In the next section, we are going to review the key features that allow a manager to be ambidextrous.

Organizations not only need ambidexterity at the business unit and company level, but also at the individual level (Mom et al., 2009). The ambidexterity at the manager's level is defined as "a manager's behavioral orientation toward combining exploration and exploitation related activities within a certain period of time" (Mom et al., 2009). The following characteristics have been proposed in literature as necessary for managers' achievement of ambidexterity.

Hosting contradictions (Mom et al., 2009; O'Reilly & Tushman, 2011). Ambidextrous managers have the motivation and also the ability to be sensitive, to understand, and to know how to manage the apparently conflicting range of opportunities, needs and objectives. Previous research points out the need for ambidextrous managers to deal with conflict (Duncan 1976, Floyd and Lane 2000) and to engage in paradoxical thinking allowing managers to work simultaneously and longitudinally through the tensions of exploration and exploitation (Gibson and Birkinshaw 2004, Smith and Tushman 2005, Fredberg, 2014).

The organizational ambidextrous context encourages managers to make their own decisions about how to divide their time between alignment- and adaptability-oriented activities (Gibson and Birkinshaw, 2004). This characteristic indicates that ambidextrous managers look for market and technological needs and opportunities at the same time that they have to be able to reinforce existing positions in the product market (Burgelman 2002, Tushman and O'Reilly 1996). Another contradiction that managers have to take into account, following Floyd and Lane (2000), is that each level of management has different roles in a strategy process, so ambidextrous managers should fulfill multiple roles.

Ambidextrous managers elaborate and reassess existing decisions, goals, and beliefs, and moreover are short-term and long-term orientation for identifying and pursuing opportunities (Ghemawat & Costa, 1993; Rivkin & Siggelkow, 2003; O'Reilly & Tushman, 2004). It asks managers to deliberately and consciously engage in experimentation and small-scale efforts with a long-term possible payout rather than the short-term maximization of profit (O'Reilly & Tushman 2007). Leaders must to resolve conflicts arising in the organization and take resource allocation decisions for reaching this ambidexterity (O'Reilly & Tushman, 2011). Performing multiple task (Floyd and Lane 2000, Birkinshaw and Gibson 2004, Mom et al., 2009)

Ambidextrous managers accomplish different roles and manage multiple diverse tasks within a limited period of time (Floyd and Lane 2000, Birkinshaw and Gibson 2004) for the competence deployment and the competence definition activities (Floyd and Lane 2000, Sanchez et al., 1996), carry out both creative and collective actions (Sheremata 2000), and perform routine and non-routine activities (Adler et al., 1999). Some authors also indicate that ambidextrous managers are more generalists rather than more specialists (Birkinshaw and Gibson 2004,) and usually act outside the limits of their own job (Adler et al., 1999). Refining and renewing their knowledge, skills, and expertise (Floyd and Lane 2000, Sheremata, 2000, Hansen et al., 2001, Mom et al., 2009).

The ability of being continuously searching for distant knowledge while also achieve more reliability and efficiency in the current and local knowledge in another characteristic of ambidextrous

managers (Mom et al., 2009). Gibson and Birkinshaw (2004) stated how managers with more authority and flexibility in decision-making could have higher motivation in achieving efficiency and flexibility, by recognizing new opportunities. Pursing different goals requires higher authority and self-control in the tasks development (Tushman and O'Reilly, 1996).

Top-down knowledge inflows are associated with knowledge coming from persons and units at higher hierarchical levels to the lower levels while bottom-up knowledge inflows are associated with knowledge coming from persons and units at lower hierarchical levels to the higher levels (Mom, Van Den Bosch, Volberda, 2007).

Top-down knowledge inflows of a manager positively relate to the extent to which this manager conducts exploitation activities, (Daft and Lengel, 1986; Galunic and Rodan, 1998). Moreover, bottom-up and horizontal knowledge inflows is positively related to the extent to which managers conduct exploration activities (Floyd and Lane, 2000).

The more a manager acquires both top-down and bottom-up knowledge flows, or both top-down and horizontal knowledge flows, there will be higher levels of both exploration and exploitation activities (Mom, Van Den Bosch, Volberda, 2007).

Promoting common vision and values (Ravasi and Schultz, 2006; Jansen 2006; O'Reilly and Tushman, 2007, 2011). O'Reilly and Tushman (2011) affirm that the articulation of a common vision and values that provide for a common identity increase the likelihood of ambidexterity.

This global vision and values allows employees from the legacy and new business to create a common identity. A vision helps employees to adopt the mentality in the long term being important for the exploration (Ravasi and Schultz, 2006).

The shared vision provides organizational members, including managers, with a meaningful purpose and direction, helping to keep a connected system and promote the integration of an entire organization (Orton and Weick, 1990). Without a shared vision, the reality of a firm would be characterized by very enthusiastic and committed individuals who pull the organization towards different directions.

It can override the adverse effects of divergent goals and conflicting perspectives among senior team members in charge of exploratory and exploitative units (Brewer and Miller, 1984; Mackie and Goethals, 1987), and prevent senior teams from devolving into fragmented structures. By contrast, a lack of shared vision and values can lead to distrust within senior team members and throughout the organization, making it hard to draw common characteristics and to identify, extract

and combine diverse skills, abilities, and perspectives within exploratory and exploitative units (O'Reilly and Tushman, 2011).

5.3 CONCLUSIONS

Leaders need a serial of competences and capabilities to be able to handle in an ambidextrous way the different exploration and exploitation activities. In ambidextrous terms, managers must be focused on both exploitation and exploration activities. These managerial capabilities help organizations to reconfigure existing assets and skills to detect and take advantage of new opportunities (O'Reilly & Tushman, 2011).

This study aimed to collect the characteristics analyzed in the literature necessaries for managers to be ambidextrous. Most authors consider that ambidextrous managers host contradictions (Smith and Tushman 2005; Tushman and O'Reilly 1996); they are multitasks (Birkinshaw and Gibson 2004, Floyd and Lane 2000); and they both refine and renew their knowledge, skills, and expertise (Floyd and Lane 2000, Hansen et al., 2001, Sheremata 2000). Global and shared vision and having incentive reward systems allows managers to achieve ambidexterity and to keep all member in the organization involved with the ambidextrous strategy. Furthermore, the importance of managers' of bottom-up knowledge inflows for managers' exploration activities, and top-down knowledge inflows for managers' exploitation activities (Mom, Van Den Bosh and Volberda, 2007) has been outlined.

Literature is broader because personal antecedents and leaders' characteristics are also studied, including the different types of leadership. A more extensive review may require finding common aspects between personal characteristics, leadership styles and ambidextrous leaders.

This study is a starting point in identifying the characteristics that ambidextrous leaders must have to achieve organizational ambidexterity that allows a long-term success for the organization.

CHAPTER 6: Manager Ambidexterity: Antecedents and Consequences.

6.1 INTRODUCTION

To understand how firms survive we need to go deeper and analyze how these firms are able to develop two simultaneous crucial tasks: exploit all their resources in a most productive way and explore new markets and technologies, with the purpose of maintaining a sustainable competitive advantage (Holmqvist, 2004; Teece, 2006; Raisch & Birkinshaw, 2008). This capability is named organizational ambidexterity, which introduce the idea of the achievement of both exploration and exploitation activities (March, 1991).

We can define organizational ambidexterity as the ability of an organization to manage the paradoxes and tensions allowing knowledge to be exploited and explored simultaneously, obtaining high levels in both activities (Simsek, 2009). These paradoxes and contradictions are hosted by ambidextrous managers (Tushman and O'Reilly, 1996; Smith and Tushman, 2005). According to O'Reilly and Tushman (2004), ambidextrous managers need to develop the capability to prevent, understand and to pursue conflicting needs, opportunities and goals (O'Reilly & Tushman, 2004). Also, previous researches analyze how ambidextrous managers need to deal with conflict and to engage in paradoxal thinking (Smith and Tushman, 2005). Ambidextrous managers search for new technological opportunities and new markets while also be preventive to reinforce existing product-market positions (Tushman and O'Reilly, 1996), they have both a short-term and a long-term orientation towards identifying and pursuing opportunities (O'Reilly and Tushman, 2004). Following this line, we define ambidexterity at the managerial level as the orientation of a manager's behavior towards the combination of exploration and exploitation-related activities in a given period of time (Tushman and O'Reilly, 1996; O'Reilly and Tushman, 2004).

Many studies have emphasized the advantages of balancing high levels of exploratory and exploitative innovation (Gibson and Birkinshaw, 2004; He and Wong, 2004), but few have examined the factors that foster ambidexterity. The lack of research on these factors is poorly understood because simultaneous performance of both activities appears to be complex and difficult to achieve (Benner and Tushman, 2003; Sheremata, 2000). As we have explained above, exploration and exploitation often require entirely different and inconsistent architectures and competencies that can create paradoxical challenges. Exploration is focused on search, variation, and experimentation that result from decentralization, flexible cultures, and less formalized processes. Exploitation, conversely, encompasses refinement, efficiency and improvement that succeed by reducing variance and increasing control and formalization (Benner and Tushman, 2003; March, 1991). Some studies are beginning to address some factors that enable ambidexterity, such as appropriate structure (Gilbert,

2005; Tushman and O'Reilly, 1996) and context (Gibson and Birkinshaw, 2004) but there are not many empirical studies on the role of top executives in ambidextrous organizations.

Also in the organizational ambidexterity literature, the majority of researches and papers are focused on ambidexterity at the business unit or at the firm level, conceptual and empirically validated understanding about ambidexterity at the individual level is lower (Raisch and Birkinshaw 2008). In the recent years, we can find in the literature several studies arguing that exploration and exploitation are not mutually exclusive at the firm-level (Benner and Tushman, 2002; He and Wong, 2004) or business unit-level (Gibson and Birkinshaw, 2004) and for these reason, some scholars like Gupta et al. (2006) and Raisch and Birkinshaw (2008) aim to continue investigate ambidexterity at the individual level. However, some authors have remarked that top executives are crucial to firm performance (Hambrick and Mason, 1984) and play an important and decisive role in establishing a supportive context and reconciling implicit tension (Gibson and Birkinshaw, 2004; Smith and Tushman, 2005). Although it should be noted that beyond a conceptual framework, there have been few studies that examine how senior executives contribute to achieving ambidexterity (Smith and Tushman, 2005).

The emergence of ambidexterity as a dynamic capability is critical when considering the complex and dynamic environment in which employees operate, the implications for generating competitive advantage around ambidexterity at the managerial level are highlighted. Specifically, to cultivate competitive advantage, top management teams requires legitimization processes at multiple levels of the organization and they must identify and manage different structural mechanisms to address the competitive demands facing the organization and top management (Tushman and O'Reilly, 1996; Adler, Goldoftas, and Levine, 1999).

Following traditional perspectives, ambidexterity can be managed by structurally differentiating exploitation and exploration in separate units and integrating them later, named structural ambidexterity- (March, 1991). One of the basic assumptions of structural ambidexterity is that exploitation and exploration are differentiated in separated units and that these units have to be integrated by the top management team (TMT) (O'Reilly & Tushman, 2013). Furthermore, integrating this differentiated units is a leadership task, managed by senior leaders (O'Reilly & Tushman, 2013; Uhl-Bien & Arena, 2018). Leaders can achieve it by creating and communicating a common vision, goals, and values and with contingency rewards systems (O'Reilly & Tushman, 2008).

We also took into account the importance for ambidextrous managers to acquire and process different kinds of knowledge (Floyd and Lane, 2000); There are examples in the literature that explain that ambidextrous managers engage in learning activities that increase reliability and variety (McGrath, 2001), process and acquire both explicit and tacit knowledge (Lubatkin et al., 2006), and engage in local and remote search for knowledge and information within their network (Hansen et al., 2001). Furthermore, some authors explain that when strategic intent is accompanied by knowledge flows, managers can think and act ambidextrously to simultaneously achieve the firm's exploration and exploitation goals (He & Wong, 2004; Gibson & Birkinshaw, 2004), with better strategic control and coordination (Bodwell & Chermack, 2010; O'reilly Lll & Tushman, 2011). This is achieved because knowledge flows can strengthen and improve communication, coordination and decision-making, both outside and within organizations (Lawson, Petersen, Cousins, & Handfield, 2009; Fan & Ku, 2010). In addition, Knowledge flows fall under the key assumption of the strategic management literature: the availability of knowledge about the external and internal environment is fundamental to the strategic process and decision making (Porter, 2003; Barney and Clark, 2007), and furthermore, effective knowledge transfer significantly improves firm performance (Palacios-Marqués et al., 2013).

According to Gary and Wood (2011), every manager has knowledge structures affecting to the information processing, perception, judgment, problem solving, and learning, influencing at the same time to the organizational learning capacity and firm performance. In this line, the knowledge transfer in the form of flows has been highlighted in the literature because of its importance for the absorptive capacity and organizational learning (Gupta and Govindarajan, 2000; Schulz, 2001). Mom et al. (2007), explore how three types of knowledge flows affect the exploration and exploitation activities of their managers across the organizational hierarchy: top-down, bottom-up and horizontal knowledge flows. Moreover, these authors define knowledge flows as “the aggregate volume […] of tacit and explicit knowledge pertaining to several domains such as technology, products, processes, strategies, and markets, which a manager receives or gathers per unit of time, from other persons and units within the organization.” (Mom et al., 2007, p. 913). We also include knowledge inflows as an antecedent of manager ambidexterity.

