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TESIS DOCTORAL:

**CONSTRUYENDO RELACIONES DIÁDICAS Y EN RED EN
ENTORNOS PROTEGIDOS. EL CASO DE LAS
INCUBADORAS UNIVERSITARIAS**

Presentada por **María Redondo Carretero** para optar al grado de doctora por la Universidad de Valladolid

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FACULTY OF ECONOMIC AND BUSINESS
DEPARTMENT OF BUSINESS AND MARKETING

PHD DISSERTATION:

**BUILDING DYADIC AND NETWORK RELATIONSHIPS IN
PROTECTED ENVIRONMENTS. THE CASE OF UNIVERSITY
BUSINESS INCUBATORS**

A dissertation submitted by **María Redondo-Carretero** to the
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Introduction

Introducción

Capítulo 1. Marco conceptual sobre emprendimiento e incubación

Capítulo 2. La creación de relaciones a largo plazo entre incubados

Esta teoría se fundamenta en las proposiciones realizadas por Coase (1937), en las que plantea que las empresas y los mercados son estructuras de gobierno alternativas que difieren en sus costes de transacción. Williamson (1975) impulsó, posteriormente, este enfoque económico cuya unidad fundamental de análisis es la transacción. Con este término se hace referencia a la fase contractual que precede al intercambio y que suele dar lugar a transferencias entre las partes implicadas. Más concretamente, se puede decir que transacción es la transferencia del derecho a utilizar determinados bienes y servicios de unos agentes a otros.

Según ha sido formulada por Williamson (1975), la teoría de los costes de transacción se basa en el supuesto de que los seres humanos cuentan con racionalidad limitada y, en determinadas ocasiones, muestran un comportamiento oportunista.

La economía de los costes de transacción toma como punto de partida la hipótesis de que los contratos económicos surgen para minimizar los costes de transacción entre los factores productivos. Los agentes económicos, dotados de racionalidad limitada, crean estructuras de gobierno (empresas, mercado y formas híbridas) para superar las dificultades de coordinación debidas a la incertidumbre que rodea la transacción y al comportamiento oportunista que puedan mostrar los agentes.

Los costes de transacción pueden descomponerse en cuatro tipos: costes de búsqueda, de contratación, de supervisión (*monitoring*), y de ejecución (*enforcement*) (Williamson, 1985; North, 1990; Hennart, 1993). El primero de ellos, costes de búsqueda, incluye todos aquellos derivados de recoger la información para identificar y evaluar los socios potenciales. Los de contratación, por su parte, se refieren a los costes asociados con la negociación y redacción del acuerdo. Los costes de supervisión están vinculados con el seguimiento del acuerdo, y persiguen el propósito de asegurar que cada parte cumple con el acuerdo de obligaciones predeterminado. Y, por último, los costes de ejecución son aquellos en los que se incurre a posteriori de la negociación, para sancionar a la otra parte por su incumplimiento con el acuerdo establecido.

Estos costes de transacción vienen determinados por tres factores (Williamson, 1985): especificidad de los activos, frecuencia del intercambio, e incertidumbre o complejidad del entorno.

La especificidad de los activos. Es una dimensión determinante que se refiere al grado en el que el valor de un activo depende de la continuidad de la transacción. Hace referencia al grado de sustituibilidad de un activo concreto y al poder que tiene una de las partes en la transacción. A su vez, también se refiere a si el activo puede dedicarse a un solo uso concreto o a varios. Cuánto mayores sean los usos que se puedan dar a un activo, menor será su especificidad. La especificidad de los activos se puede referir tanto a activos físicos como humanos. El carácter específico de un activo puede venir determinado por la localización geográfica del mismo o por los conocimientos concretos de una persona, entre otros.

La frecuencia del intercambio. Hace referencia al número de veces que se repite una transacción. Las transacciones pueden ser únicas, ocasionales o recurrentes (Williamson, 1979). Los costes de una estructura de gobierno especializada se recuperan más fácilmente cuando la frecuencia de las transacciones sea alta y recurrente (Williamson, 1985).

La incertidumbre o complejidad del entorno. Esta dimensión surge por la falta de información, derivada de la racionalidad limitada a la que se enfrentan las partes vinculadas en relaciones de intercambio.

Las aportaciones realizadas por Williamson (1975) permiten la comparación institucional de los mecanismos de asignación de recursos, y caracterizan la transacción a través de los factores que inciden en los costes de transacción, y en la elección de la estructura (empresas, mercado y formas híbridas) a través de la cual resulte más eficiente realizar una transacción. Las estructuras de gobierno de las transacciones serán más complejas cuánto mayores sean la especificidad de los activos, la incertidumbre y la frecuencia de la transacción.

Entre las distintas aplicaciones y contribuciones de la teoría de costes de transacción, en la presente investigación nos centramos en las vinculadas con el marketing, con las relaciones entre empresas y, más concretamente, las producidas en el ámbito del emprendimiento.

Teoría de costes de transacción, marketing y relaciones entre empresas

Con la aparición de la teoría de costes de transacción se revitalizó la importancia de la teoría institucional en marketing (Rindfleisch y Heide, 1997). Esto desembocó en

diferentes contribuciones en el campo de la estrategia de marketing (ej. Carson *et al.*, 1999; Ghosh y John, 1999; John y Reve, 2010). Tanto es así que John y Reve (2010) afirman que la teoría de costes de transacción ha llegado a ocupar un lugar importante en la corriente de investigación de la estrategia de marketing.

Las contribuciones entre ambas disciplinas son mutuas. Williamson y Ghani (2012, p. 74) lo reflejan a través de la siguiente proposición: "... la relación entre economía de costes de transacción y marketing ha sido y debería ser una calle de doble sentido".

Por una parte, la principal aportación de la teoría de costes de transacción a los investigadores en marketing ha sido: "... proporcionar un marco constructivo para analizar el intercambio contractual, con implicaciones comprobables que han demostrado robustez empírica a través de una amplia gama de aplicaciones" (Williamson y Ghani, 2012, p. 76). Por otra parte, el marketing ha ampliado el alcance de la teoría de costes de transacción, planteando retos y oportunidades de investigación para resolver (Williamson y Ghani, 2012).

Como conclusión acerca de la relación entre estos dos enfoques, Williamson y Ghani (2012) sostienen que el uso actual de la teoría de costes de transacción en la disciplina de marketing se centra, principalmente, en las estructuras de gobierno ("*the play of the game*") y no en el entorno institucional ("*the rules of the game*"), aunque el entorno también es importante.

Dentro de esta aplicación al marketing, la teoría de costes de transacción se ha convertido en uno de los paradigmas dominantes en el análisis de las relaciones entre empresas, incluyendo aspectos claves tales como la selección de socios y la contratación (Anderson y Dekker, 2010).

La selección de un socio es crítico para la gestión efectiva de las relaciones entre empresas (Blumberg, 2001; Dekker, 2004, 2008). La selección cuidadosa de un socio puede disminuir la probabilidad de un comportamiento oportunista y la falta de cumplimiento de los compromisos por parte del mismo (Hitt *et al.*, 2000). Los riesgos de cambio, originados a partir del contexto de transacción, contribuyen de manera significativa a explicar la elección de empresas de confianza para transacciones en la cadena de suministro (Dekker *et al.*, 2013).

En cuanto a los contratos que rigen las relaciones entre empresas, éstos suelen ser vistos como contratos relacionales caracterizados por una larga duración y por la interdependencia entre las partes (Luo, 2002). La teoría de costes de transacción postula que la principal función de los contratos es lidiar contra el comportamiento oportunista de la otra parte (Williamson, 1985). Pero esa es no es la única función de los contratos, ya que favorecen la creación de compromiso en las transacciones entre las empresas, así como el apoyo y la coordinación entre las partes (ej. Gulati y Singh, 1998; Woolthuis *et al.*, 2005; Lumineau y Malhotra, 2011).

Teoría de costes de transacción y emprendimiento

La teoría de costes de transacción se ha utilizado, principalmente, en la investigación sobre empresas establecidas (Michael, 2007). Pero también se ha empleado en el ámbito del emprendimiento, en un contexto caracterizado por transacciones noveles (ej. Michael, 2007; Brettel *et al.*, 2011). A continuación, procedemos a exponer la aplicación de la teoría de costes de transacción al concepto de oportunidad emprendedora y al denominado *transaction cost entrepreneurship*.