The **aim** of this research, is to review the organizational ambidexterity literature focused on managers and which analyze specific relevant ambidextrous antecedents proposed in the literature that promote manager ambidexterity and indirectly high performance, helping us to a better understand of how this ambidexterity is achieved and the importance of managers throughout the process and how it affects to organizational performance. With the FsQCA methodology we can study

what combination of antecedents is the most optimal to achieve this manager ambidexterity and in consequence, high performance. In summary, the purpose of this work is to go deeper into the selected antecedents that help managers to be ambidextrous and how this, affects to the company performance. Due to the limitations of the software used for this study (FsQCA), we propose 3 theoretical models. The first model is focused in the manager ambidexterity as the outcome (dependent variable), the second analyzes how the selected antecedents affected to the firm's performance, and finally as the research progressed, we found it necessary to consider a third model, where we analyze the knowledge variable separately, because it is composed of 3 sub variables, making each sub variable affect exploration and exploitation in a different way. In addition, due to the results obtained, we repeated the analyses of models one and two, excluding the knowledge inflows variable.

We selected specific relevant antecedents proposed in the organizational ambidexterity literature: shared vision, contingency rewards, social integration, knowledge inflows and manager's ambidexterity (Hambrick, 1994; O'Reilly and Tushman, 2004; Siegel and Hambrick, 2005; Smith and Tushman, 2005). To develop a more granular sense for the managerial challenges presented by ambidexterity, we realized a selection of big companies where we interviewed a senior manager of each one using a survey. In the survey, we added questions about the company and their performance to see if the proposed variables have a direct effect with manager ambidexterity and company performance.

The survey was conducted to 12 senior managers of different big companies. The companies will be anonymous so we numbered them and we just specify the sector and the number of employees. All companies in the sample are successful and important in their industry. The companies are part of three different sectors: Paper production, industrial machinery supplies and chemical products supply. They are medium or big companies (between 200 - 350.000 employees).

The remainder of the research is structured as follows:

First, an introduction where we briefly explain the organizational ambidexterity concept, the purpose of our research, clarifying the objectives of the study, the methodology we employ and the types of analyses. In order to understand better the development of our research, we included a research objectives section and a theoretical framework about organizational ambidexterity, deepening in the concept of ambidextrous managers because is the object of our research. Once the

theoretical review is explained, we develop the Methodology section, for explaining the scales and variables used, the entire survey creation process, the sample of companies and the different analysis (with fsqca methodology), followed by the Results Section. Finally, implications of the study are derived, and limitations and future research lines outlined in the Conclusion Section.

6.2 RESEARCH OBJECTIVES:

Current literature focuses more on ambidexterity at the business unit and firm level of analysis, conceptual and empirically validated understanding about ambidexterity at the individual level of analysis is lower (Raisch and Birkinshaw, 2008). Hence, scholars like Gupta et al. (2006, p. 703) and Raisch and Birkinshaw (2008, p. 397) suggest investigating ambidexterity at the individual level of analysis for continue contributing to literature. **This research contributes to the literature by analyzing manager's ambidexterity antecedents and how this manager ambidexterity affects to firm performance.**

There are several studies confirming that an overarching set of values, team integration processes, and common fate incentive systems enable senior managers to manage inconsistent alignments (Siegel and Hambrick, 2005; Tushman and O'Reilly, 1996). Together, these studies suggest that the effectiveness of senior managers in ambidextrous organizations is associated with a set of senior manager attributes: shared vision, social integration, and a contingency rewards system (Hambrick, 1994; O'Reilly and Tushman, 2004; Siegel and Hambrick, 2005; Smith and Tushman, 2005). In addition, according to manager ambidexterity literature, Shared vision, contingency rewards, team integration and knowledge inflows can also be considered as antecedents of manager ambidexterity (Smith & Tushman, 2005; Mom, T. J. M., Van Den Bosch, F. A. J., & Volberda, H. W., 2007; O'Reilly & Tushman, 2011); and manager ambidexterity is considered as an antecedent of high levels of organizational performance (O'Reilly & Tushman, 2011; Smith and Tushman, 2005).

To better understand how senior managers influence in organizational ambidexterity, we want to study how senior managers attributes (shared vision, social integration, and contingency rewards system) facilitate managers to reconcile conflicting demands and combine exploratory and exploitative activities. Finally, as not only knowledge flows is important at the firms level, but also at the individual manager level, several authors emphasizes the importance of the influence of a manager's knowledge inflows on this manager's exploration and exploitation activities (Gupta & Govindarajan, 1991; Hedlund, 1994; Grant, 1996; Kogut & Zander, 1996; Mom, T. J. M., Van Den Bosch,

F. A. J., & Volberda, H. W., 2007), we also include knowledge inflows as an antecedent of the senior manager ambidexterity.

In this research, we want to study deeper the selected antecedents and analyze which set of variables is the most optimal to achieve higher manager ambidexterity and how this manager ambidexterity affects to organizational performance. As we want to analyze a set of variables and how this set affects to manager ambidexterity and firm performance, the traditional statistic methods used in the majority of ambidexterity studies do not apply in this research, so we had to **test our conceptual models through the newly-applied method of Fsqca** (Cronqvist, 2005; Ragin, 2008),

In line with configuration theory and based on FsQCA logic, **we propose if the selected antecedents, combined in a set of conditions, would improve manager ambidexterity and performance.**

6.3 ORGANIZATIONAL AND MANAGER AMBIDEXTERITY

The study of ambidexterity is framed within the Theory of Resources and Capabilities and is analyzed from the perspective of strategic management and organizational design, innovation and learning (Jansen, 2011).

The Theory of Resources and Capabilities is based on the heterogeneity of companies, derived from the differences in the set of basic and idiosyncratic competencies they possess. In this way, the development of the company's activities requires internal, tangible and intangible assets. At the same time, the development of activities creates in the company other assets in the form of skills, organizational routines or internal. This development of activities can also generate external knowledge to the company (Brunet & Belzunegui, 2005).

This initial requirement of assets and their subsequent development in skills, routines and knowledge constitute the basis for the configuration of sustainable competitive advantages and justifies the differences between the companies working in the same sector (Grant, 1996).

Organizational capabilities constitute, therefore, combinations of resources that determine the competitive advantage of organizations. To achieve the connection between resources and

capabilities, the role of management is essential to properly manage the coordination and cooperation of resources, especially human resources (Barney, 1991).

The Resources and Capabilities theory is based on the idea of generating competitive advantage through a set of unique, valuable resources that are difficult to imitate or replace (Barney, 1991). The proper combination and integration of these resources gives rise to a set of distinctive organizational capabilities (Teece, 2007).

The effectiveness of this theory in environments with a high degree of uncertainty leads to extending this theory towards the Dynamic Capabilities Approach (Teece, Pisano & Shuen, 1997), defining dynamic capacity as the company's ability to generate new forms of competitive advantage from the reconfiguration of organizational skills or resources. Teece (2006) characterizes dynamic capabilities as the separate skills, processes, procedures, organizational structures, decision rules and disciplines that allow the senior leaders or managers of a firm to identify threats and opportunities and to reconfigure assets to get this competitive advantage.

The organizational ambidexterity approach has been analyzed within the framework of the Dynamic Capabilities Approach by many authors (He & Wong, 2004; O'Reilly & Tushman, 2008; Jansen, Tempelaar, van den Bosch & Volberda, 2009; Kriz, Voola & Yuksel, 2014).

The origin of organizational ambidexterity began with the work of Duncan (1976), in the field of organizational design. Although it was the work of March (1991) that laid the foundations for the current conceptualization of ambidexterity, which was modeled as a construct for the first time by Tushman and O'Reilly (1996).

March interpreted exploitation and exploration as two basically different learning activities between which organizations should divide their attention. Exploitation refers to “refinement, efficiency, selection, and implementation,” whereas exploration is interpreted as “search, variation, experimentation, and discovery” (March, 1991, p. 102.).

We can affirm the ability of a business to be ambidextrous is based on dynamic capabilities, in organizational terms. — They need to explore and exploit to compete concurrently in both new and mature markets. In this context, a dynamic capability can be seen as a set of actions (or routines) taken

by senior management allowing the company to identify opportunities and threats and reconfigure people, organizational architectures, and resources (O'Reilly and Tushman, 2007).

Duncan (1976) considered that organizations manage the conflicting demands between exploitation and exploration through "dual structures", in such a way that certain business units focused on alignment (exploitation) and others in adaptation (exploration).

Gibson and Birkinshaw (2004), called this solution "structural ambidexterity", they advanced the idea, already proposed by other authors (Gresov & Drazin, 1997; Morgeson & Hoffman, 1999; Lewis, 2000), of the importance of balancing similar contradictory tensions and changing the view of compensation (this/the other) to a view of paradoxical thinking (both/and).

Thus, Gibson and Birkinshaw develop the concept of "contextual ambidexterity" to refer to "the ability to demonstrate alignment and adaptability within a complete business unit" (2004:11); understanding by alignment, the coherence between all the activity models in the business unit, working together to achieve the same objectives and adaptability, the ability to quickly reconfigure activities in the business unit to react to the environment changing demands. In this line, contextual ambidexterity is understood as the set of processes and systems that allow individuals to establish their own criteria on how to divide their time between conflicting demands for alignment and adaptability.

Some authors support that senior executives play an essential role in generating ambidexterity, either through the internal processes of the senior management team (Tushman & O'Reilly, 1996), through the role they play in achieving a context effective in developing ambidexterity (Gibson & Birkinshaw, 2004) or through integration mechanisms through which management teams can manage the contradictions that emerge when organizations adopt a structural separation (Smith & Tushman, 2005). Many studies underline that a company's top management has an enormous influence on corporate strategy and thus on the degree of ambidexterity (Smith & Tushman, 2005; Lubatkin et al., 2006; Eggers & Kaplan, 2013; Smith, 2014; Bromiley & Rau, 2016).

Scholars have increasingly remarked that ambidexterity needs also to root in the ambidextrous behaviors of their managers. Reliable with Teece's tripartite taxonomy of sensing, seizing, and reconfiguring (Teece, 2006), ambidexterity needs a coherent arrangement of competencies, structures and cultures to involve in exploration, a contrasting corresponding

alignment focused on exploitation, and a senior management team with the cognitive and behavioral flexibility to establish and encourage both (O'Reilly and Tushman, 2008). Managers have to engage in paradoxical thinking, a repertoire of diverse roles and activities, and different types of learning between others (O'Reilly & Tushman, 2004; Smith & Tushman, 2005; Mom, Van Den Bosch, & Volberda, 2009; Raisch, Birkinshaw, Probst, & Tushman, 2009).

According to O'Reilly and Tushman, a company's ability to be ambidextrous is at the core of dynamic capabilities. To achieve this ambidexterity, senior managers have to develop two critical tasks. First, they must be able to accurately detect changes in their competitive environment (including changes in technology, competition, customers, and regulation). Second, they must be able to act on these opportunities and threats; taking advantage of them reconfiguring tangible and intangible assets to face new challenges. As a dynamic capability, ambidexterity is composed of a complex set of routines that include decentralization, differentiation, targeted integration, and the ability of senior leadership to orchestrate the complex trade-offs that the simultaneous pursuit of exploration and exploitation requires. Senior managers have to develop these dynamic capabilities. Charles A. O'Reilly & Michael L. Tushman (2011) propose in their study, five propositions that are necessary for managers to achieve ambidexterity in a successful way:

1. A compelling strategic intent that intellectually justifies the importance of both exploration and exploitation.
2. An articulation of a common vision and values that provide for a common identity across the exploitative and exploratory units.
3. A senior team that explicitly owns the unit's strategy of exploration and exploitation; there is a common-fate reward system; and the strategy is communicated relentlessly.
4. Separate but aligned organizational architectures (business models, structure, incentives, metrics, and cultures) for the exploratory and exploitative units and targeted integration at both senior and tactical levels to properly leverage organizational assets.
5. The ability of the senior leadership to tolerate and resolve the tensions arising from separate alignments.

According to Smith and Tushman (2005), sustained organizational performance depends on the top management team exploring and exploiting them effectively. However, these strategic agendas are associated with contradictory architectures. Senior managers and/or their teams have to articulate a paradoxical framework, differentiating between existing product strategy and architecture

and those of innovation, and integrating between these strategies and architectures. On the other hand, the locus of paradox in top management teams resides in the senior leader or in the whole team.

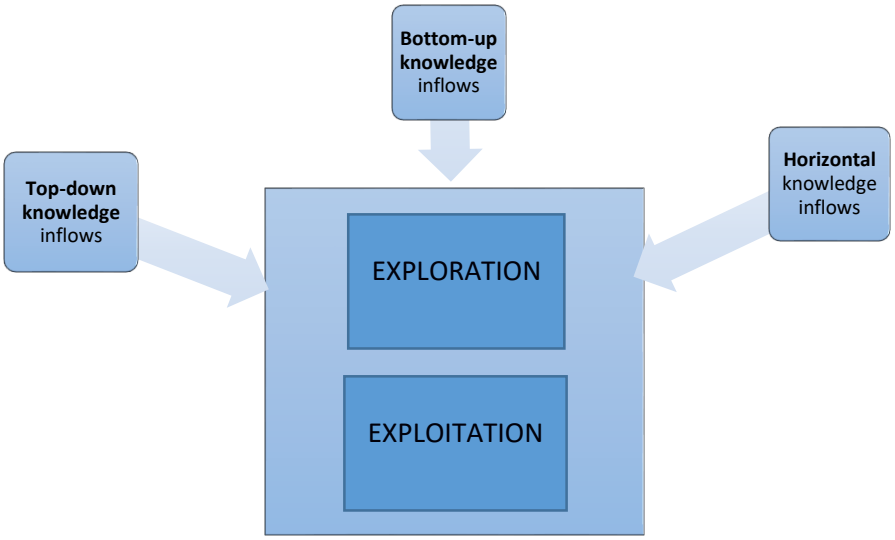
In addition, some research has shown that a set of overarching values, team integration processes and common target incentive systems enable managers to manage inconsistent alignments (Tushman and O'Reilly, 1996; Siegel and Hambrick, 2005). Taken together, these studies suggest that top team effectiveness in ambidextrous organizations is associated with a set of managerial attributes: shared vision, social integration, and contingency reward systems (Hambrick, 1994; O'Reilly and Tushman, 2004; Siegel and Hambrick, 2005). In addition, the literature has focused on the role of leadership in realizing superior team effectiveness under uncertain and ambiguous conditions (Eisenhardt et al., 1997; Edmondson et al., 2003). Strategic leaders can be more or less directive in resolving conflict and reconciling the paradox of combining exploratory and exploitative innovation. For example, CEOs can assign different senior team members to exploration and exploitation activities, recognize conflicts between agendas, and facilitate discussion and debate on potential synergies (Smith and Tushman, 2005). ***To better understand how senior managers affect organizational ambidexterity, we explore how attributes of senior managers (shared vision, social integration and team contingency rewards) and manager ambidexterity enable organizations to reconcile conflicting demands and combine exploratory and exploitative activities.***

Finally, knowledge inflows has been also included in this study. Studies belonging to the knowledge literature indicate the importance of examining horizontal knowledge inflows as well for understanding managers' exploration and exploitation activities (i.e. Gupta & Govindarajan, 1991; Hedlund, 1994; Grant, 1996; Kogut & Zander, 1996). We will distinguish top-down and bottom-up knowledge inflows of managers, and horizontal knowledge inflows as well. Horizontal knowledge inflows are associated with knowledge coming from mates in the same organization unit, or coming from other units or departments at the same hierarchical level. Furthermore, some authors argue that when strategic intent is accompanied by knowledge flows, managers can think and act ambidextrously to achieve the firm's exploration and exploitation goals simultaneously (Gibson and Birkinshaw, 2004; He and Wong, 2004), with better strategic and coordination control (O'reilly Lll and Tushman, 2011).

In this study we followed Mom et al. (2006), to analyze the relationship between knowledge inflows and exploration and exploitation, see figure 1:

- **Top-down knowledge** inflows of a manager is positively related to the extent to which this manager engages in **exploitation** activities.
- **Bottom-up knowledge** inflows of a manager is positively related to the extent to which this manager engages in **exploration** activities.
- **Horizontal** knowledge inflows of a manager is positively related to the extent to which this manager engages in **exploration** activities.

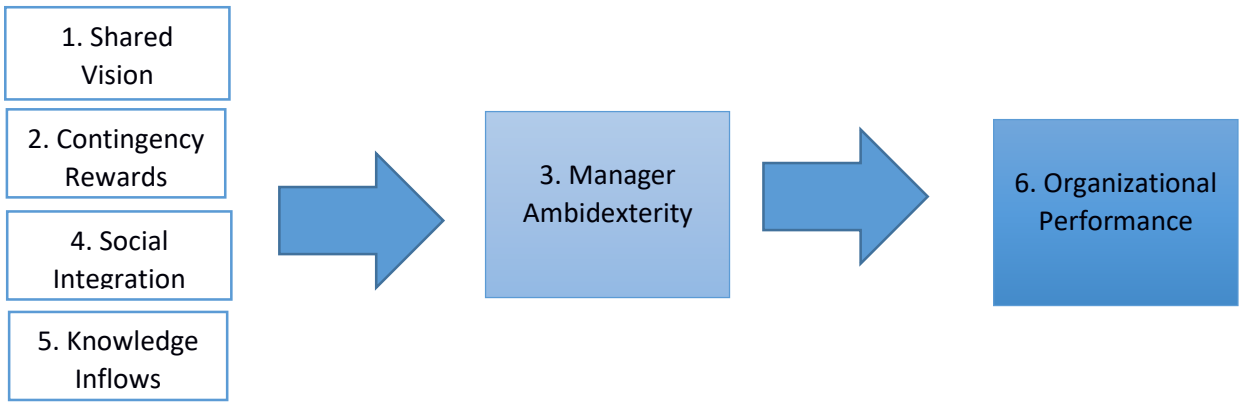
Figure 1. Basic Framework



Companies that conduct both exploration and exploitation activities through ambidexterity are more likely to achieve superior business performance compared to companies that are focused on only one of the two dimensions (Tushman and O'Reilly, 1996; Raisch and Birkinshaw, 2008). Moreover, to achieve both short- and long-term success, managers must strike an optimal balance between exploitative and explorative activities-in short, be ambidextrous. Organizational ambidexterity is an important antecedent of sustained competitive advantage for firms (Raisch et al., 2009; Junni, Sarala, Taras, & Tarba, 2013). An ambidextrous manager is more likely to perform better in the firm than other managers who only focus on exploitative or explorative activities (Soto-Acosta et al., 2018). Ultimately, managers need to recognize market opportunities and engage from internal operations to achieve excellent business performance (Wincent, 2016).

In addition, Smith and Tushman (2005) and Mom et. al, (2006) and Jansen et. al, (2009), explore some of the integrative mechanisms we selected in this study (see figure 2) by which managers might successfully manage the contradictions that arise from structural separation in ambidextrous organizations.

Figure 2. Basic Framework



6.4 METHODOLOGY.

6.4.1 CONFIGURATIONAL NATURE OF ORGANIZATIONAL PERFORMANCE, MANAGER AMBIDEXTERITY AND KNOWLEDGE INFLOWS.

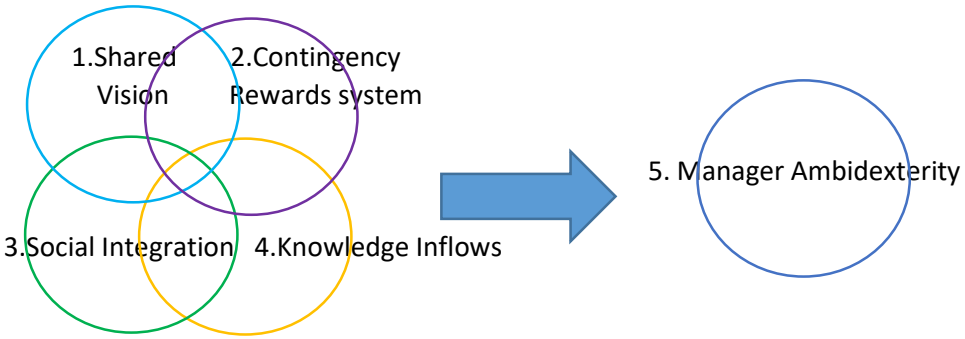
The literature considers managers' shared vision, contingency reward systems, social integration and knowledge affluence as antecedents of manager ambidexterity. On the other hand, manager ambidexterity is considered as an antecedent of higher performance (O'reilly & Tushman, 2008, 2011; Smith & Tushman, 2005). However, as we want to analyze which combination of variables is more optimal to achieve higher levels of manager ambidexterity and organizational performance, we had to be based on the logic of fsQCA (Ragin 2008), and we propose three models. Model 1 proposes shared vision, contingency rewards system, social integration and knowledge inflows combined into a set conditions for achieve high levels of manager ambidexterity. On the other side, model 2 proposes manager ambidexterity, shared vision, contingency rewards system, social integration and knowledge inflows combine into a set of conditions for achieve high performance. In the last model, model 3 proposes bottom-up, top-down and horizontal knowledge inflows into a set of conditions for achieve higher levels of exploration and exploitation.

6.4.1.1 Model 1. Manager ambidexterity Antecedents:

First, we want to analyze which combination of antecedents (shared vision, contingency rewards system, social integration and knowledge inflows) is most conducive to facilitate or promote high levels of manager ambidexterity. In terms of dynamic capabilities, to achieve ambidexterity, companies need their managers to perform ambidextrous tasks (O'reilly and Tushman, 2008). This implies that managers face trade-offs between simultaneous exploitation and exploration (O'reilly &

Tushman, 2011), as well as being able to perform complex task differentiation and integration routines.

Model 1. Manager ambidexterity Antecedents.

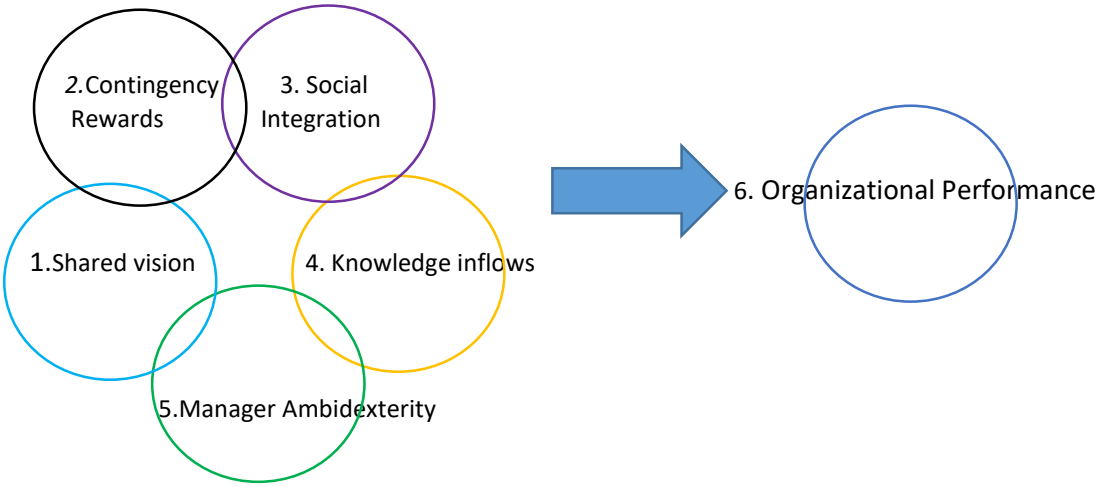


6.4.1.2 Model 2. Ambidexterity and Performance:

As we have explained before, there are several studies in the literature that demonstrate theoretically and empirically how the selected antecedents (shared vision, contingency rewards system, social integration and knowledge inflows) affect manager ambidexterity and how this ambidexterity has different influences in performance (O'reilly & Tushman, 2008; Smith and Tushman, 2005). With this analysis, we intend to analyze which set of the selected antecedents is the most optimal to achieve high performance.

To be in line with configuration theory and based on the logic of fsQCA (Ragin 2008), we propose that manager ambidexterity and the other antecedents are combine into a set of conditions for high performance (see Model 2). The circles in the Venn diagram illustrate the conditions that, in isolation or combined (overlapping), can lead to organizational performance (see model 2).

Model 2. Ambidexterity and Performance.

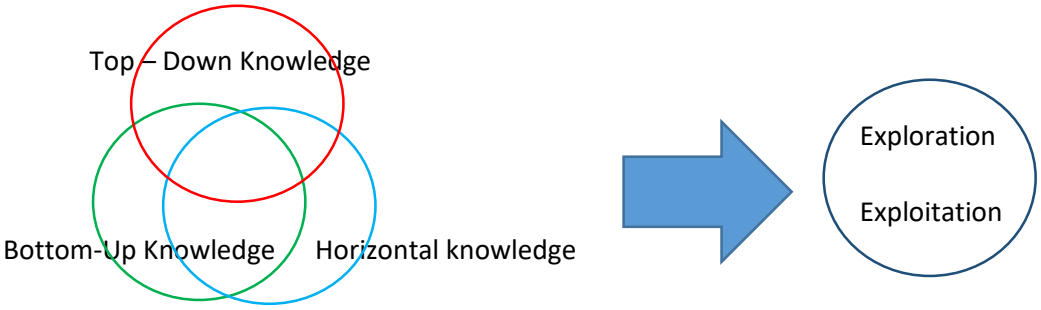


6.4.1.3 Model 3. Knowledge Inflows and Ambidexterity:

Following Mom et al. (2006), we divide the knowledge inflows variable, in order to analyze separately how the three types of knowledge inflows (Top-Down, Bottom-Up and Horizontal knowledge) affect to manager's exploration and exploitation results separately.

To be in line with configuration theory and based on the logic of fsQCA (Ragin, 2008), we propose that the 3 types of knowledge inflows combine into a set of conditions for high manager's exploration and exploitation results (Mom et al., 2006). The circles in the Venn diagram illustrate the conditions that, in isolation or combined (overlapping), can lead to organizational performance (see figure 4).

Figure 4. Model 3. Knowledge Inflows and Ambidexterity.



6.4.2 MEASURES:

6.4.2.1 Shared vision:

Shared vision can be defined as the set of organizational values and norms that promote the overall active participation of organizational members in the development, communication, dissemination, and implementation of organizational goals (Sinkula et al., 1997; Wang and Rafiq, 2014). This concept encourages a bottom-up process of shared vision development within a business unit, rather than the traditional top-down approach, and will therefore create a suitable context for organizational ambidexterity. Shared vision provides organizational members with a sense of a common project and a reason to achieve it, increasing their willingness to subordinate their individual goals and actions for collective goals and actions (Leana and Van Buren, 1999). The congruence of individual values with organizational values creates a "bonding effect" based on trusting relationships among organizational members, which helps to reduce conflicts and provide a harmony of interests. In this way, organizational members tend to trust each other and are likely to voluntarily contribute diverse ideas and explore new knowledge and solutions without fear of repercussions, as they expect everyone to work toward the same collective goals. Consequently, Shared Vision fosters collective

behavior, which translates into greater team efficiency in translating the ideas that emerge into concrete actions focused on exploitation (McGrath et al., 1994).

We named this variable Shared Vision (SV). The scale used to measure strategic intent was based on Jansen, George, Van den Bosch, and Volberda, (2008). We called this variable: shared vision. The items they suggest are based on Tsai and Ghoshal, (1998) and Sinkula et al., (1997). All items were measured on a seven-point Likert scale, anchored by 1 = strongly disagree and 7 = strongly agree.