La teoría sobre emprendimiento se ha configurado en torno a la oportunidad emprendedora (Shane y Venkataraman, 2000), como hemos mencionado en el primer capítulo, y ello ha motivado que la teoría de costes de transacción se haya aplicado a este concepto (ej. Plummer *et al.*, 2007; Cai *et al.*, 2012). Más concretamente, y siguiendo a Plummer *et al.* (2007), ante una oportunidad emprendedora el individuo se enfrenta a decisiones sobre diferentes modos de explotarla, lo cual se ve afectado por la estructura de gobierno. A su vez, esa estructura está condicionada por la naturaleza de la oportunidad emprendedora y por el ambiente en el que surge. Al seleccionar la estructura de gobierno, el emprendedor lo hace con una “previsión consciente”, la cual se basa en lo que el biólogo evolutivo Richard Dawkins define como la capacidad humana única para simular el futuro en la imaginación (Williamson, 2000).

En este sentido, la estructura de gobierno se selecciona para limitar, por ejemplo, el comportamiento oportunista de los individuos, tanto en el momento presente como en el futuro (Williamson, 2000). Esto hace que el emprendedor tome las decisiones sobre qué activos “hacer” o “comprar” en el proceso de consecución de la oportunidad emprendedora. Estas elecciones son factores críticos para el éxito de una nueva empresa (Mosakowski, 1991). También Michael (2007) parte de las premisas de la teoría de

costes de transacción, y las extiende y adapta a las transacciones emprendedoras para desarrollar lo que él mismo denomina como *transaction cost entrepreneurship*, esto es, un análisis de costes de transacción a los que se enfrenta un emprendedor cuando inicia su relación con los clientes.

Para el contexto que nos ocupa, las relaciones entre incubados, la teoría de costes de transacción nos sirve de base para dar respuesta a los siguientes interrogantes:

- ¿Son las UBIs entornos que reducen el oportunismo percibido por parte de los emprendedores? ¿A través de qué mecanismos?
- ¿Las relaciones entre individuos en una UBI suponen menores costes de transacción frente a los que afrontaría un incubado en el supuesto de tener que iniciar una relación con empresas externas a la UBI?

En este sentido, planteamos que en las incubadoras pueden surgir relaciones (o formas de gobierno) caracterizadas por la confianza como mecanismo que mitiga la percepción de oportunismo y facilita el intercambio de conocimiento. Además, valoramos que las incubadoras constituyen un entorno privilegiado para la iniciación de relaciones entre emprendedores noveles, donde se eliminan muchos costes de transacción que surgirían de la búsqueda de información y evaluación de otros emprendedores o agentes en el mercado.

2.2.3. Enfoque basado en los recursos

El enfoque basado en los recursos proporciona un marco apropiado para tratar de explicar y predecir las bases en las que se sustentan las ventajas competitivas y los rendimientos de las empresas (Slotegraaf *et al.*, 2003; Vorhies y Morgan, 2005; Barney *et al.*, 2011). De acuerdo con esta teoría, las empresas son compilaciones de recursos y capacidades únicos, valiosos, raros, inimitables y no sustituibles, los cuales pueden proporcionar ventajas competitivas sostenibles (Barney, 1991). Por tanto, las empresas poseen y necesitan recursos heterogéneos y capacidades para desarrollarlos, con la finalidad de poder generar ventajas competitivas y explorar nuevos mercados (Barney 1991, 2002).

Las empresas poseen diferentes conjuntos de recursos (asunción de heterogeneidad de los recursos), incluso aquellas que operan dentro de la misma industria (Peteraf y Barney, 2003). Además, esta heterogeneidad lleva a que algunas empresas sean más

hábiles en el cumplimiento de determinadas actividades porque poseen recursos específicos y únicos (Peteraf y Barney, 2003). Las diferencias producidas pueden persistir debido a la dificultad de distribuir recursos entre las empresas (asunción de inmovilidad de los recursos), lo cual favorece que los beneficios derivados de la heterogeneidad de los recursos persistan a lo largo del tiempo (Barney y Hesterly, 2012).

En palabras de Barney y Arian (2001, p.138) “los recursos son activos tangibles e intangibles que las empresas utilizan para concebir y poner en práctica sus estrategias”. Más concretamente, bajo esta denominación de recursos se incluyen, entre otros, activos físicos, capital humano, y conocimiento que las empresas tienen en propiedad o tienen bajo su control (Amit y Schoemaker, 1993; Capron y Hullan, 1999). Sin embargo, no todos los recursos presentan las mismas características ni los mismos efectos para las empresas. Los recursos valiosos son los que permiten implementar y desarrollar estrategias que faciliten la reducción de costes y/o el incremento de ingresos, resultados que no podrían haberse conseguido sin estas estrategias (Barney y Arian, 2001).

Por otra parte, el término capacidad se refiere a la competencia de la empresa para explotar y combinar recursos a través de rutinas organizacionales, con la finalidad de lograr determinados objetivos de la propia empresa (Amit y Schoemaker, 1993). La gestión y el aprovechamiento de las capacidades y los recursos también puede originar heterogeneidad en los mismos (Sirmon *et al.*, 2007). Así pues, una gestión distinta de los recursos puede producir diferentes resultados, aun disponiendo de recursos y condiciones ambientales similares (Zott, 2003).

Si una empresa posee recursos valiosos que sólo tienen otro número reducido de empresas (recursos raros), y si a estas empresas les resulta demasiado costoso o difícil de imitar esos recursos (recursos imperfectamente imitables), entonces la empresa que controla esos recursos probablemente puede generar ventajas competitivas sostenibles (Barney y Hesterly, 2012). Una empresa tiene una ventaja competitiva sostenible “cuando está creando más valor económico que la empresa marginal (punto de equilibrio) en su industria y cuando otras empresas no son capaces de duplicar los beneficios de esta estrategia” (Barney y Clark, 2007).

Es necesario considerar que la mera posesión de recursos no garantiza una ventaja competitiva ni un rendimiento superior (Sirmon *et al.*, 2008). Para crear valor con los

recursos de los que disponen las empresas tienen que usarlos (Newbert 2007; Penrose, 2009). Específicamente, se crea valor, en términos de recursos, cuando son manipulados, evaluados y utilizados apropiadamente dentro del contexto en el que se enmarca la empresa (Sirmon *et al.*, 2007).

Si un recurso puede ser identificado e imitado, la ventaja competitiva desaparecerá para la empresa, al igual que si es copiado (Kortelainen *et al.*, 2010). Evitar esto es un reto cada vez más complicado, dado que el número de empresas imitadoras se incrementa a un ritmo elevado, llegando incluso a conseguir mejores resultados que las empresas a las que han copiado (Teece, 1986; Ihrig *et al.*, 2010).

Enfoque basado en los recursos, marketing y relaciones entre empresas

Las aplicaciones e interacciones entre el enfoque basado en los recursos y la disciplina del marketing han crecido exponencialmente. Según Kozlenkova *et al.* (2014), en la década de los 90, sólo 19 *papers* en marketing hacían referencia expresa al enfoque basado en los recursos; mientras que en el período 2000-2010, la cifra ascendía a 104. Esta tendencia es un indicador de la creciente importancia de la vinculación entre ambas teorías.

Kozlenkova *et al.* (2014) realizan una exhaustiva revisión de los citados estudios y, en consecuencia, extraen tres perspectivas en las que enmarcan las interrelaciones entre ambos enfoques. A continuación se describen brevemente cada una de ellas.

- (1) Enfoque basado en recursos aplicado a contextos de marketing. Los autores ponen de manifiesto que la principal razón para aplicar el enfoque basado en recursos radica en ofrecer un marco teórico que pueda explicar cómo las actividades de marketing, en diferentes contextos, conducen a recursos que puedan mejorar el rendimiento de las organizaciones.
- (2) Recursos basados en el mercado. Se refieren a un subconjunto de recursos con los que cuentan las empresas y que se relacionan con actividades de marketing, tales como la construcción de relaciones, la marca, o el conocimiento. La investigación en marketing se centra, cada vez en mayor medida, en este tipo de recursos intangibles y complementarios, los cuales pueden generar ventajas competitivas sostenibles y rendimientos superiores a los recursos tangibles. A

este respecto, el enfoque basado en recursos se utiliza como marco conceptual debido a que favorece la robustez teórica de las investigaciones.