Items:

1. There is commonality of purpose in my senior team
2. There is total agreement on our organizational vision
3. All senior team members are committed to the goals of this organization
4. People are enthusiastic about the collective goals and mission of the whole organization
5. Our senior team lacks a clearly defined collective vision ® (reverted item)

6.4.2.2 Contingency Rewards System:

Reward management is associated with motivation and work engagement, valuing people based on their contribution. According to Amstrong (2009), an effective reward system involves meeting and exceeding employee expectations by rewarding everyone in the organization according to their level of effort. This reinforcement measure motivates employees to complete their tasks effectively and meet their goals in a professional and timely manner (Whetten & Cameron, 2002).

According to Smith and Tushman (2005), team contingent rewards encourage senior team members to go beyond the direct interests of their unit and to establish methods for allocating resources to both exploratory and exploitation activities. They also establish norms that motivate senior team members to transcend their thinking and participate in clarifying problems and proposing solutions to complex issues (Wageman, 1995). Pfeffer (1995), describes how team contingency rewards reduce interpersonal competition and facilitate the negotiation and mutual adjustment necessary for the coexistence of exploratory and exploitative units. These contingent reward systems create outcome interdependence within top management teams (Wageman, 1995; Slavin, 1996) and encourage their members to direct their behavior and attention toward interdependent rather than individual activities (Siegel and Hambrick, 2005). In this sense, ambidextrous organizations engender commitment to complex organizational goals (Harris and Bromiley, 2007) and promote collaboration among senior team members responsible for differentiated exploitation and exploration units. In

addition, team contingency rewards promote senior team members to integrate and mobilize the operational capabilities of differentiated units by identifying ways to foster new combinations (Smith and Tushman, 2005).

We named this variable Contingency Rewards (CR). For measuring this variable, we are based on the Collins and Clark scale (2003) used also by Jansen, George, Van den Bosch, and Volberda (2008). All items were measured on a seven-point scale, anchored by 1 = strongly disagree and 7 = strongly agree.

Items:

1. Managers' variable pay is based on how well the organization as a whole is performing
2. This organization uses multiple incentives (e.g. signing bonuses) to attract top candidates for the managers
3. The majority of manager members' pay is based on variable compensation (bonuses, profit sharing)
4. Incentive-based pay for the manager is based on how well the organization is performing as a whole

6.4.2.3 Social Integration:

Following Lubatkin et al. (2006), social integration is essential to achieve an ambidextrous orientation and that the joint pursuit of an orientation toward exploration and exploitation affects performance. Leaders need openness and closure behaviors to foster exploration and exploitation among their collaborators and to facilitate innovation at the team level (Zacher et al., 2015). On the other hand, fragmented teams or those where individual behavior predominates, will not take advantage of their full potential, they will be unable to compensate for the rationality of their members separately, by integrating their decision-making processes or by sharing information and collaboration, limiting ambidexterity (Iborra and Dasí, 2012).

We named this variable Social Integration (SI). We measured this variable based the Jansen, J. J., George, G., Van den Bosch, F. A., & Volberda, H. W. (2008) scale. This scale is also based on O'Reilly et al., (1989) scale. All items were measured on a 7-point scale with 1 = 'to a very small extent', or 'strongly disagree', to 7 = 'to a very large extent', or 'strongly agree'.

Items:

1. Each individual knows how their efforts contribute to the mission
2. The goals and objectives are translated into work performance standards and expectations for each employee
3. The managers are quick to defend each other from criticism by outsiders *
4. Everyone's input is incorporated into important company decisions
5. The managers get along together very well
6. The managers are always ready to cooperate and help each other
7. When final decisions are reached, it is common, for at least one member, to be unhappy with the decision
8. There is a great deal of competition between members of the management team

6.4.2.4 Knowledge Inflows:

From the knowledge perspective (Kogut and Zander, 1992; Grant, 1996; Gupta and Govindarajan, 2000; Schulz, 2001), this study analyzes how a manager's acquisition of knowledge from other people and/or units in the same organization influences knowledge exploration and exploitation activities. Based on studies on knowledge flows within the organization (Gupta and Govindarajan, 2000; Schulz, 2003), and following Mom et al. (2006), we conceptualized and operationalized knowledge acquisition by a manager in terms of managerial knowledge inputs.

We named this variable Knowledge Inflows (KI). We used the scale based on Mom, T. J., Van Den Bosch, F. A., & Volberda, H. W. (2007) for measuring this variable. All items were measured on a 7-point scale with 1 = 'to a very small extent', or 'strongly disagree', to 7 = 'to a very large extent', or 'strongly agree'.

Items:

Horizontal Knowledge Inflows:

1. Last year, I receive or gather the most important knowledge from: A colleague within my own organizational unit *
2. Last year, I receive or gather the most important knowledge from: A colleague in other organizational units within my own division *
3. Last year, I receive or gather the most important knowledge from: A colleague in other division.

Top-Down Knowledge Inflows:

4. Last year, I receive or gather the most important knowledge from: My direct supervisor.
5. Last year, I receive or gather the most important knowledge from: One more hierarchical level up than my direct supervisor.
6. Last year, I receive or gather the most important knowledge from: Two more hierarchical levels up than my direct supervisor.

Bottom-Up Knowledge Inflows:

7. Last year, I receive or gather the most important knowledge from: My direct assistants.
8. Last year, I receive or gather the most important knowledge from: One more hierarchical level down than my direct assistants.

6.4.2.5 Manager's ambidexterity:

This research departs from March (1991) by conceptualizing exploration and exploitation at the manager level. March (1991, p. 71) considers that exploration is related to 'things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation', and exploitation includes 'such things as refinement, choice, production, efficiency, selection, implementation, execution' in organizational learning.

Leadership is one of the factors that can help explain the capability for ambidexterity of an organization or a specific group. The concept of ambidextrous manager has even been used to refer to the ability of the leader or manager of an organization to foster simultaneous, flexible, balanced and successful exploration and exploitation behaviors in the other members of the group, by increasing or reducing the variance in their behaviors (Rosing et al., 2011; Probst et al., 2011). In this case, leadership takes a preponderant role, since sufficient participation in knowledge exploitation ensures the current viability of the organization and, at the same time, devoting sufficient energy to exploration helps to ensure the future viability of the organization (O'Reilly and Tushman, 2008).

With our third variable, named manager ambidexterity (AMB), we could appreciate if the managers are capable to explore and exploit at the same time. And at what level they spend more investment to the exploration or exploitation activities. To measure this variable, we used the scale based on Mom, Van Den Bosch, and Volberda (2007). The questions are divided in two blocks. The first block is to measure the exploitation ability and the other is to measure the exploration ability. All

items were measured on a 7-point scale with 1 = 'to a very small extent', or 'strongly disagree', to 7 = 'to a very large extent', or 'strongly agree'.

Items:

Exploration: To what extent did you, last year, engage in work related activities that can be characterized as follows?:

1. Searching for new possibilities with respect to products/services, processes or market.
2. Evaluating diverse options with respect to products/services, processes or markets
3. Focusing on strong renewal of products/services or processes
4. Activities requiring quite some adaptability of you
5. Activities requiring you to learn new skills or knowledge

Exploitation: To what extent did you, last year, engage in work related activities that can be characterized as follows?:

6. Activities of which a lot of experience has been accumulated by yourself
7. Activities which serve existing (internal)customers with existing services/products
8. Activities of which it is clear to you how to conduct them
9. Activities primarily focused on achieving short-term goals
10. Activities which you can properly conduct by using your present knowledge
11. Activities which clearly fit into existing company policy

6.4.2.6 Organizational Performance:

Organizational performance is defined as the extent to which the organization achieves its efficiency and effectiveness objectives (Neely, Gregory & Platts, 1995; Burton & Obel, 2004), therefore, it corresponds to an assessment of its performance and effectiveness. This has been an important factor in the current of strategic management; however, the different approaches developed to measure it still remain a research concern due to its complex and unobservable nature, which has originated multiple discrepancies in its definition and operationalization (Slater & Olson, 2000; Nudurupati, Bititci, Kumar & Chan, 2011).

In general, performance measurement has been subject to unidimensional and multidimensional measures. The former correspond to financial-economic type indicators and the latter to non-financial operational indicators (Venkatraman & Ramanujam, 1986). The

operationalization of performance measurement was based on objective scales (financial and operational) and subjective scales based on self-perception (Venkatraman & Ramanujam, 1986).

Conceptually, organizational ambidexterity should improve organizational performance since it makes an organization innovative, flexible and effective without losing the benefits associated with stability, routines and efficiency (Simsek, 2009). There are numerous studies that corroborate this positive relationship between ambidexterity and various performance indicators such as: subjective measures of performance (Cao et al., 2009); firm survival (Hill and Birkinshaw, 2014); or market measures such as Tobin's Q (Wang and Li, 2008). As O'Reilly and Tushman (2013) expose, despite the heterogeneity of the ambidexterity measures used, the business performance variables employed, the different levels of analysis and various sectors analyzed, the results linking organizational ambidexterity with performance are robust.

We named this variable Performance (PER). The scale for measuring performance is based on Govindarajan y Fisher 1990. All items were measured relative to corporate standards on a 7-point Liker scale ranging from 1 “significantly below average” to 7 “significantly above average”.

Items:

1. Return on investment
2. Operating profits
3. Sales volume
4. Market share

The six selected variables are formed by diverse items or questions. When we finished the surveys, we calculated the average of each variable to have a global vision of them. Then we had to save the data obtained in a CSV file (format required to use fsQCA program).

In addition, to be able to compare the surveys between them we put some additional questions:

Items:

1. Studies level
2. Age
3. Position in the company
4. Company Size (Medium or Big)

5. Years in the company
6. Years in the company as a manager
7. Years in the actual position
8. Country of the unit/branch you manage
9. Number of full-time employees in your branch/unit
10. Gender (male/female)
11. Number of senior executives that are responsible for strategy in your branch/unit (senior team size)

6.4.3 SAMPLE AND DATA COLLECTION

In order to study which set of the proposed variables is the most optimal to achieve a greater performance in the organization, we sent an email explaining the research and ensuring the confidentiality of the study (Podsakoff, et. al. 2003) to senior managers of 50 companies but only 12 responded. When we had all the items established, a total of fifty five questions, the survey was done by the Google Survey Platform (Google Forms). We used some Podsakoff-based rules to avoid the risk of common method bias from using a single respondent in our survey and also we implemented reverse-coded items to reduce the potential effects of response pattern biases (see Hinkin, 1995; Idaszak & Drasgow, 1987).We also took care in the way the questionnaire items were worded (Peterson, 2000) and to avoid item ambiguity, we tried to define ambiguous or unknown terms in the survey; avoid vague concepts; keep simple questions, specific and concise; avoid complicated syntax; avoid double meaning questions... (Tourangeau et al., 2000).

The companies belong to three different sectors: Paper manufacturing, supply of industrial machinery and supply of chemical products. We focus our research on the mentioned sectors because they were those to which we have access to obtain the required information. According to recommendation 2003/361 of the European Commission the selected companies are considered as large companies (250 - 350,000 employees). All the companies in the study have a minimum seniority of 6 years.

Senior managers were asked individually about the nature of their leadership challenges, how they acquire the knowledge, their goals and values, among others. The surveys facilitate to understand in detail what actions had been taken and how they had been implemented by the senior managers. The purpose of these surveys is to determine whether the practices carried out by managers or their abilities are ambidextrous and how it affects organizational performance.

The survey was created by Google Survey Platform and was sent to 12 managers of different companies belonging to three different sectors: Paper production, industrial machinery supplies and chemical products supply.

First, we sent them an e-mail requesting their collaboration in answering our questions. Of the 50 companies selected, the twelve that responded are the ones to whom we sent the survey. These companies were chosen because they are the ones that agreed to participate so we had direct access to obtain a higher number of data.

As the companies and managers are totally anonymous, we created a table (see table 2) summarizing the basic data, in order to get an idea of the company type and we also added some characteristic related to the manager. The name of the countries are not published to respect the company anonymity.

Table 1. Companies and senior manager's information (Own elaboration):

FIRMS	EMPLOYEES	LOCATION	INDUSTRY SECTOR	MANAGER AGE	GENDER	DEPART.
1	600	EUROPE	INDUSTRIAL MACHINERY SUPPLIES	46	MALE	REGIONAL MANAGER
2	1.700	CANADA	INDUSTRIAL MACHINERY SUPPLIES	48	MALE	REGIONAL MANAGER
3	350.000	EUROPE	INDUSTRIAL MACHINERY SUPPLIES	57	MALE	BUSSINES UNIT MANAGER
4	3.700	EE.UU	CHEMICAL PRODUCTS SUPPLY	60	MALE	AREA MANAGER
5	1400	EUROPE	INDUSTRIAL MACHINERY SUPPLY	56	MALE	QUALITY MANAGER
6	4.800	EUROPE	CHEMICAL PRODUCTS DESIGN	53	MALE	SALES MANAGERS
7	20.000	EUROPE	INDUSTRIAL MACHINERY SUPPLY	59	MALE	VICE PRESIDENT SALES
8	26.000	EUROPE	INDUSTRIAL MACHINERY SUPPLY	53	MALE	REGIONAL SALES MANAGER

9	2.000	EUROPE	INDUSTRIAL MACHINERY SUPPLY	41	MALE	PROJECT MANAGER
10	45.000	EUROPE	PAPER PRODUCTION	54	FEMALE	PROJECT MANAGER
11	56.000	EEUU	PAPER PRODUCTION	45	FEMALE	HR MANAGER
12	1.729	EUROPE	PAPER PRODUCTION	61	MALE	MANAGER DIRECTOR

6.4.4 METHODS

This research uses the Method of analysis Fuzzy-set qualitative comparative analysis (FsQCA), developed by Charles Ragin (2000, 2008). We use the version 3.0 of the software. FsQCA is a qualitative method capable of analyzing the causal contribution of a set of conditions on a result (Ragin, 2007). To enable the use of fuzzy logic in the analytical procedure developed for the csQCA technique which, presented in his work The Comparative Method (1987), made it possible to comparatively analyze studies with N-intermediates. The fsQCA allows working with data matrices whose information hardly responds to a dichotomous or multicotomous logic, providing a procedure for calibrating numerical data and indices that capture some gradation, even ordering, between cases. Unlike the use of fuzzy logic in mathematics to express the linguistic fuzziness of phenomena (Zadeh, 1965), Ragin's proposal has a comparative purpose within set-theoretic methods. Consequently, the fsQCA consists of a procedure to calibrate matrices of data of numerical nature to match them, applying degrees of set membership, with intervallic variations between [0,1] detailing the location of the point of maximum fuzziness, known as cross-over point [0,5]. The outcome must be expressed in fuzzy values, while, if justified, some conditions may be presented in dichotomous form.

According to Ragin (2008a), Fsqca is a normative model of set-theoretic connections and is used as an analytical tool in social sciences. Also in this field, there have been several problems related with sets and set relations (Ragin, 2008a), in which high values of a causal statement are not necessarily sufficient for high values of a dependent variable to occur (Woodside, 2013). These asymmetric relationships can be identified by the fsQCA method. This method has been used in several fields as innovation and management research to test set-theoretic relationships in social science models (Woodside, 2013; Cheng, Chang and Li, 2013; Bell, Filatotchev and Aguilera, 2014; Brenes, Chang and Cheng, 2014; Aversa, Furnari and Haefliger, 2015; Brenes, Ciravegna and Woodside, 2017). Following Mendel and Korjani (2012), FsQCA establishes logical connections between combinations of

causal conditions and an outcome at the same time, the result being a set of configurations that summarize the sufficiency between subsets of all the possible combinations of the conditions and the outcome. Linear analytical methods (i.e regression) are focused on identifying just a single combination of conditions (Chang and Cheng, 2014).

We chose this methodology in our research for different reasons:

1. The antecedents we propose are recognized in the literature as important factors to achieve high levels of manager ambidexterity and organizational performance. To study which set of configurations is the best option for achieving a higher performance in firms, traditional methodologies are not useful, because these methodologies shows robust results for multiple interactions. Fsqca is a configurational approach, it fits well with our proposed model, investigating complex combinations among diverse antecedents related with manager ambidexterity.

2. As we have a reduced sample, fsQCA matches our sample because this methodology doesn't require a large sample size or normal distribution of the sample allowing us to go deeper in each case.

3. There are few studies regarding ambidexterity and fsQCA methodology.

According to Ragin (2008) we have to examine for the configurations for achieving high performance step-by-step:

First, we transform the data into fuzzy sets (Ragin, 2009; Woodside, 2013). To do this, it's necessary to calibrate our constructs from interval scales to membership scores ranging from 0.0 to 1.0. For calibrate our variables it's required to specify the values of an interval-scale variable, corresponding to full membership (95%), crossover anchors (50%) and full non-membership (5%), being three qualitative breakpoints structuring a fuzzy set. Following prior work using fsQCA to study social sciences, in the case of the seven-point Likert scales (1=Not at all, 7=Very much), previous studies suggest that the values of 6, 4, and 2 can be used as thresholds (Ordanini et al., 2014; Pappas et al.,2016).

This study set the original values of 6.0 and 2.0 from the seven-point Likert scales to correspond to full membership and full nonmembership for all variables. In fsQCA, the default value

neglects cases with a membership of 0.50, as this membership is the crossover that cannot indicate the presence or absence of the condition. We calibrated values of 4 as a membership of 0.50.

Once the data is loaded into the program, we construct new variables from the ones we prepared in the previous step. This step is called calibration, explained in the literature (Ragin, 2008, 2009). To do this, we searched in the “variables options”, the option “Compute” and we named the first new variable. Then we selected “calibrate (X, n1, n2, n3)” – in X we establish the variable we want to calibrate, in n1 we put our full member number, in our case 6 because our Likert scale goes from 1 to 7, in n2 we established the cross over, according to the literature our cross over will be 4 and finally the full non member, in our case we put in n3, a full non member of 2 (Pappas et al., 2021).

To be able to analyze our data obtained in the fsqca program, we had to transform it before, following these steps:

1. First, we created an Excel colleting all the data obtained by the surveys. We were able to obtain absolute values taking the average of the different items of each block that measures a specific variable per company.

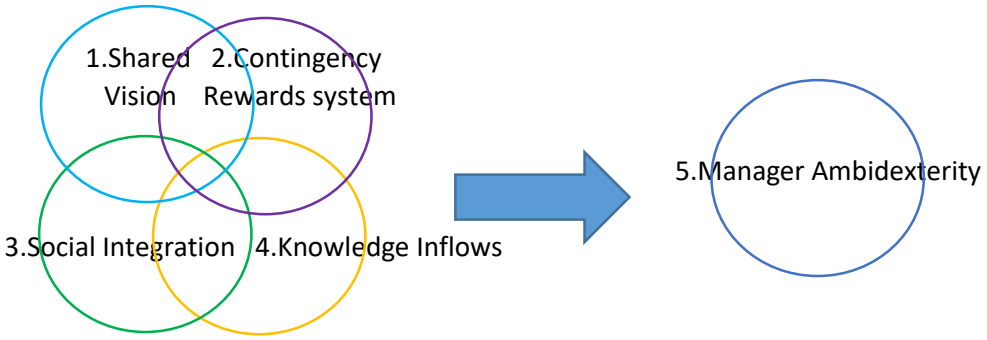
2. Then we created another Excel with the number of the companies and with the values we obtained before. We had to save the Excel file in *.csv (Comma Separated Values) format and made sure that the first row of the Excel data spreadsheet contained the variable names. Following fsQCA guides (for example Ragin, 2013) we had to use very simple variables names, using only alphanumeric characters with no embedded punctuation or spaces.

3. Finally, we opened the CSV file in the fsQCA program.

6.5 ANALYSIS AND RESULTS

6.5.1 MODEL 1: Manager Ambidexterity Antecedents.

Model 1. Manager Ambidexterity Antecedents.



- **Necessary conditions analysis:**

A necessary condition must be present for the outcome to occur, but its presence does not guarantee its occurrence (Ragin, 2009). To determine whether a single antecedent/condition is enough to produce the result, we used FsQCA software to calculate the necessity of each individual condition. In the Table 3 we summarized the necessary condition results:

Table2. Outcome Variable. fsAMB (Manager Ambidexterity)

Conditions	Consistency	Coverage
fsSV (Shared Vision)	0.865625	0.970794
~fsSV (Shared Vision Absence)	0.358333	1.000000
fsSI (Social Integration)	0.775000	1.000000
~fsSI (Social Integration absence)	0.442708	0.932018
fsKI (knowledge Inflows)	0.545833	0.998095
~fsKI (Knowledge inflows absence)	0.617708	0.878518
fsCR (Contingency Rewards)	0.731250	0.960328
~ fsCR (Contingency Rewards absence)	0.460417	0.942431

~ Absence of the condition

In the necessary conditions analysis, consistency indicates the degree to which the causal condition is a superset of the outcome and coverage indicates the empirical relevance of a consistent superset (Ragin, 2017). Based on the results obtained, none of the analyzed variables seems to be a necessary condition for manager ambidexterity to take place or not, because the consistency of the conditions is less than 0.90 (Ragin, 2008). However, for high values of manager ambidexterity, the most important condition without being necessary is high levels of shared vision (Cons=.87; Cob=.97), while the most important conditions for low levels of manager ambidexterity, although not necessary, would be shared vision absence (Cons=.36; Cob=1) and social integration absence (Cons=.44; Cob=.1) (Table 2). Overall, our analysis of the necessary conditions shows high levels of the presence of the

proposed variables for achieving manager ambidexterity and low levels of manager ambidexterity in their absence. We have also been struck by the low relationship between knowledge inflows and manager ambidexterity, which are discussed below.

Moreover, the analysis of necessary conditions must be complemented with the analysis of sufficient conditions (table 3), (Ragin, 2009). Looking for individual conditions that are not sufficient by themselves, but when combined with others, the outcome is achieved. This reasoning is based on the existence of INUS conditions that are "an insufficient but necessary part of a condition that is unnecessary but sufficient for the occurrence of the result." In addition, the analysis of sufficient conditions advocates equifinality, which means the possibility of finding diverse combinations of sufficient conditions that lead to the result. Hence, we conducted the fsQCA in the next step.

The following step is to construct the truth table. According to Ragin (2009), the truth table lists the logically possible combinations of conditions by configuring the number-of-cases threshold as 1 and the consistent cut-off value as 0.80. We specify these thresholds to distinguish configurations that are sufficient to the outcome from those that are not. Then we constructed the solution. We can find 3 different types of solutions: A complex solution (no logical reminders or zero cases are used), a parsimonious solution (all logical remainders may be used) and an intermediate solution (logical remainders are incorporated into the solution if they are theoretically sensible) (Ragin, 2008). We selected the intermediate solution because as this solution not allow removal of necessary conditions, is superior to the other two solutions (Ragin, 2009).

- **Truth table analysis:**

We created the Table 3 with the following results:

Table 3. Truth table results. Outcome Manager Ambidexterity.

	Raw Coverage	Unique Coverage	Consistency
fsSV*~fsKI*~fsCR	0.360417	0.121875	0.969100
fsSV*fsSI*fsCR	0.603125	0.364583	1

Solution Coverage: 0.725

Solution Consistency: 0.98441

Consistency measures the degree to which cases share a given configuration leading to the outcome, and coverage, as a coefficient of determination, indicates the degree to which the outcome is explained by a given configuration (Woodside, 2013). Second, unique coverage assesses the degree to which the outcome is uniquely covered by each individual configuration (Ragin, 2008b).

The results obtained show how different combinations of conditions can lead to high levels of manager ambidexterity. The results expose a model composed of two solutions that explain 72% of the cases with high levels of performance (solution coverage: .725; solution consistency: .984441):

1. We only have three firms (company 1, 2 and 5) where the presence of shared vision and the absence of knowledge inflows and contingency rewards facilitates manager ambidexterity. If we analyze the survey data, we can observe these 3 companies obtained low scores on the variables of knowledge inflows and contingency rewards.

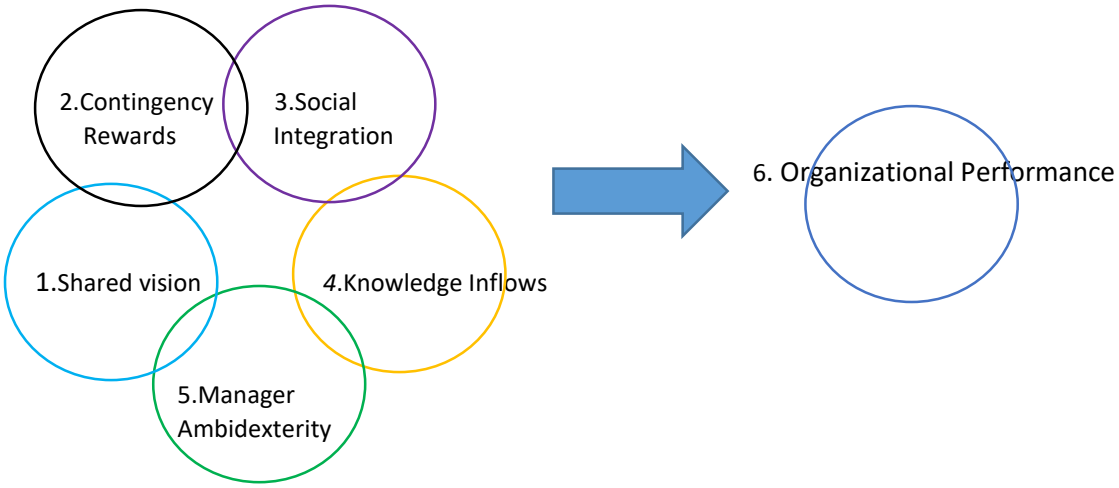
2. In the second combination of variables, represented in 7 of the 12 companies (Company 11, 8, 4, 12, 7, 9 and 3), we can appreciate that the presence of shared vision, contingency rewards and social integration is the best combination to achieve manager ambidexterity. Following O'reilly & tushman (2011), these antecedents are proposed by them for achieving higher ambidexterity levels.

3. As we considered the 3 sub-variables of knowledge inflows as one and we compared it with the manager's ambidexterity, instead of separating exploration and exploitation results, it is possible that for this reason we are not able to see a direct relationship. For this reason, we continued investigating and according to Mom et. al (2006), a manager's top-down knowledge inflows are positively related to the extent to which this manager carries out exploitation activities, while they are not related to a manager's exploration activities. Furthermore, a manager's bottom-up and horizontal knowledge inflows are positively related to this manager's exploration activities, while they are not related to a manager's exploitation activities. So, we want to explore these statements further and see if they explain the low results we obtained on knowledge inflows.

Therefore, we propose a third model below, analyzing separately, the three types of knowledge we contemplated in this study (bottom-up; top-down and Horizontal knowledge inflows and how they are related to exploration and exploitation activities.