- (3) Extensión del enfoque basado en recursos a intercambios en marketing. Teniendo en cuenta que el enfoque basado en recursos se desarrolló en la disciplina de la gestión, y que inicialmente sus aplicaciones en marketing fueron en el ámbito de la estrategia, no sorprende que un elevado número de investigaciones tomaran como unidad de análisis a la empresa. Sin embargo, Kozlenkova *et al.* (2014) ponen de relieve que diversos investigadores en marketing (Jap, 1999; Samaha *et al.*, 2011; Palmatier *et al.*, 2013) están aplicando el enfoque de recursos a las relaciones diádicas para explicar, por una parte, cómo los recursos afectan al intercambio como factores contingentes y, por otra parte, el efecto de los recursos en términos de rendimiento del intercambio.

El interés de aplicar el enfoque de recursos a los intercambios y a las relaciones entre empresas es indiscutible. En palabras de Håkansson y Snehota (1989, p.187): “ningún negocio es una isla”. Esta proposición sirve de marco para las relaciones entre empresas en las que median recursos de distinta índole. Concretamente, dentro del enfoque basado en recursos, las relaciones y las redes entre empresas son recursos valiosos en la medida en que permiten no sólo el acceso a recursos, sino también su creación y modificación (Gulati, 1999).

En la cooperación entre empresas, y más si nos referimos a un contenido basado en recursos intangibles como el conocimiento, los recursos necesitan ser compartidos y transferidos. Las empresas implicadas pueden proteger su co-desarrollo y los recursos compartidos de imitaciones externas apoyándose en mecanismos de aislamiento, tales como derechos de propiedad y ambigüedad causal (Dyer y Singh, 1998). Pero es más efectiva la estrategia de competitividad sostenida, que consiste en asegurar el flujo constante de recursos recién creados a lo largo del tiempo (Dierickx y Cool, 1989).

El emprendimiento y las UBIs en el marco del enfoque basado en los recursos

Las oportunidades emprendedoras existen, principalmente, porque diferentes agentes tienen distintas ideas sobre el valor relativo de los recursos, ideas que otros no tienen, y actúan sobre esas oportunidades no explotadas (Schumpeter, 1934; Kirzner, 1979; Casson, 1982; Shane y Venkataraman, 2000). Ante esta situación, el enfoque basado en

recursos se presenta como un marco destacado para la búsqueda y evaluación de las necesidades de recursos en las empresas, así como de posibles oportunidades de negocio (Barney, 2002; Penrose, 2009). Asimismo, explica cómo el emprendimiento requiere la capacidad de adquirir los recursos necesarios para aprovechar la oportunidad emprendedora, así como la capacidad organizativa para transformar *inputs* homogéneos en *outputs* heterogéneos (Alvarez y Busenitz, 2001). Así pues, la heterogeneidad de los recursos es una premisa básica del enfoque de recursos y también del emprendimiento (Kirzner, 1997).

Otro aspecto relevante en el ámbito del emprendimiento es la orientación emprendedora. Este concepto hace referencia a los procesos, las intenciones y las actividades de los actores claves en el proceso dinámico de creación de una nueva empresa (Lumpkin y Dess, 1996). Grande *et al.* (2011) consideran que la orientación emprendedora puede ser un recurso importante que debe ser tenido en cuenta ya que explica, de manera significativa, las variaciones entre los rendimientos longitudinales de las empresas a través, por ejemplo, del uso alternativo de los recursos de los que disponen.

Aplicando el enfoque basado en recursos a las UBIs, encontramos que éstas logran ventajas competitivas sostenibles cuando sus inquilinos, empresas incubadas, sobreviven y crecen (Lendner, 2007). En este ámbito, el enfoque basado en recursos puede ser aplicado para explicar cómo los recursos y capacidades de las UBIs activan *start-ups*, a la propia universidad, incluso a la incubadora en sí misma, para obtener ventajas competitivas y un rendimiento superior, y explicar la influencia de los recursos en el éxito de las UBIs (Somsuk y Laosirihongthong, 2014).

En el contexto del estudio de las relaciones diádicas entre incubados, el enfoque de recursos nos lleva a plantearnos las siguientes cuestiones:

- ¿Qué recursos son valiosos para los emprendedores académicos?
- ¿Qué tipo de recursos son necesarios para la construcción de relaciones entre incubados?
- ¿En qué medida las relaciones diádicas y en red dentro de las UBIs pueden entenderse como un recurso en tanto que conducen a la creación de ventajas competitivas?

Para dar respuesta a las dos primeras preguntas, nos centraremos en las características de los recursos en términos de complementariedad, suplementariedad y transferibilidad. Por lo que se refiere a la tercera pregunta, en el epígrafe 2.5. describiremos los resultados de las relaciones diádicas entre incubados.

2.2.3.1. Enfoque basado en el conocimiento

El conocimiento es una actividad creativa de construcción de la realidad (Von Krogh *et al.*, 1994), que se cimienta y crea significado a través de interacciones sociales basadas en rutinas de trabajo (Weick y Roberts, 1993; Cook y Brown, 1999), y en características específicas del entorno social y cultural (Blackler, 1995; Galunic y Rodan, 1998).

Diferentes investigadores han tratado de crear una teoría de empresa basada en una perspectiva de conocimiento. Uno de los primeros intentos fue realizado por Dierickx y Cool (1989). Ambos autores conceptualizaron el conocimiento de las empresas en términos de flujos y stocks. Los flujos se refieren a arroyos de conocimiento que fluyen dentro y a través de las organizaciones, y que contribuyen a la acumulación de conocimiento. Los stocks, por su parte, son activos de conocimiento acumulados. Los denominados flujos y stocks superiores de conocimiento son vistos como recursos de una ventaja competitiva y un rendimiento superiores.

Posteriormente, en el año 1992, Kogut y Zander también hacen hincapié en la importancia estratégica del conocimiento como fuente de ventaja, y establecen las bases para una teoría de empresa. Ellos parten de que el conocimiento está en manos de los individuos (*know-what* y *know-how*), los cuales forman parte de las organizaciones, como trabajadores. Las empresas crean y transfieren conocimiento dentro de las organizaciones mejor que los mercados. Es más, las empresas existen porque proveen una comunidad social de acciones estructuradas por principios organizacionales que permiten la creación de nuevos conocimientos. Considerando lo anterior, el conocimiento colectivo de la empresa evoluciona en una trayectoria dependiente, a través de la replicación y recombinación de conocimiento existente. En lo que podría constituir la base para una teoría de estrategia, los autores también argumentan que la capacidad de replicar el conocimiento determina la tasa de crecimiento de la empresa, pero que tal réplica también facilita la imitación por parte de los competidores. Por lo tanto, las empresas son capaces de crecer y de disuadir la imitación competitiva

únicamente recombinaando continuamente sus conocimientos y aplicándolos a nuevas oportunidades de mercado. Es decir, en un entorno competitivo, un rendimiento superior sólo puede mantenerse a través de la innovación continua.

El trabajo de Kogut y Zander (1992) fue completado por Nonaka y Takeuchi (1995), quienes proporcionaron un marco para la comprensión de la integración del conocimiento individual y organizacional. Sostienen que el conocimiento organizacional debe entenderse como todos aquellos procesos que amplifican el conocimiento creado por individuos y lo cristalizan como una parte de la red de conocimiento de la organización. Estos procesos constituyen una espiral de conocimiento, la cual es altamente iterativa y se produce, principalmente, a través de redes informales de relaciones en la organización. Esta espiral implica interacciones continuas entre el conocimiento tácito y explícito³, a nivel individual y de la organización. El modelo propuesto por Nonaka y Takeuchi (1995) identifica algunas condiciones favorables para el proceso de creación de conocimiento, entre las que se encuentran la existencia de redundancia, la variedad y un caos creativo.

Grant (1996) articula, en mayor medida, los fundamentos teóricos para el enfoque basado en el conocimiento. Las actividades de producción en las empresas requieren, generalmente, la combinación de una amplia gama de conocimiento especializado que reside en los individuos. A este respecto, la esencia de las organizaciones es su capacidad, a través de estructuras jerárquicas, para integrar conocimiento especializado de los individuos, y aplicarlo a nuevos productos y servicios. Los mecanismos que permiten tal integración son la dirección, las rutinas, y la coordinación por parte de la organización. Sobre la base de esta comprensión de las organizaciones, Grant (1996) propone la teoría basada en el conocimiento. Argumenta que la fuente de ventaja competitiva en entornos dinámicos no es el conocimiento propiedad de la organización, ya que el valor de ese conocimiento se erosiona rápidamente debido a la obsolescencia y la imitación. Más bien, la ventaja competitiva sostenible está determinada por el conocimiento no patentado, o que no tiene en propiedad, en la forma de conocimiento individual tácito. El conocimiento tácito puede constituir la base de ventaja competitiva

³ El conocimiento tácito es el “conocimiento escondido” que los individuos poseen, pero que no pueden explicar fácilmente (Byosiére *et al.*, 2010). Por su parte, el conocimiento explícito es el conocimiento sencillo de codificar (Byosiére *et al.*, 2010). En los subepígrafos 2.3.2 y 2.4.5. se amplían ambas dimensiones del conocimiento.

debido a que es único y relativamente inmóvil a la vez. Sin embargo, y dado que el conocimiento está en posesión de los individuos y no de la organización, un elemento crítico de ventaja competitiva sostenible es la capacidad de integrar el conocimiento tácito y especializado de los individuos. Grant (1996) identifica tres características del proceso de integración de conocimientos, que incrementan su valor estratégico. La primera es la eficiencia de la integración, la cual es una función del conocimiento común, la frecuencia y la variabilidad de las tareas, y una estructura que reduce la comunicación. La segunda se refiere al ámbito de esa integración, con un alcance más amplio se facilita la creación y el mantenimiento de la ventaja competitiva. La tercera es la flexibilidad de la integración para incluir nuevo conocimiento, y la reconfiguración de conocimiento existente. Además, Grant, al igual que otros autores (Kogut y Zander, 1996; Kogut, 2000), señala que el conocimiento también se puede integrar externamente a través de redes relacionales que están dentro de los límites de la organización. Estas redes proporcionan mecanismos eficientes para el acceso y la integración de nuevo conocimiento, especialmente en entornos donde la velocidad y el alcance de la integración son de suma importancia para el mantenimiento de la ventaja competitiva. De manera generalizada, el enfoque de “conocimiento como recurso” se ha convertido en la perspectiva dominante, pudiéndolo considerar una consecuencia del enfoque basado en recursos (Eisenhardt y Santos, 2002). Sin embargo, encontramos discrepancias al respecto. Por ejemplo, Spender (1996) sostiene que una teoría dinámica de la empresa basada en el conocimiento debe ser conceptualmente diferente de un enfoque basado en recursos. La razón para ello se encuentra en que el conocimiento no es un producto observable y transferible. Las organizaciones aprenden y tienen conocimiento en la medida en que sus miembros son seres maleables cuyo sentido de sí mismos se ve influido por la evolución de la identidad de la organización, lo cual también es argumentado por Kogut y Zander (1996). Así pues, la empresa es vista de forma evolutiva, como un sistema cuasi-autónomo de producción y aplicación de conocimiento, con emergentes y auto-organizadas propiedades que se derivan de la interacción de sus elementos, semi-autónomos entre sí, y del ambiente externo (Spender, 1996).

Remitiéndonos a la investigación que nos ocupa, el enfoque basado en el conocimiento sienta las bases para comprender que las relaciones entre incubados académicos permiten el acceso y la creación de conocimiento útil para las partes de la diáda

implicadas, constituyendo este recurso una posible fuente de ventaja competitiva sostenible. En concreto, en tanto que el objeto de estudio de esta tesis son empresas basadas en conocimiento, este enfoque nos conduce a algunas de las cuestiones que se plantean en este trabajo, en línea con Grant (1996):

- ¿Qué ámbitos de conocimientos o recursos se integran en las relaciones entre incubados?
- ¿Cuáles son los mecanismos para la integración eficiente de conocimiento?

De nuevo, estas preguntas encuentran respuesta bajo el enfoque de los recursos. La complementariedad, suplementariedad y transferibilidad del conocimiento se plantean como requisitos para el intercambio elocuente del conocimiento. Además, se propone un intercambio de conocimiento bidireccional, de modo que ambas partes ven enriquecido el *core business* de su negocio (el conocimiento) y, por ende, sus resultados.

2.3. Conceptualización y caracterización de las relaciones entre incubados

El intercambio relacional es un concepto clave en las relaciones entre empresas, como lo hemos expuesto al tratar el enfoque de marketing relacional. El intercambio es una alternativa al mercado o a las formas de gobierno contractual, sobre la base de mecanismos que no se materializan en contratos. Tales mecanismos se concretan en la confianza, el compromiso, la comunicación, la cooperación, y las expectativas de continuidad (Heide y John, 1990; Morgan y Hunt, 1994; Hunt *et al.*, 2006). Tomando esto en consideración, en el presente epígrafe consideramos la conceptualización de las relaciones, tanto en términos de calidad como de contenido.

- Para la calidad de las relaciones, y partiendo de las contribuciones realizadas por Morgan y Hunt (1994), planteamos que la confianza y el compromiso son variables adecuadas para caracterizar las relaciones entre incubados, si bien el binomio confianza - compromiso no ha sido analizado en el ámbito de las incubadoras.
- En cuanto al contenido de las relaciones, nuestra propuesta se concreta en el intercambio de conocimiento, debido a que las empresas incubadas en UBIs se

basan y son intensivas en ese recurso, siendo fuente potencial de ventaja competitiva.

2.3.1. Calidad de las relaciones a través de la confianza y el compromiso relacional

La calidad de la relación se refiere al grado en el que esa interacción está marcada por el desarrollo de confianza y expectativas de reciprocidad (Larson, 1992; Ring y van de Ven, 1994; Dyer y Singh, 1998). A continuación, procedemos a explicar el papel de la confianza y del compromiso en el ámbito de las relaciones en incubadoras, y la vinculación entre las dos variables.

Confianza

En el marketing relacional el concepto de confianza es un elemento central (ej. Morgan y Hunt, 1994; Fontenot y Wilson, 1997; Ndubisi y Wah, 2005), dado que abarca los valores ideológicos de este enfoque, y refuerza sus preceptos (Mitussis *et al.*, 2006).

La confianza entre empresas ha sido definida de diferentes y numerosas formas en la literatura. Siguiendo a Anderson y Narus (1990), la confianza puede definirse como la creencia de una empresa en que otra desarrollará las actuaciones que den lugar a resultados positivos para la primera, así como en que no realizará acciones inesperadas que pudieran resultar negativas. Esto se refiere a que la empresa con la que se mantiene una relación no mostrará un comportamiento oportunista y cumplirá con sus obligaciones (Dyer y Chu, 2003; Leonidou *et al.*, 2006). Por su parte, Sako (1992) define la confianza como un estado de la mente referido a las expectativas que tiene una empresa de que la conducta de otra empresa es predecible y mutuamente aceptable. Esto quiere decir que ambas partes cumplirán los compromisos asumidos. Para Chattananon y Trimetsoontorn (2009), la confianza es la creencia o convicción sobre las intenciones de la otra parte dentro de una relación.

En la construcción y el desarrollo de relaciones a largo plazo, la confianza juega un papel crítico (Anderson y Weitz, 1989). Esta variable genera ventajas competitivas, ya que mejora las rutinas para compartir información (Zaheer *et al.*, 1998; Robson *et al.*, 2008), facilita el alcance de acuerdos y la creación de expectativas positivas sobre futuras contribuciones a la relación (Tomkins, 2001), reforzando la relación entre las empresas (Johanson y Mattson, 1987).