6.5.2 MODEL 2: Ambidexterity and Performance:

Model 2. Ambidexterity and Performance



- **Necessary conditions analysis:**

Table 5. Outcome Variable. fsPER (Organizational Performance)

Conditions	Consistency	Coverage
fsSV (Shared Vision)	0.851974	0.907710
~fsSV (Shared Vision Absence)	0.377193	1.000000
fsSI (Social Integration)	0.779605	0.955645
~fsSI (Social Integration absence)	0.467105	0.934210
fsKI (knowledge Inflows)	0.566886	0.984762
~fsKI (Knowledge inflows absence)	0.607456	0.820741
fsCR (Contingency Rewards)	0.763158	0.952120
~ fsCR (Contingency Rewards absence)	0.459430	0.893390
fsAMB (Manager Ambidexterity)	0.945176	0.897917
~fsAMB (Manager Ambidexterity absence)	0.263158	1.000000

~ Absence of the condition

Based on the results obtained, none of the analyzed variables seems to be a necessary condition for high values of organizational performance, because the consistency of the conditions is less than 0.90 (Ragin, 2008). Only the manager ambidexterity variable has a value higher than 0.90 (0.94). We understand that for this analysis, it is a necessary variable. We consider that due to the small size of the sample and the fact, the results obtained from the surveys of the manager ambidexterity variable are high in all companies, the program considers this variable as necessary.

However, for high values of performance, the most important condition without being necessary is shared vision (Cons=.85; Cob=.91), while the most important conditions, although not necessary, for low levels of high performance, would be the manager ambidexterity absence

(Cons=.26; Cob=1) and shared vision absence (Cons=.38; Cob=.1) (Table 5). Overall, our analysis of the necessary conditions shows high levels of the presence of the proposed variables for achieving high performance and low levels on performance in their absence. We are also struck by the fact that neither the presence nor the absence of knowledge inflows shows a clear relationship with performance. In the next step we are going to analyze the truth table results.

Truth table analysis:

We created table 6 to summarize the results obtained:

Table 6. Truth table results. Outcome Organizational Performance.

	Raw Coverage	Unique Coverage	Consistency
fsSV*~fsSI*~fsKI*~fsCR	0.311403	0.0372806	0.95302
fsSV*fsSI*fsCR*fsAMB	0.620614	0.158991	0.977548
fsSV*fsSI*~fsKI*fsAMB	0.537201	0.0274122	0.978044

Solution Coverage: 0.733553

Solution Consistency: 0.961207

The results show that the consistency values for each configuration, and overall solution consistency exceed 0.85, indicating that these configurations are sufficient recipes leading to high overall performance (Ragin, 2008). Also, the overall solution coverage approximates to 0.80, suggesting that these solutions can explain a big proportion of high performance (73% of the cases).

The results obtained show how different combinations of conditions can lead to high levels of performance (table 6). The results expose a model composed of three solutions that explain 73% of the cases with high levels of performance (solution coverage: .733553; solution consistency: .961207).

We are going to analyze deeper the results:

1. The first combination combines the presence of shared vision with the absence of social integration, knowledge inflows and contingency rewards. This combination only affects to two of the selected companies (company 1 and 2) and this is due to low ratings obtained in the surveys for these variables. We disregard this result because of the little implication it has on the other cases.

2. The combination of shared vision, social integration, contingency rewards and manager ambidexterity produce a high performance, this combination is reflected in 7 of the 12

selected firms (company 11, 8, 4, 7, 3, 5 and 9). This results are in line with previous studies (Hambrick, 1994; O'Reilly and Tushman, 2004; Siegel and Hambrick, 2005; Smith and Tushman, 2005).

3. The combination of shared vision, manager ambidexterity and the absence of social integration and knowledge inflows allows a high performance. This result affects to 5 of the 12 selected companies (company 11, 7, 3, 5 and 9). As in the previous analysis, it may happened because we analyzed the knowledge inflows variable as a whole and not as three sub-variables. This is probably affecting the results of this analysis.

4. We also noticed that knowledge inflows has a low impact in the performance as we can see in the results, in 2 of the 3 combinations the absence of knowledge inflows facilitates to achieve a high performance.

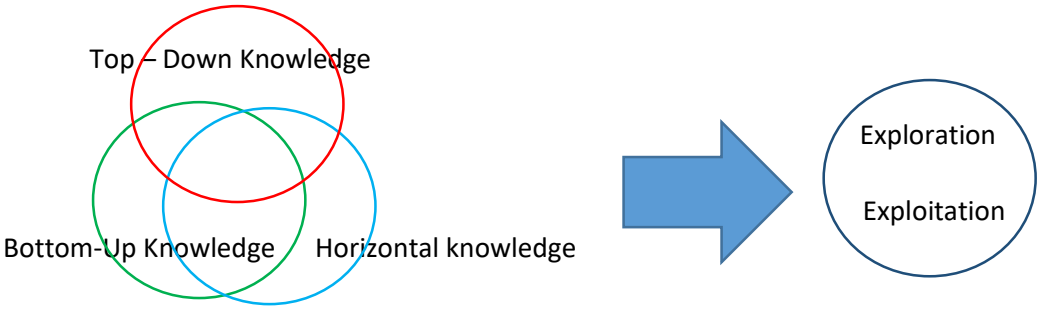
As we did not expect this last result and to better understand how knowledge inflows affect the manager's ambidexterity, following Mom et al. (2006) we did a third analysis to see how the three types of knowledge affect exploration and exploitation separately.

6.5.3 MODEL 3: Knowledge Inflows and Ambidexterity

As we obtained unexpected low results for knowledge inflows, we are going to analyze how it affects to exploration and exploitation activities, separately (Mom et al., 2006):

- **Top-down knowledge** inflows of a manager is positively related to the extent to which this manager engages in **exploitation** activities.
- **Bottom-up knowledge** inflows of a manager is positively related to the extent to which this manager engages in **exploration** activities.
- **Horizontal** knowledge inflows of a manager is positively related to the extent to which this manager engages in **exploration** activities.

. Model 3 Knowledge Inflows and Ambidexterity.



First of all, we want to analyze the ***relationship between Bottom-up and horizontal knowledge with exploration activities*****:**

Truth table analysis:

In order to resume the results obtained, we created the table 7:

Table 7. Truth table analysis. Exploration as the Outcome.

	Raw Coverage	**Unique Coverage**	**Consistency**
fsHOR*~fsTOP	0.379023	0.0595948	0.940828
fsHOR*fsBOT	0.483909	0.139452	0.929062
~fsHOR*fsTOP~fsBOT	0.376639	0.101311	1

Solution Coverage: 0.698451

Solution Consistency: 0.949757

The results show that the consistency values for each configuration, and overall solution consistency exceed 0.85, indicating that these configurations are sufficient recipes leading to high exploration results (Ragin, 2008). Also, the overall solution coverage approximates to 0.80, suggesting that these solutions can explain a big proportion of high performance (70% of the cases).

The results obtained show how different combinations of conditions can lead to high levels of exploration (table 7). The results expose a model composed of three solutions that explain 70% of the cases with high levels of Exploration (solution coverage: .698451; solution consistency: .949757).

We are going to analyze deeper the obtained configurations:

1. In the first configuration, it can be observed how the presence of horizontal knowledge with the absence of top-down knowledge, produces high levels of exploration. This result affects 3 of the 12 companies (company 11, 12 and 9).

2. The combination of Horizontal Knowledge and Bottom-up knowledge favors exploration activities. This result affects to 4 of the 12 companies (company 4, 8, 12, 11).

These both configurations are in line with Mom et al. (2006), horizontal knowledge and bottom-up knowledge favors exploration. If we combine both types of knowledge we will have higher levels of exploration.

3. As the last obtained configuration only affects to company 7, we don't take this result into account for our conclusions.

In the first two combinations, we see how the presence of horizontal knowledge with the absence of top-down knowledge inflows promote exploration activities in 3 companies, and the combination of horizontal and bottom-up knowledge also favors exploration in 4 companies. The third case will not be taken into account as it only corresponds to one of the companies and the results in the knowledge inflows variable is very low.

Knowledge inflows are crucial for exploration and exploitation (Mom et. al 2006). Exploration requires new knowledge and exploitation is related with the refinement of the acquired knowledge. In this line, the results obtained show that to achieve higher levels of exploration the combination of bottom-up and horizontal knowledge is the best combination and that the absence of top-down knowledge facilitates exploration.

Second, we want to ***analyze the relationship between Top-Down knowledge with exploitation activities***.

We did not obtain any relationship between Top-down knowledge inflows and exploitation, we reviewed the sample and as most of the managers who answered the survey belong to the top management team, the scores of the block of questions related to Top-Down knowledge inflows are

very low, it makes sense that as they are in the highest positions they do not have much flow of top-down knowledge, and therefore we cannot corroborate the hypothesis raised before.

6.5.4 OTHER RELATED ANALYSIS:

Finally, we decided to do a last analysis of model 1 and 2 without taking into account the knowledge inflows variable:

- **Model 1. Manager Ambidexterity Antecedents without knowledge inflows:**

In order to resume the results obtained, we created the table 7:

Table 8. Truth table analysis. Manager Ambidexterity Antecedents.

	Raw Coverage	Unique Coverage	Consistency
fsSV*~fsCR	0.442708	0.0833333	0.965909
fsSV*fsSI	0.710417	0.351042	1

Solution Coverage: 0.79375

Solution Consistency: 0.980695

The results show that the consistency values for each configuration, and overall solution consistency exceed 0.85, indicating that these configurations are sufficient recipes leading to high manager ambidexterity results (Ragin, 2008). Also, the overall solution coverage approximates to 0.80, suggesting that these solutions can explain a big proportion of high performance (79% of the cases).

The results obtained show how different combinations of conditions can lead to high levels of exploration (table 8). The results expose a model composed of three solutions that explain 79% of the cases with high levels of manager ambidexterity (solution coverage: .79375; solution consistency: .980695).

We are going to analyze deeper the obtained configurations:

Shared vision and social integration are the variables that benefit manager ambidexterity the most, reward systems do not show a special relevance in this analysis. The reward system is not particularly relevant for achieving manager ambidexterity, but instead the combination of shared vision and social integration covers 71% of the cases (9 out of 12 companies: 11, 8, 4, 12, 7, 9, 3, 5 and

6). According to the analysis, a combination of shared vision and social integration facilitate higher levels of manager ambidexterity.

- **Model 2. Ambidexterity and Performance without knowledge inflows:**

In order to resume the results obtained, we created the table 7:

Table 9. Truth table analysis. Ambidexterity and Performance.

	Raw Coverage	Unique Coverage	Consistency
fsSV*~fsSI*~fsCR	0.348684	0.0372807	0.957831
fsSV*fsSI*fsAMB	0.726974	0.41557	0.972141

Solution Coverage: 0.764254

Solution Consistency: 0.954795

In this analysis, it is striking that without the knowledge inflow variable, the contingency rewards ceases to be important to achieve high performance. On the other side, the combination of shared vision, social integration and the manager's ambidexterity help to achieve high levels of performance.

As we can appreciate in the results obtained, with the combination of the shared vision presence and the absence of social integration and contingency rewards, only two firms present high levels of organizational performance (companies 1 and 2). If we analyze the results obtained through the survey of each variable block, we see that for these two companies, Social integration and Contingency rewards system have low values:

company	sharedvision	socialintegration	knowledgeinflows	ontingencyrewarc
1	4.2	3.2	1	3.8
2	4.8	3.8	1.8	3.5
3	4.2	4.7	3.8	4.5
4	4.4	5.3	5.5	5
5	4.2	4.5	2.9	3
6	4.4	4.2	4.5	4
7	4.6	4.3	3.1	5.3
8	5.4	4.5	5	5.5
9	5.4	4.3	3.9	5.3
10	5.2	4	4.6	2.5
11	4.76	5.25	3.5	4.55
12	4.48	4.38	4.03	5.6

In the second proposed configuration, we can observe how shared vision, social integration and manager ambidexterity is the best combination for achieving organizational performance. This result represents the 73% of the cases (companies 11, 8, 4, 12, 7, 9, 3, 5, 6).

6.6 CONCLUSIONS

As we explained in the introduction, the objective of this research was to deepen into the antecedents that facilitates manager ambidexterity and how these antecedents affect firm's performance.

To do this, we established a theoretical review of the organizational ambidexterity concept, delving into the concept of managerial ambidexterity and the antecedents we selected. This theoretical review is useful to understand why and how we proposed the selected variables: Shared vision, Social integration, Contingent rewards, Knowledge inflows, Manager Ambidexterity and Organizational Performance.

The results obtained are in line with the studies we reviewed in the theoretical framework and there are not many studies with this methodology. After the different analyses, we reached the following conclusions:

1. The first analysis is the one that gives us the most information and the most relevant, as the recent literature already has some studies that analyze some of the variables selected as antecedents of manager ambidexterity, with the methodology we used. This analysis reveals that the presence of shared vision, contingency rewards and social integration is the best combination to achieve manager ambidexterity, following O'reilly & Tushman (2011), these antecedents are proposed by them for achieving higher manager ambidexterity levels. Also is in line with Smith and Tushman (2005). As we considered the 3 sub-variables of knowledge inflows as one and we compared it with the manager's ambidexterity, instead of separating exploration and exploitation results, it is possible that for this reason we are not able to see a direct relationship with manager ambidexterity. ***Therefore, managers have to integrate this shared vision and use reward systems to increase ambidexterity and indirectly performance.***

2. In the second analysis we can highlight the combination of shared vision, social integration, contingency rewards and manager ambidexterity affects positively a high performance. In this analysis, the knowledge inflows variable has almost no influence on the outcome. ***In short, if managers combine these variables, shared vision, contingency rewards systems and social integration, in along with their own ambidexterity, they are likely to achieve higher levels of performance.***

3. In the third analysis we wanted to look at the relationship between the three types of knowledge and exploration and exploitation. To do so, we followed the research of Mom et al. (2006). We highlight the exploration results and their positive relationship between horizontal and bottom-up knowledge. We can affirm horizontal knowledge and bottom-up knowledge favors exploration. If we combine both types of knowledge we will have higher levels of exploration. We have not been able to analyze the relationship between top-down knowledge and exploitation because, as the interviewees are top managers, they receive little knowledge from higher levels. ***That means, if managers combine horizontal and bottom-up knowledge, they will achieve higher levels of exploration.***

4. Finally, we repeated analysis 1 and 2 without the knowledge inflows variable. If we take into account manager ambidexterity as the outcome, Shared vision and social integration are the variables that benefit manager ambidexterity the most, reward systems do not show a special relevance in this analysis. In the analysis 2, we could observe how ***shared vision, social integration and manager ambidexterity is the best combination for achieving a higher performance. Knowledge inflows has to be analyzed in a separated way, not as a global variable.***

It is important that all managers are involved in this important concept of ambidexterity for the company competitiveness. It is an approach that will have positive consequences. Moreover, this orientation of the ambidextrous manager is important for the whole company to be ambidextrous (O'reilly & Tushman, 2011; Jansen et al., 2009), and innovations and improvements can be produced thanks to this orientation, which in the end will result in better performance. Senior management teams is an important element in the organization's ability to create synergetic and integrative value across exploratory and exploitative activities and for achieving ambidexterity (Teece, 2007). In addition, we examined the mediating role of some senior team integration mechanisms that are beneficial to combine strategic contradictions (O'Reilly and Tushman, 2004; Smith and Tushman, 2005; Lubatkin et al., 2006; Jansen et al., 2008 and 2009).

In order to achieve greater ambidexterity in managers and consequently higher performance, it is necessary for companies to promote a shared vision of the company's values and mission, a contingency rewards system that motivates managers to pursue ambidexterity and a good social integration mechanisms at all levels. With this research, it is confirmed that these three variables proposed by O'Reilly & Tushman (2011) are still relevant to achieve higher levels of ambidexterity and consequently performance. In addition, depending on the type of knowledge inflows existing in the company (horizontal, bottom-up or top-down) will benefit exploration or exploitation activities (Mom et al., 2006).

6.7 LIMITATIONS AND FUTURE RESEARCH

Due to the size of the sample and the small number of managers interviewed, we obtained too few data to be able to realize a more quantitative analysis. Although there are studies that use a small sample using the QCA methodology (like for example Jacobs et al., 2016), a few more surveys would added value to the study.

In addition, many companies told us that they could not answer the survey due to the confidential security of their companies and we have couldn't obtain a large number of surveys from the same sector, it would been interesting to have enough interviews from the three sectors selected in this study to see how the variables affect each sector individually as well as between them. We also encourage further study of the ambidextrous managers in other industries. Moreover, the results obtained are limited to the selected sample, which refers to a population of international companies from different subsectors. That means, the results cannot be generalized to other sectors or to a specific geographical environment. Therefore, the data analyzed are cross-sectional and collected by means of a survey. So, it is difficult to draw conclusions about causality, and subjectivity is also present.

Therefore, we encourage scholars to continue using this methodology to perform the analyses and to add more variables to the study, since there is a wide variety of antecedents in the literature that facilitate ambidexterity. It is important to highlight that almost all studies in the literature use statistical methodologies to do analysis. In this study, FsQCA allows us to know which set of configuration is the most optimal to achieve higher levels of manager ambidexterity and performance, but it would be interesting to do a similar studies with the organizational ambidexterity antecedents to continue contributing to literature.

CHAPTER 7: GENERAL CONCLUSIONS, LIMITATIONS & FUTURE RESEARCH

1. INTRODUCTION

Interest in the concept of organizational ambidexterity has been growing in recent years in the academic and business research. There are several empirical studies demonstrating its various benefits**: superior performance at the organizational and individual levels** (Schnellbächer & Heidenreich, 2020; Turner & Lee-Kelley, 2013), **long-term survival and success (**Levinthal and March, 2003); organizational ambidexterity also **fosters active learning and knowledge growth, which, in turn, enhances a firm's ability to innovate, take risks and anticipate future sustained green opportunities before its competitors** (Jansen et al., 2012; Hill and Birkinshaw, 2014).

There is still a gap in our understanding of the micro-level of organizational ambidexterity, or the underlying collective and individual actions required to balance exploitation and exploration activities and align them with changing external and internal conditions (Nosella et al., 2012; Birkinshaw and Gupta, 2013).

Within this theoretical framework is where this research analyses organizational ambidexterity. In this thesis, certain antecedents related to the ambidexterity of companies and ambidextrous managers and leaders were studied, both theoretically and empirically. This background, facilitates this ambidexterity in both organizations and their leaders, impacting the performance of the company, its survival or sustainability. It also analyzes the relationship between alliances and organizational ambidexterity. For this purpose, a literature review was carried out, analyzing the characteristics from different perspectives proposed in the literature (e.g. O'Reilly & Tushman). In addition, this influence was studied in a specific context such as the family business, whose specific characteristics can influence this relationship, and alternatively, its development in large companies was also studied, where their large size can create a different context in the development of ambidexterity. Regarding the empirical analysis, different methodologies we used, such as different hierarchical regression models (SPSS) and a fuzzy set qualitative comparative analysis (FsQCA).

In this chapter, we summarize the conclusions we obtained in each chapter and, finally, some overall conclusions, limitations and future research.

7.2 CONCLUSIONS AND IMPLICATIONS

The conclusions of this research should be understood within the framework of the objectives proposed in the first chapter. In addition to the main objective of deepening into the antecedents of organizational ambidexterity, the specific objectives of this thesis were divided as follows:

- The **first** research objective was to delve into the concept of organizational ambidexterity, helping us to clarify the meaning and scope. We also conducted a literature review on ambidextrous managers and leaders. Finally, the background of ambidextrous organization (family business, alliances; leadership) and ambidextrous leaders were also analyzed in chapter 2. This literature review helped us to establish the theoretical framework for our research and also is helpful for the definition of concepts that have been analyzed throughout the research. The review of the literature on organizational ambidexterity has shown that, although its origin can be traced back to the 1970s, it was not until the mid-1990s that the term became widespread thanks to the work of Tushman and O'Reilly (1996). Interest in this concept has been growing, judging by the abundant academic literature generated, and it has become one of the paradigmatic variables in the study of management paradoxes.

At a general level, after conducting the theoretical framework, we highlight that interest in the concept of organizational ambidexterity has grown in recent years in academic and business research. There are several empirical studies that demonstrate its various benefits: superior organizational and individual performance (Schnellbächer and Heidenreich, 2020; Turner and Lee-Kelley, 2013), long-term survival and success (Levinthal and March, 2003); organizational ambidexterity, also fosters active learning and knowledge growth, which, in turn, improves a firm's ability to innovate, take risks and anticipate future sustainable opportunities ahead of its competitors (Jansen et al., 2012; Hill and Birkinshaw, 2014).

More specifically, this research wanted to go beyond the concept of organizational ambidexterity and analyze theoretically and empirically some of the antecedents proposed by the literature (family business, ambidextrous leadership, alliances, integration mechanisms of ambidextrous managers), helping to achieve this ambidexterity and consequently greater benefits, such as higher performance or greater long-term survival. This allowed us to study the influence of ambidexterity at the organizational and managerial level, in different contexts and sectors.

- Our **second objective** was to analyze the relationship between the specifities of the family firms and organizational ambidexterity and we conclude that in family firms, diversity management and different degrees of family involvement in ownership and management require specific and familiar governance mechanisms, in order to positively orient capacity and willingness in family firms towards the achievement of ambidexterity. In addition, being multi-temporal allows them to take advantage of opportunities and reconfigure resources. The joint diversity of age and experience of the management team reinforces ambidexterity (Fernandez-Mesa et al., 2013). Family culture is also an important antecedent for promoting ambidextrous orientation. Moreover, ambidexterity represents a promising organizational construct to better understand the differences between family firms (Lubatkin et al., 2006; Stubner et al., 2012), and managers can promote the positive aspects of family firms that enable ambidexterity and long-term competitiveness.

- The **third objective** of this research was to analyze how ambidexterity influences sustainable performance and how the combination of ambidexterity and inter-organizational alliances facilitates this sustainable performance. To do this, we conducted a study that deepens the understanding of how Spanish hotels can increase their environmental performance, providing a framework of the contributory effect of alliances and ambidexterity. From this study we highlight that hotels play an important role in the conservation of the natural environment. Their competitiveness is also related to their environmental performance: it could reduce costs and resource use. In addition, increased environmental performance could improve the company's reputation (Berg et al., 2018), consumer identification with the company (Du et al., 2010) and thus the company's positioning, competitiveness and access to better resources (Yu et al., 2016). In addition, hotels must regularly collaborate with external partners to address increasingly complex environmental challenges (Albino et al., 2012; Hofmann et al., 2012; Seuring and Müller, 2008), accessing knowledge from outside their core area of expertise. The results confirm the importance of ambidexterity for its positive and direct effect on environmental performance, and for the mediating effect, which helps transform the benefits of firms' participation in strategic alliances into improved environmental performance. It also contributes to a better understanding of the drivers of environmental performance by introducing the integrated effect of hotels' participation in alliances and ambidexterity.

- Our **fourth objective** was to analyze certain characteristics or features that make a leader ambidextrous. We conclude leaders need a serial of competences and capabilities to be able to handle in an ambidextrous way the different exploration and exploitation activities. In ambidextrous terms, managers must be focused on both exploitation and exploration activities. These managerial

capabilities help organizations to reconfigure existing assets and skills to detect and take advantage of new opportunities (O'Reilly & Tushman, 2011). In this chapter, we collected the characteristics analyzed in the literature necessaries for managers to be ambidextrous. Most authors consider that ambidextrous managers host contradictions (Smith and Tushman, 2005; Tushman and O'Reilly, 1996); they are multitasks (Birkinshaw and Gibson, 2004, Floyd and Lane, 2000); and they both refine and renew their knowledge, skills, and expertise (Floyd and Lane, 2000, Hansen et al., 2001, Sheremata, 2000). Global and shared vision and with incentive rewards systems allows managers to achieve ambidexterity and to keep all members in the organization involved with the ambidextrous strategy. Furthermore, the importance of managers' of bottom-up knowledge inflows for managers' exploration activities, and top-down knowledge inflows for managers' exploitation activities (Mom, Van Den Bosh and Volberda, 2007) has been outlined.

- Finally, our last objective was to analyze which set of specific variables is the most optimal to facilitate managerial ambidexterity and consequently organizational performance. To do this, we conducted an empirical study to see what combination of these antecedents affects manager ambidexterity and how this ambidexterity affects organizational performance. We demonstrated empirically how the integration of a global and shared vision and the existence of incentivized reward systems allow managers to achieve ambidexterity and the positive effects it has on performance. In addition, the importance of managers' bottom-up knowledge inflows for exploration activities was demonstrated (Mom, Van Den Bosh and Volberda, 2007).

To conclude, we contribute to the organizational and managerial literature in different ways; this research shows how Family firms specificities have a positive effect on organizational ambidexterity if they are oriented toward a positive willingness to ambidexterity and how ambidexterity represents a promising organizational construct to better understand differences between Family firms (Lubatkin et al., 2006; Stubner et al., 2012), and also how managers can promote the positive aspects of Family firms that enable ambidexterity and long-term competitiveness. Moreover this research shows how hotel participation in alliances has a positive effect on ambidexterity and ambidexterity has a positive effect on environmental performance, as well as acting as a mediating variable between the two. These results thus advance the recent line of research proposing the importance of ambidexterity for managing environmental requirements (e.g., Chen et al., 2014; Yu et al., 2016; Lin and Ho, 2016). Hotel managers who devote resources to simultaneously manage and leverage exploration and exploitation (i.e., develop ambidexterity capability) can improve the company's environmental performance. Scholars have proposed that while ambidexterity is

challenging for firms, it is necessary for their long-term success (Tushman and O'Reilly, 1996; Simsek, 2009; Raisch et al., 2009). This research extends this line by also showing its positive effect on environmental performance, thus confirming the importance of developing this capability for companies, and specifically for hotel establishments. In addition, ambidexterity is not only relevant for its positive effect on environmental performance. For hotels involved in alliances, it has a mediating effect, it mean, it is beneficial in transforming the benefits of partnerships into better results in terms of environmental performance.

On the other side, in all chapters we observed the importance of managers to achieve high levels of organizational ambidexterity. Leaders and managers need a range of skills and capabilities to be able to ambidextrously manage the different exploration and exploitation activities. In ambidextrous terms, managers need to focus on both exploitation and exploration activities. These management capabilities help organizations reconfigure existing assets and skills to spot and seize new opportunities (O'Reilly and Tushman, 2011). It is also important for managers to be aware of the integration mechanisms they can use to facilitate ambidexterity, such as, the integration of a global and shared vision and the existence of incentivized reward systems allow managers to achieve ambidexterity and the positive effects it has on performance. Also this research remarks the importance of managers' bottom-up knowledge inflows for exploration (Mom, Van Den Bosh and Volberda, 2007).

The conclusions obtained in this research from the studies focused on ambidextrous leaders and managers, contribute information to the business management literature, since the resulting conclusions can help managers to reach organizational ambidexterity and take decisions that contribute to achieve higher organizational performance, in terms of, financial results, consolidation of sustainable competitive advantages and survival over time. Finally, it should be noted that the FsQCA methodology (Ragin, 2008) was used for this last study, and there are very few studies that use this methodology to analyze organizational ambidexterity, in particular, manager ambidexterity. In addition, there are no studies that analyze the combination of these antecedents as a whole with this methodology.

Managerial implications:

On a practical level, we make different contributions for managers and family firms. Part of this research provides a better understanding of the antecedents of ambidexterity, how they relate to

each other and how some of them can be combined to achieve higher levels of ambidexterity and consequently performance. The theoretical framework can help managers apply the proposed antecedents at various levels of the organization, resulting in a more structured approach to ambidexterity.

As O'Reilly and Tushman, (2011) pointed out, the execution of an ambidextrous strategy depends on a clear understanding of these micromechanisms. From a management perspective, the taxonomic model can help managers apply the antecedents proposed in this research at different levels of the organization, resulting in a more structured approach to ambidexterity. More specifically, this framework can provide guidance on how to approach ambidexterity using an appropriate combination of different antecedents.