La literatura ha analizado también las diferentes dimensiones de la confianza (Ganesan, 1994; Doney y Cannon, 1997; Ganesan y Hess, 1997; Singh y Sirdeshmukh, 2000). Tanto a nivel interpersonal como a nivel organizacional, se han considerado como principales dimensiones de la confianza la credibilidad y la benevolencia. La credibilidad se refiere a la buena intención y a la capacidad del otro socio o empresa para mantener las promesas y los acuerdos. Esta credibilidad está vinculada a características como las competencias específicas, la fiabilidad para la entrega de productos y servicios o la forma de trabajo observados en la otra empresa. La benevolencia se basa en las cualidades, intenciones y características que se atribuyen al otro socio o empresa, y que demuestran una implicación genuina y honesta en la relación, y que va más allá de la mera motivación lucrativa.

En las relaciones en el ámbito de las incubadoras, la confianza ha sido analizada en dos niveles de relaciones, las cuales procedemos a exponer a continuación.

(1) Relación *mánager* – incubados. La confianza ha sido identificada como un mecanismo que permite construir una buena relación entre el *mánager*, o el equipo de dirección en su defecto, y los incubados (Scillitoe y Chakrabarti, 2005, 2009, 2010; Tötterman y Sten, 2005; Vedel y Gabarret, 2014). A su vez, esa confianza favorece el desarrollo y el crecimiento de los negocios incubados a través de la optimización de los servicios de incubación de los que se benefician (Scillitoe y Chakrabarti, 2010).

(2) Relaciones entre incubados. La confianza es una variable determinante en intercambios entre incubados y en la formación de relaciones (McAdam y Marlow, 2008), siendo más efectiva que mecanismos formales como los contratos (Bøllingtoft y Ulhøi, 2005; Vedel y Gabarret, 2014). Es más, la falta de confianza es un obstáculo, junto con la ausencia de conocimiento de otros incubados, que impide compartir información y conocimiento en UBIs, dado que los incubados no siempre se sienten seguros de que la información compartida con otros inquilinos sea tratada de forma confidencial (Cooper *et al.*, 2012). Esto les lleva a temer que los intercambios de información y conocimiento entre ellos puedan ser perjudiciales. Frente a esta situación, los valores en los que se basa una incubadora y el rol ejercido por el *mánager* son claves para limar las trabas mencionadas. Concretamente, los valores de la incubadora pueden facilitar y promover la construcción de confianza entre los incubados (Bøllingtoft y Ulhøi, 2005). El *mánager*, por su parte, puede crear un buen ambiente de trabajo y

confianza (Tamásy, 2002), y debe establecer las bases para que entre los incubados se den relaciones basadas en la confianza (Schwartz y Hornych, 2010).

Compromiso relacional

El compromiso es una variable ampliamente estudiada en marketing (ej. Morgan y Hunt, 1994; Geyskens *et al.*, 1996; Sigauw *et al.*, 1998; Jap y Ganesan, 2000), siendo un eje central en la disciplina, a medida que se ha alejado de la visión transaccional del intercambio y ha adoptado una visión relacional (Gundlach *et al.*, 1995). Helfert *et al.* (2002) utilizan cuatro características para describir el compromiso en la relación, que son la lealtad, la buena disposición para realizar sacrificios a corto plazo, la inversión en la relación, y la orientación a largo plazo.

Más concretamente, y en lo que se refiere a las relaciones entre empresas, Morgan y Hunt (1994) definen el compromiso en la relación como el deseo duradero de una empresa por continuar una relación con otra, acompañada de su buena disposición para la realización de esfuerzos con la finalidad de mantenerla. A través del compromiso mutuo, aquellas empresas que, por ejemplo, trabajan de manera conjunta para satisfacer mejor las necesidades del cliente, pueden aumentar su rentabilidad (Jap y Ganesan, 2000). Así pues, el compromiso es uno de los elementos que define el desarrollo y la consolidación de una relación, junto con la comunicación, la cooperación y las expectativas de continuidad (Heide y John, 1990; Morgan y Hunt, 1994; Hunt *et al.*, 2006). Es más, el compromiso es una variable fundamental en las relaciones exitosas entre empresas (ej. Dwyer *et al.*, 1987; Mohr y Spekman, 1994; Morgan y Hunt, 1994; Jap, 1999).

Aunque el compromiso no ha sido una variable analizada expresamente para el contexto de las relaciones entre incubados, sí que es, sin lugar a dudas, uno de los conceptos más estudiados en el ámbito de las relaciones entre empresas. Para afianzar una relación se deben hacer promesas y llegar a acuerdos, pero también son necesarios sacrificios y perseverancia para que se hagan efectivos (Murphy *et al.*, 2007). El cumplimiento de las promesas hechas es trascendente en las relaciones entre las empresas y en las relaciones con los diferentes agentes con los que interactúan, como un medio para alcanzar otros objetivos: satisfacción de clientes, fidelización, u obtención de una rentabilidad a largo plazo (Grönroos, 1994). A medida que la relación evoluciona, el cumplimiento de los acuerdos previstos no sólo crea una percepción favorable del desempeño de una

empresa, sino que también consolida y da forma a las expectativas de la otra parte a lo largo del tiempo (Narayandas y Rangan, 2004).

La relación confianza-compromiso entre incubados

De acuerdo con la teoría confianza – compromiso (Morgan y Hunt, 1994), la confianza es el principal antecedente del compromiso. Confianza y compromiso son necesarios para producir resultados que promuevan eficiencia, productividad, y efectividad. Ambos elementos son los más prominentes a nivel relacional (Achrol, 1991; Morgan y Hunt, 1994).

Podría decirse que la relación confianza-compromiso constituye ya un axioma del marketing de relaciones y, por tanto, no requiere de un planteamiento hipotético en esta tesis. No obstante, al revisar la literatura en el ámbito relacional en incubadoras, hemos detectado que si bien la confianza en otro incubado, o entre los miembros de la red en la que está inmersa la citada incubadora, ha sido tratada por determinados autores (Bøllingtoft y Ulhøi, 2005; McAdam y Marlow, 2008; Scillitoe y Chakrabarti, 2010; Vedel y Gabarret, 2014), no se ha considerado al compromiso y, por ende, el binomio confianza – compromiso no ha sido objeto de estudio en ninguna investigación. Ello nos ha llevado a plantearnos el interrogante de si el tándem confianza – compromiso también puede sentar las bases para definir las relaciones entre emprendedores académicos en incubadoras.

Autores como McAdam y Marlow (2008) y Cooper *et al.* (2012) coinciden en destacar la ausencia de una imagen completa acerca de cómo funcionan las interacciones y relaciones dentro de las incubadoras. Durante las primeras etapas de un nuevo negocio, el emprendedor utiliza, en gran medida, redes personales y sociales de carácter informal basadas en experiencias compartidas, confianza mutua y respeto (Shaw, 1998; Chell y Baines, 2000; Sherer, 2003). Los emprendedores que están en UBIs, provienen del mundo académico y se encuentran en el mismo momento incipiente a nivel profesional: empezando a construir un negocio basado en conocimiento. Esto puede llevar a que los individuos, a través de contactos en la incubadora, puedan compartir inquietudes y experiencias entre ellos. Según Stiglitz (2000), la confianza se puede adquirir mediante interacciones frecuentes durante un período de tiempo a través de las acciones humanas. Sin embargo, los problemas pueden surgir en saber en quién confiar y en qué medida se puede confiar (Krishna, 2000). Ese temor puede aminorarse entre los incubados debido

a los aspectos que tienen en común, así como en la frecuencia de los contactos mantenidos, y en el hecho de que conocen quién está detrás de cada negocio, y de que saben dónde encontrarlos. Una vez que la confianza se haya creado entre dos incubados, esto influirá positivamente en la creación y mantenimiento de un compromiso entre ambos, que se irá afianzando con el paso del tiempo.

En definitiva, y como axioma general, mantenemos que la confianza entre incubados favorece el compromiso en las relaciones profesionales que pueden nacer entre ellos.