In family firms context, managers have to take a long-term orientation, Le Breton-Miller and Miller (2011) noted the advantage of multitemporality in FFs due to the ability to achieve lasting success by balancing short- and long-term orientation. Thus, in these companies, am-bidextrous orientation should prevail. Managers of family firms can also take advantage of the confidence in the networks and information channels built over generations. They involve the most effective combination of tacit and procedural knowledge, exploit and organize accumulated knowledge, and participate in investments that can generate benefits that extend beyond the individual career to support the company. Managers also should make conscious decisions about the allocation of resources to maintain ambidexterity (Raisch et al., 2009). Family firms have to take advantage of family ties for the exchange of knowledge structures and innovation (Patel & Fiet, 2011). This may also lead managers to prefer less risky trajectories of change. This advantage reduces the risk of losing socioemotional wealth, preserves the company for the next generations and keeps some resources free for family purposes (Gómez-Mejía et al., 2001). Likewise, cooperation and communication should be established as a form of family business interaction, acting as facilitators in decision-making processes, nurturing loyalty and commitment which, in turn, benefits ambidexterity (Veider & Matzler, 2016).

Regarding not only at family firms, managers should harbor contradictions (Tushman and O'Reilly, 1996; Smith and Tushman, 2005), be multitask (Birkinshaw and Gibson, 2004, Floyd and Lane, 2000); and renew their knowledge, skills, and experience constantly (Floyd and Lane, 2000, Hansen et al., 2001, Sheremata, 2000). Social integration, shared vision and the existence of incentivized reward systems enable managers to achieve ambidexterity and keep all members of the organization involved in the ambidextrous strategy. In addition, the importance of managers' upward knowledge inputs for

exploration activities and downward knowledge inputs for managers' exploitation activities has been emphasized (Mom, Van Den Bosh and Volberda, 2007). In summarize, **managers should combine certain antecedents in order to achieve greater ambidexterity and consequently higher performance.** In this line, it is also necessary for companies to promote antecedents like a shared vision of the company's values and mission, a contingency rewards system that motivates managers to pursue ambidexterity and a good social integration mechanisms at all levels. Depending on the type of knowledge inflows that exist in the company (horizontal, bottom-up or top-down) will benefit exploration or exploitation activities (Mom et al., 2006). Managers also need to assess other antecedents such as participation in inter-organizations alliances (Seuring and Müller, 2008; Hofmann et al., 2012) and promote their own ambidexterity in order to achieve higher levels of organizational ambidexterity and performance (O'Reilly and Tushman, 2011).

7.3 LIMITATIONS AND FUTURE RESEARCH

In the first place, this research theoretically analyzes the family business antecedents of ambidexterity. Future research could empirically study how these antecedents interact to achieve ambidexterity. In addition, to understand in depth how each of the antecedents contributes to ambidexterity success, future research should explain how to minimize the disadvantages noted. To this end, case studies of successful family businesses can provide a more complete picture of their evolution and the promotion of their positive role.

The limitations we observe in our study of hotels, alliances and ambidexterity (Chapter 4) open up future lines of research. First, the study does not distinguish between types of alliances nor does it examine in depth the knowledge generated or accessed through the alliance. Focusing on the specific outcomes of particular alliances should provide a better understanding of how hotels can benefit specifically from each alliance. Second, although absorptive capacity is not included, its analysis may help to understand how the hotel internalizes the knowledge gained in the alliances. Third, the data analyzed are cross-sectional and collected through a survey. Therefore, it is difficult to draw conclusions about causality, and subjectivity is present. A longitudinal investigation including objective indicators, such as waste reduction or pollution, could provide more information. Even so, the proposed relationships have been tested and contribute to the analysis of the fundamental role of organizational ambidexterity in explaining the degrees of environmental performance of companies.

Referring to manager ambidexterity, literature is broader because personal antecedents and leaders' characteristics are also studied, including the different types of leadership. A more extensive

review may require finding common aspects between personal characteristics, leadership styles and ambidextrous leaders.

In the last study of this research focused on managerial ambidexterity (Chapter 6), the results obtained are limited to the selected sample, which refers to a population of international companies from different subsectors. This means that the results cannot be generalized to other sectors or to a specific geographical environment. The data analyzed are cross-sectional and collected by means of a survey. Therefore, it is difficult to draw conclusions about causality, and subjectivity is also present. It is important to note that almost all studies in the literature use statistical methodologies to perform the analyses. In this chapter, the FsQCA software allows us to know which set of configuration is the most optimal to achieve higher levels of ambidexterity and managerial performance, therefore, we encourage scholars to continue using this methodology to perform the analyses and to add more variables to the study, as there is a wide variety of antecedents in the literature that facilitate ambidexterity. This line of research can be focused at the organizational level as well as at the level of individual managers and even management teams.

In general terms, we encountered some limitations throughout the research, such as obtaining the data to carry out the studies, due to the distrust of the companies when it comes to providing quantitative and qualitative data, or the limited time for the research, which has made it difficult for us to add more variables to our studies or to apply the different models proposed and analysis to other sectors.

This research is based on the perspective of structural ambidexterity, organizational learning theory and dynamic capabilities, we propose to analyze this background from the rest of the perspectives analyzed by organizational ambidexterity. Also, we encourage researchers to continue to contribute to the literature on the antecedents of organizational ambidexterity both at the individual level of managers, management teams and the organization itself. As there are no studies that analyze the combination of the proposed antecedents as a whole with the FsQCA methodology we intend researchers to follow this type of analysis to study which combination of organizational or managerial ambidexterity is the most optimal to achieve higher performance.

Finally, due to its complexity and difficult application, we couldn’t make a general model that includes the idea of combine all the analyses proposed in this research. In the future, researchers could follow this research and propose models that encompass the different types of analyses proposed in this research and make more general models that contain other variables proposed in the literature, that are considered antecedents of the ambidextrous organization and/or ambidextrous

leaders. These models can analyze organizational or manager ambidexterity in other contexts and sectors.

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ANNEXES

MANAGEMENT INNOVATION

Please answer all the questions before closing the survey window. Thank you for participating in this survey.

*Obligatorio

INNOVATION SURVEY

Untitled Section

ORGANIZATIONAL VISION, INTEGRATION AND KNOWLEDGE INFLOWS

All items will be scored on a seven-point scale From 1 = strongly disagree to 7 = strongly agree.

1. 1. There is commonality of purpose in my department *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

2. 2. There is total agreement on our organizational vision *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

3. 3. All managers are committed to the goals of this organization *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

4. 4. People are enthusiastic about the collective goals and mission of the whole organization *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

5. 5. Managers lacks a clearly defined collective vision *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

6. 6. Each individual knows how their efforts contribute to the mission *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

7. 7. The goals and objectives are translated into work performance standards and expectations for each employee *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

8. 8. The managers are quick to defend each other from criticism by outsiders *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

9. 9. Everyone's input is incorporated into important company decisions *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

10. 10. The managers get along together very well *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

11. 11. The managers are always ready to cooperate and help each other *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

12. 12. When final decisions are reached, it is common, for at least one member, to be unhappy with the decision *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

13. 13. There is a great deal of competition between members of the management team *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

14. 14. Last year, I receive or gather the most important knowledge from: A colleague within my own organizational unit *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

15. 15. Last year, I receive or gather the most important knowledge from: A colleague in other organizational units within my own division *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

16. 16. Last year, I receive or gather the most important knowledge from: A colleague in other division *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

17. 17. Last year, I receive or gather the most important knowledge from: My direct supervisor *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

18. 18. Last year, I receive or gather the most important knowledge from: One more hierarchical level up than my direct supervisor *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

19. 19. Last year, I receive or gather the most important knowledge from: Two more hierarchical levels up than my direct supervisor *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

20. 20. Last year, I receive or gather the most important knowledge from: My direct assistants *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

21. 21. Last year, I receive or gather the most important knowledge from: One more hierarchical level down than my direct assistants. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

INNOVATION IN THE ORGANIZATION

All items will be scored on a seven-point scale From 1 = strongly disagree to 7 = strongly agree.

22. 22. Managers' variable pay is based on how well the organization as a whole is performing *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

23. 23. This organization uses multiple incentives (e.g. signing bonuses) to attract top candidates for the manager position. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

24. 24. The majority of managers' pay is based on variable compensation (bonuses, profit sharing) *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

25. 25. Incentive-based pay for the managers is based on how well the organization is performing as a whole.

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

26. 26. My company's strategy accounts for Innovation and consider it as a key factor in its success. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

27. 27. My organization's strategy is proactive in the “of innovation concept” and anticipates the changes that occur in the market and the environment *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

28. 28. The company's management is committed and offers full support for innovation activities *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

29. 29. My organization has a formal plan where the objectives, the actions to be carried out, the resources and the budget necessary for the development of the activities of innovation are defined. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

30. 30. My company has a manager in charge of innovation matters *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

31. 31. My company dedicates significant human, financial and resources to the innovation section *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

32. 32. Innovation in my company is contemplate not only as the development of new products or services, but also as the improvement of business processes. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

33. 33. The design and development of new products (or services) is carried out according to the real needs of the market and the clients of the company

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

34. 34. My company promotes creativity and leverage the full potential of its managers and workers *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

35. 35. My company evaluates all the ideas generated within the Organization and take advantage of it systematically to enhance its development *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

36. 36. My company systematically takes advantage of the suggestions and the knowledge of its suppliers to generate improvements and innovations of product or process *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

37. 37. My company systematically takes advantage of the suggestions and the knowledge of its customers to generate improvements and innovations of product or process *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

INNOVATION TASKS

All items will be scored on a seven-point scale From 1 = strongly disagree to 7 = strongly agree.

Last year, I engaged more work related to activities that can be characterized as follow:

38. 38. Searching for new possibilities for products/services, processes or markets *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

39. 39. Evaluating diverse options for products/services, processes or markets *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

40. 40. Focusing on strong renewal of products/services or processes *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

41. 41. Activities requiring me quite some adaptability *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

42. 42. Activities requiring me to learn new skills or knowledge *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

Last year, I engaged more work related to activities that can be characterized as follow:

43. 43. Activities for which I have accumulated a lot of experience before *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

44. 44. Activities related with existing and internal customers and existing services/products *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

45. 45. Activities that I know how to manage them *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

46. 46. Activities primarily focused on achieving short-term goals *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

47. 47. Activities that I can properly manage using my present knowledge *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

48. 48. Activities that clearly fit into the existing company policy *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

INNOVATION ORIENTATION

PLEASE, ANSWER THE FOLLOWING QUESTIONS THINKING ON THE PERFROMANCE OF YOUR FIRM ON THE LAST THREE YEARS AND COMPARING IT WITH THE AVERAGE OF THE PERFORMANCE IN THE INDUSTRY.

All items will be scored on a seven-point scale From 1 = significantly below average to 7 = significantly above average

49. 49. MY FIRM looks for novel technological ideas by thinking “outside the box *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

50. 50. MY FIRM bases its success on its ability to explore new technologies. *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

51. 51. MY FIRM creates products or services that are innovative to the firm *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

52. 52. MY FIRM looks for creative ways to satisfy its customers' needs *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

53. 53. MY FIRM aggressively ventures into new market segments *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

54. 54. MY FIRM actively targets new customer groups *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

55. 55. MY FIRM commits to improve quality and lower cost *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

56. 56. MY FIRM continuosly improves the reliability of its products and services *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

57. 57. My firm increases the levels of automation in its operations *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

58. 58. MY FIRM constantly surveys existing customer's satisfisfaction *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

59. 59. MY FIRM fine-tunes what it offers to keep its current customers satisfied *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

60. 60. MY FIRM penetrates more deeply into its existing customer base *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

ENVIRONMENTAL INNOVATION

All items will be scored on a seven-point scale From 1 = strongly disagree to 7 = strongly agree.

61. 61. Environmental changes in our local market are intense.

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

62. 62. Our clients regularly ask for new products and services.

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

63. 63. In our local market, changes are taking place continuously.

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

64. 64. In a year, nothing has changed in our market.

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

65. 65. In our market, the volumes of products and services to be delivered change fast and often.

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

UNIT PERFORMANCE

PLEASE, ANSWER THE FOLLOWING QUESTIONS THINKING ON THE PERFROMANCE OF YOUR FIRM ON THE LAST THREE YEARS AND COMPARING IT WITH THE AVERAGE OF THE PERFORMANCE IN THE INDUSTRY.

All items will be scored on a seven-point scale From 1 = significantly below average to 7 = significantly above average

66. 66. Return on investment *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

67. 67. Operating profits *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

68. 68. Cash flow from operations *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

69. 69. Cost control *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

70. 70. Development of new products *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

71. 71. Sales Volume *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

72. 72. Market share *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

73. 73. Market development *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

74. 74. Personnel development *

Marca solo un óvalo.

1	2	3	4	5	6	7
⬭	⬭	⬭	⬭	⬭	⬭	⬭

75. 75. Political-public affairs *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

76. 76. R&D activities *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

77. 77. Profit-to-sales ratio *

Marca solo un óvalo.

1	2	3	4	5	6	7
◯	◯	◯	◯	◯	◯	◯

AND TO FINISH...

ADDITIONAL INFORMATION

78. COMPANY NAME *

_____

79. AGE *

_____

80. Studies Level *

81. Company size (Small, Medium or Big company) *

82. Position In the Company *

83. Years in the Company *

84. Years in the Company as a Manager *

85. Years in actual position *

86. Country of the unit/branch you manage *

87. Number of full-time employees in your branch/unit *

88. Gender *

Marca solo un óvalo.

- Female
- Male

89. Number of senior executives that are responsible for strategy in your branch/unit (senior team size): *

THANK YOU FOR COLLABORING.