2.3.2. Contenido de las relaciones: el intercambio de conocimiento

Intercambiar conocimiento⁴ es el proceso por el cual el conocimiento que posee un individuo se convierte o se expresa para que pueda ser entendido, absorbido y utilizado por otros individuos (Ipe, 2003). Este proceso implica una relación, al menos, entre dos partes: una que posee el conocimiento y otra que lo adquiere (Hendriks, 1999). El intercambio no sólo es unidireccional, sino que también se puede producir una transferencia mutua de conocimiento (Szulanski, 1996, 2000). Con un mayor nivel de concreción, en el presente trabajo, al hablar de intercambio de conocimiento nos referimos a cuando los actores organizacionales reciben el conocimiento de sus pares de manera recíproca y son influenciados por él (van Wijk *et al.*, 2008).

Dimensiones del intercambio de conocimiento

Las empresas están expuestas e inmersas en diferentes relaciones con otras empresas a través de las cuales pueden acceder y adquirir nuevo conocimiento (Lyles y Salk, 1996; Tsai, 2001). En este proceso de intercambio, y siguiendo a van den Hooff y de Leeuw van Weenen (2004), se pueden identificar dos dimensiones: donación de conocimiento (*knowledge donating*) y recogida de conocimiento (*knowledge collecting*). La donación de conocimiento es definida como “comunicar a los demás el capital intelectual personal”, y la recogida de conocimiento como “consultar a los compañeros con el fin de llegar a compartir su capital intelectual” (van den Hooff y de Leeuw van Weenen, 2004, p. 14). Así pues, la donación de conocimiento supone compartir el capital intelectual que posee un individuo con otros, mientras que la recogida de conocimiento le permite a uno mismo aprovecharse del capital intelectual de otros.

⁴ Al intercambio de conocimiento también se la denomina *knowledge sharing* o transferencia de conocimiento (van Wijk *et al.*, 2008).

conocimiento en el que ambas se basan para el desarrollo de su actividad es común, por lo tanto se da complementariedad entre el principal recurso del que ambas disponen. Pese a ello, la superposición de sus recursos puede permitir acelerar la innovación o añadir nuevas líneas de productos a su cartera⁷. La complementariedad también puede darse en otros recursos, como las habilidades de las que disponen los emprendedores. Por ejemplo, habilidades sociales para iniciar contactos y generar relaciones en el ámbito de los negocios.

Las empresas competidoras, por su naturaleza, tienen un alto grado de recursos similares entre ellas (ej. Chen, 1996). Sin embargo, aquellas que realizan esfuerzos en compartir recursos suplementarios pueden ver incrementada su eficiencia, obtener beneficios y compartir costes (Dussauge *et al.*, 2000). A su vez, explotar recursos y capacidades suplementarios por empresas que están en el mismo eslabón de la cadena de valor está relacionado con modelos de negocio eficientes (Ritala *et al.*, 2014). Pero el mero hecho de que las empresas compartan este tipo de recursos no es suficiente. Se debe trabajar de forma sinérgica para que se suplementen entre sí (Wittmann *et al.*, 2009).

Con respecto a la investigación que nos ocupa, planteamos que las UBIs pueden generar un clima que favorezca la creación y el mantenimiento de relaciones, especialmente en cuanto a la complementariedad de recursos se refiere. A priori, cuando un incubado percibe que otro tiene recursos similares a los suyos, pensará que es su competencia, porque puede satisfacer necesidades similares a los mismos clientes potenciales y/o reales. Sin embargo, el hecho de que el contacto con ese “competidor” sea en el ambiente de una UBI, y no en el mercado, puede cambiar su percepción por diferentes razones, que explicamos a continuación.

- (1) Hay que considerar que los individuos que están en UBIs proceden del contexto académico, dónde se suele trabajar en equipo con compañeros del mismo departamento, se tiene un interés acentuado por la ciencia y aversión a utilizarla como fuente de enriquecimiento personal (Birley, 2002; Etzkowitz, 2004; Vohora *et al.*, 2004). Estas características no suelen coincidir con las

(http://www.cnb.csic.es/~fotonica/Photonic_en/Review/citometria_de_flujo.htm)

⁷ Las nuevas líneas de productos se pueden basar en diferentes aplicaciones para esta técnica de análisis celular, tales como hematología, inmunología y microbiología, entre otras.

El compromiso emprendedor nace y se desarrolla en determinados individuos, y sus ventajas se extienden a los negocios en los que participan activamente. El mantenimiento de este compromiso por parte de un individuo lleva a que desarrolle una competencia adicional y aumente sus capacidades, lo cual le puede proporcionar nuevas perspectivas y potencial para detectar oportunidades de negocio (Erikson, 2002). El compromiso determina el curso de los acontecimientos de una empresa (Vohora *et al.*, 2004). Es más, según Istvan (1991), el compromiso emprendedor es una fuerza que impulsa a los negocios hacia el éxito.

Es evidente la necesidad de que un académico tenga compromiso emprendedor para que la empresa que ha creado y en la que está inmerso pueda ir hacia adelante. Determinados académicos son obstinados y no quieren renunciar al control de su empresa para cederlo a otro (Vohora *et al.*, 2004), comportamiento que demuestra un compromiso emprendedor elevado. Pero esa no es la práctica dominante entre los emprendedores académicos, los cuales se enfrentan a una serie de limitaciones que pueden afectar a su compromiso emprendedor (Vohora *et al.*, 2004):

- (1) Las convicciones aceptadas por sus pares, y los sistemas de incentivos y promoción establecidos en el mundo académico distan del mundo de los negocios. Así pues, los académicos pueden renunciar a comprometerse y seguir con un negocio por no ir en contra de las premisas establecidas.
- (2) Incapacidad para aceptar riesgos y para tolerar la incertidumbre. Los científicos trabajan con cierto grado de incertidumbre en sus investigaciones, tanto en los desarrollos como en la obtención de resultados. Sin embargo, lo hacen en un ambiente de estabilidad que les brinda el entorno universitario. No ocurre de igual forma en el ámbito de los negocios. Dado que no están acostumbrados a asumir riesgos en un ambiente cargado de incertidumbre (por ejemplo, a nivel de invertir sus propios recursos y no tener la certeza de si podrá recuperar esos recursos), esto puede suponer un freno al compromiso con su propio negocio.
- (3) Falta de experiencia emprendedora previa. La mayor parte de los académicos adolece de una escasa o nula experiencia emprendedora, e incluso de experiencia en el ámbito de los negocios, aunque en menor medida. Ello puede desembocar en una falta de fe en sus propias capacidades para poder gestionar y desarrollar una empresa.

En este escenario, las UBIs pueden ser herramientas que favorezcan el compromiso emprendedor en los académicos por diversas razones que explicamos a continuación. Primeramente, todos los incubados proceden del mundo universitario, pero han creado su empresa. Luego, pueden tener convicciones y actitudes no única y exclusivamente inherentes al mundo de la academia, también cierto grado de inquietud emprendedora.

En segundo lugar, los incubados pueden acceder a distintos servicios de formación y asesoramiento a través de los cuales obtendrán conocimientos profesionales para aplicar en sus negocios. Además, en las UBIs los inquilinos disfrutan de un ambiente de negocios “protegido” frente al exterior, pudiendo desarrollar sus capacidades emprendedoras, “*learning by doing*”, mediante los servicios de los que se benefician. Esto puede ayudarles a paliar parcialmente la incertidumbre y los posibles riesgos a los que tendrían que enfrentarse. Sin embargo, aquellos que se dejen llevar por la complejidad o incertidumbre del entorno o por las implicaciones de gestionar un negocio, pueden desalentarse y verán reducido su compromiso emprendedor, o incluso desaparecerá, y no proseguirán con sus negocios.

El tercer factor que favorece el compromiso emprendedor son las relaciones que mantengan con otros incubados, aspecto que analizamos en esta tesis.

Si en las relaciones se ha forjado un nivel de compromiso entre las partes, esto podría desencadenar un mayor nivel de exigencia y ambición a nivel empresarial para ambas partes porque están involucrados en una relación de negocios de calidad.

Asimismo, en las relaciones con otros incubados, los emprendedores van a compartir sus inquietudes sobre el momento en el que se encuentran, sus experiencias profesionales, así como sus conocimientos. El intercambio de conocimiento les permitiría disponer de más recursos con los que suplir su falta de experiencia en el mundo empresarial, y podría reforzar sus capacidades para poder seguir con su negocio. Las personas con fuertes creencias sobre sus capacidades pueden ser más perseverantes en sus esfuerzos (Boyd y Vozikis, 1994). Además, cuanto mayor sea el nivel de competencia empresarial, en mayor medida se fortalece el compromiso emprendedor (Erikson, 2002).

Por lo tanto, las relaciones entre incubados que se basen en un intercambio fluido de conocimiento y que se caractericen por un compromiso entre las partes, podrían tener

un efecto de refuerzo positivo sobre el nivel de compromiso del individuo con su negocio. Además, que los académicos estén en una UBI supone su inserción en una red de negocios (aunque todos estén en su fase de iniciación), y el desarrollo de sus habilidades sociales. Estas interacciones sociales también ayudan a fortalecer el compromiso emprendedor (Erikson, 2002).

En definitiva, todo lo anterior lleva a plantear las siguientes hipótesis:

H10a: El compromiso en la relación con otros incubados influye positivamente en el compromiso emprendedor de los incubados.

H10b: El intercambio de conocimiento entre los incubados influye positivamente en el compromiso emprendedor de los incubados.

2.5.2. Generación de innovación

La palabra innovación proviene del latín *innovatio*, acción y efecto de innovar; e innovar del término latino *innovare*, cambiar o alterar las cosas incorporándoles algo nuevo (Medina y Espinoza, 1994).

La innovación se puede concretar a través de distintas formas. Desde la innovación tecnológica, entendida como los esfuerzos de investigación e ingeniería dirigido al desarrollo de nuevos productos y procesos; la innovación de mercado/producto, que se refiere a los esfuerzos de investigación de mercado, el diseño de productos y la innovación en publicidad y promoción; hasta la innovación en administración, entendida como novedad en sistemas de gestión, técnicas de control y estructura organizacional (Dess y Lumpkin, 2005).

De acuerdo con los enfoques basados en recursos y en el conocimiento, tener acceso a conocimiento externo es uno de los requisitos clave para la generación de innovación (Ghoshal y Bartlett, 1988; Eisenhardt y Schoonhoven, 1996; Grant, 1996; Nonaka *et al.*, 2006; Simonin y Özsomer, 2009). Más concretamente, el conocimiento basado en la ciencia fomenta el desarrollo de industrias y la obtención de resultados innovadores en las empresas (Narin *et al.*, 1997; Zucker *et al.*, 2002). Para que una empresa pueda ser competitiva debido a su desarrollo innovador, requiere que sus miembros compartan una cultura orientada hacia la innovación (Deshpandé *et al.*, 1993).

La generación de innovación requiere un proceso social de intercambio de conocimientos y recursos, así como el aprendizaje de competencias adquiridas a través de las interacciones entre las partes implicadas (Fabrizio, 2005). A su vez, implica una recombinación de conocimientos existentes, por lo que el acceso a un conjunto diverso de fuentes de conocimiento es crucial para que la innovación se realice con éxito (Henderson y Clark, 1990; Fleming y Sorenson, 2004).

La innovación no subyace en todos los emprendedores (Michael, 2007), pero en el caso que nos ocupa sí, ya que son científicos. Es más, éstos desempeñan un papel clave en los procesos de innovación (Zucker *et al.*, 2002). Cuanta mayor sea la experiencia científica de los emprendedores que están involucrados en *spin-offs* académicas, mayor será el nivel de innovación de la misma y, consecuentemente, se incrementará su valor (Corolleur *et al.*, 2004).

Sin embargo, es complejo que las empresas puedan disponer de todos los recursos y capacidades necesarias para innovar y competir con éxito en los campos científicos y tecnológicos que emergen continuamente. Frente a esta situación, las empresas se involucran con frecuencia en acuerdos de colaboración (Rothaermel y Deeds, 2004). La exploración de nuevas tecnologías a través de colaboraciones con socios que dispongan de conocimientos científicos refuerzan los resultados de innovación de una empresa (Jiang *et al.*, 2011). A través de las colaboraciones se pueden adquirir distintos tipos de conocimiento, y esto puede influir en la dirección que tome la innovación de las empresas participantes (Inkpen, 2002; Rosenkopf y Almeida, 2003; Bercovitz y Feldman, 2007; Hohberger, 2014). Además, la reciprocidad en el intercambio de conocimiento y el compromiso mutuo son beneficiosos para la innovación (Park *et al.*, 2014), dado que disminuyen la percepción de comportamientos oportunistas e incrementan la confianza entre las partes (Young-Ybarra y Wiersema, 1999; Rodríguez y Wilson, 2002).

Las empresas decididas a cooperar, en términos de innovación, pueden optar por alianzas de I+D con otras empresas y/o por colaboraciones científicas individuales externas. Por medio de cualquiera de las dos vías de colaboración las empresas favorecen el intercambio de conocimiento y la innovación (Hohberger *et al.*, 2015). Distintas investigaciones han puesto de relieve el papel de las alianzas como vía para que las empresas puedan acceder a conocimientos externos, relacionando directa y

positivamente estas alianzas con resultados de innovación (Hagedoorn y Duysters, 2002; Rosenkopf y Almeida, 2003; Rothaermel y Deeds, 2004; Srivastava y Gnyawali, 2011). Asimismo, los estudios sobre colaboraciones con científicos denotan que son mecanismos que facilitan el flujo de conocimiento y la innovación (Singh, 2005; Fabrizio, 2009; Paruchuri, 2010; Almeida *et al.*, 2011; Carnabuci y Operti, 2013).

Las relaciones entre emprendedores en las UBIs favorecen la generación de innovación por varios motivos: (1) las empresas incubadas tienen conocimiento y capacidad de innovación; (2) el compromiso en la relación crea un ambiente de seguridad y certidumbre para la innovación; y (3) el intercambio de conocimiento en las UBIs puede otorgar a los negocios que están en incubación una ventaja competitiva para innovar a la salida. A continuación se explica cada una de estas causas con un mayor grado de detalle.

- 1) La razón de ser de las *spin-offs* universitarias es explotar comercialmente el conocimiento, la tecnología o los resultados de investigación generados en el seno de las universidades (Pirnay *et al.*, 2003). Esto quiere decir que todas las empresas incubadas se basan en el conocimiento y tienen capacidad de innovación. Para poder generar una innovación a través de una colaboración se necesita que se produzca un intercambio de conocimiento y el acceso a distintos recursos. En el caso de los incubados ese proceso se producirá en el mismo espacio dónde realizan su actividad: en la UBI. Aunque hay colaboraciones que se dan entre socios a nivel internacional basadas en intercambios de conocimiento con resultados positivos de innovación (Phene *et al.*, 2006; Lahiri, 2010), el acceso e intercambio de conocimientos complejos se optimiza a nivel local, debido a la proximidad física y cultural (Zaheer y George, 2004).
- 2) Los emprendedores que están en incubación cuentan con apoyo desde la puesta en marcha del negocio hasta la fase de expansión (Comisión Europea, 2010). Además, y como ya se ha argumentado, pueden crear relaciones con otros emprendedores, con los que pueden compartir valores, sentir empatía y comprender el momento por el que están pasando, lo cual puede desencadenar un compromiso mutuo. Todo ello favorece la creación de un ambiente con cierto grado de seguridad y certidumbre, debido a que los académicos pueden sentirse acompañados y respaldados en sus respectivas aventuras empresariales.

Teniendo en cuenta que las alianzas y las colaboraciones internas tienden a ser herramientas de cooperación útiles en entornos innovadores bastante estables (Hohberger *et al.*, 2015), las UBIs podrían concebirse como este tipo de entornos que favorecen la colaboración entre los incubados y que pueden tener como resultado la generación de innovación.

- 3) Mientras estén en la UBI, los emprendedores que mantengan relaciones con otros incubados, basadas en intercambio de conocimiento científico y compromiso mutuo, podrán desarrollar una ventaja competitiva para ser generadores de innovación a la salida del proceso de incubación. Cuando los académicos se “gradúan” es el momento en el que deben sostener sus negocios fuera de la incubadora (Hackett y Dilts, 2004a). Esto se traduce en salir del ambiente protegido en el que iniciaron su aventura emprendedora y entrar a competir directamente en el mercado “real”. Es ahí donde las relaciones que se gestan en las UBIs pueden dar fruto en términos de capacidad de innovación.

A la vista de todo lo expuesto se propone:

H11a: El compromiso en la relación con otros incubados influye positivamente en la generación de innovación en los negocios de los incubados.

H11b: El intercambio de conocimiento entre los incubados influye positivamente en la generación de innovación en los negocios de los incubados.

2.5.3. Resultados comerciales

Los resultados económico-financieros y el desempeño de una empresa en términos de ventas y oportunidades de mercado pueden verse afectados positivamente por el intercambio de conocimiento (Davenport y Prusak, 1998; Liebowitz y Chen, 2001; Choi y Lee, 2003; Hsu, 2008), la innovación (Wang y Wang, 2012) y el compromiso (Siguaw *et al.*, 1998; Jap y Ganesan, 2000). Para poder optar a estos beneficios, crear un mayor valor y obtener mejores resultados de los que obtendrían al actuar de manera individual, las empresas pueden participar en relaciones.

Intercambio de conocimiento y resultados comerciales

El acceso a conocimiento externo es beneficioso para las empresas cuando enriquecen su stock de conocimiento y lo explotan con recursos especializados (Mowery *et al.*, 1996; Powell *et al.*, 1996; Steensma y Corley, 2000). A su vez, les puede permitir

mejorar sus niveles de rendimiento innovador en términos de variedad de productos y de reducción del tiempo de comercialización (Schoonhoven *et al.*, 1990; Eisenhardt y Schoonhoven *et al.*, 1996), así como incrementar su capacidad de resolución de problemas (Ahuja y Lampert, 2001; Vanhaverbeke *et al.*, 2006). Una de las vías que permite el acceso a conocimiento externo es la transferencia de conocimiento interno a través de relaciones. Esto permitirá optar a los beneficios del acceso a conocimiento externo y a los derivados del intercambio en sí.

Intercambiar conocimiento también acelera el tiempo de desarrollo de nuevos productos, y favorece la capacidad de innovación y los resultados de la empresa – incluyendo el crecimiento de las ventas o ingresos derivados de nuevos productos o servicios generados como consecuencia de ese intercambio (Hansen, 2002; Cummings, 2004; Hansen *et al.*, 2005; Collins y Smith, 2006; Lin, 2007; Mesmer-Magnus y DeChurch, 2009).

Determinados tipos de alianzas, como logísticas y de servicios administrativos, tienen un efecto directo sobre los resultados económicos debido al ahorro de costes que se produce como consecuencia de las sinergias generadas entre las partes (Camisón-Zornoza *et al.*, 2010). En otros casos, a través de la extensión y combinación de activos, las empresas que cooperan pueden crear conocimiento que, a su vez, puede conducir a ventajas competitivas sostenibles que permitan obtener mayores ingresos (Powell *et al.*, 1996; Simonin, 1997; Dyer y Singh, 1998; George *et al.*, 2001; Ireland *et al.*, 2002). En su mayoría los resultados están asociados con innovación de productos (Deeds y Hill, 1996; Un *et al.*, 2010) y resultados de carácter económico tales como mejoras en las ventas, beneficios y rentabilidad (De Man y Duysters, 2005). Por ende:

H12a: El intercambio de conocimiento entre los incubados influye positivamente en los resultados comerciales de los negocios de los incubados.

Compromiso relacional y resultados comerciales

Un mecanismo relacional que influye positivamente en el rendimiento de diferentes tipos de alianzas es el compromiso (Gulati, 1995; Uzzi, 1996; Dyer y Singh, 1998; Kale *et al.*, 2000; Sarkar *et al.*, 2001; McEvily y Marcus, 2005). Hay evidencias empíricas de esos efectos positivos en diferentes sectores, por ejemplo en la industria farmacéutica (Rothaermel y Deeds, 2004; Danzon *et al.*, 2007; Arora *et al.*, 2009; van de Vrande *et*

al., 2011), donde uno de cada tres nuevos productos lanzados al mercado han sido desarrollados a través de alianzas basadas en el compromiso entre las partes (Collins y Hitt, 2006). Concretamente, las empresas implicadas asumen menos riesgos y también se produce una disminución en las tasas de fracaso (Fernald *et al.*, 2015). De hecho, muchas alianzas fracasan en la consecución de los resultados que persiguen (Laroya y Krishnan, 2005) por la falta de compromiso entre las partes.

En lo que respecta a la colaboración y el compromiso entre emprendedores académicos, hay literatura que destaca los beneficios de las relaciones universidad-empresa. Las empresas que colaboran con universidades tienen unas cuotas de ventas de nuevos productos mayores que aquellas comprometidas en otros tipos de colaboraciones (Arvanitis *et al.*, 2008). Entre los factores de éxito en los proyectos de cooperación universidad-empresa destaca el nivel de compromiso de los académicos involucrados, ya que tiene un impacto positivo en los resultados (Mora-Valentin *et al.*, 2004; Agrawal, 2006; von Raesfeld *et al.*, 2012). Por consiguiente, se propone que:

H12b: El compromiso en la relación con otros incubados influye positivamente en los resultados comerciales de los negocios de los incubados.

Innovación y resultados comerciales

La literatura ha recogido en numerosas ocasiones los efectos positivos que la innovación tiene sobre los resultados empresariales (ej. Darroch, 2005; Clifton *et al.*, 2010; Liao *et al.*, 2010; Vaccaro *et al.*, 2010 ; Wang y Wang, 2012).

Como ya se ha insistido, en las UBIs la unidad de incubación son empresas noveles que se basan en el conocimiento para crear y desarrollar productos/servicios innovadores. Ese carácter innovador es intrínseco a cada empresa incubada y precede al momento de su fundación. Es más, se podría decir que la semilla de estos negocios es la innovación, ya que su comercialización o aplicación fuera del laboratorio o del ámbito académico es lo que lleva a su establecimiento. Al tratar las relaciones entre inquilinos en UBIs, nos estamos refiriendo a relaciones entre científicos. El arraigo en relaciones entre los individuos crea oportunidades económicas que difícilmente pueden ser replicadas a través de otros mecanismos como mercados, contratos o procesos de integración vertical (Uzzi, 1997).

Como se planteó en apartados anteriores, las UBIs pueden ser entornos favorables para fraguar relaciones basadas en intercambios de conocimiento y compromiso entre las partes que, a su vez, pueden tener como resultado la generación de innovación. La colaboración entre incubados llevará aparejado un incremento en la velocidad de la innovación en comparación con el tiempo que se hubiera empleado si la innovación la hubiese realizado la empresa por separado. A su vez, la innovación se traduce en una respuesta más rápida y ágil frente a los cambios del entorno, así como en la posibilidad de explotar una incipiente oportunidad de mercado. Si esto ocurriese, las empresas podrían tener una ventaja competitiva, que al explotarla podría traducirse en un incremento en las ventas totales, por las ventas generadas por esa innovación concreta, y también podrían incrementarse los beneficios, derivado del reparto de tiempo, costes y recursos empleados para su desarrollo colaborativo. Por lo tanto, se propone la siguiente hipótesis:

H12c: La generación de innovación en las relaciones entre incubados influye positivamente en los resultados comerciales de los negocios de los incubados.

2.6. Propuesta de un modelo explicativo de relaciones diádicas entre incubados

Para concluir este capítulo, sintetizamos en las Figuras 2.3. y 2.4. las hipótesis propuestas, H1 a H12, que configuran lo que denominamos el **Modelo 1**. Sus objetivos son tratar de explicar cuáles son los determinantes que llevan al desarrollo de relaciones entre incubados, cómo se caracterizan, así como cuáles son los resultados de esas relaciones en los negocios y en los propios incubados. El modelo propuesto se recoge de forma sintética en la Figura 2.3., y de forma extensa en la Figura 2.4.

Figura 2.3. Propuesta de Modelo 1. Relaciones diádicas entre incubados (síntesis)

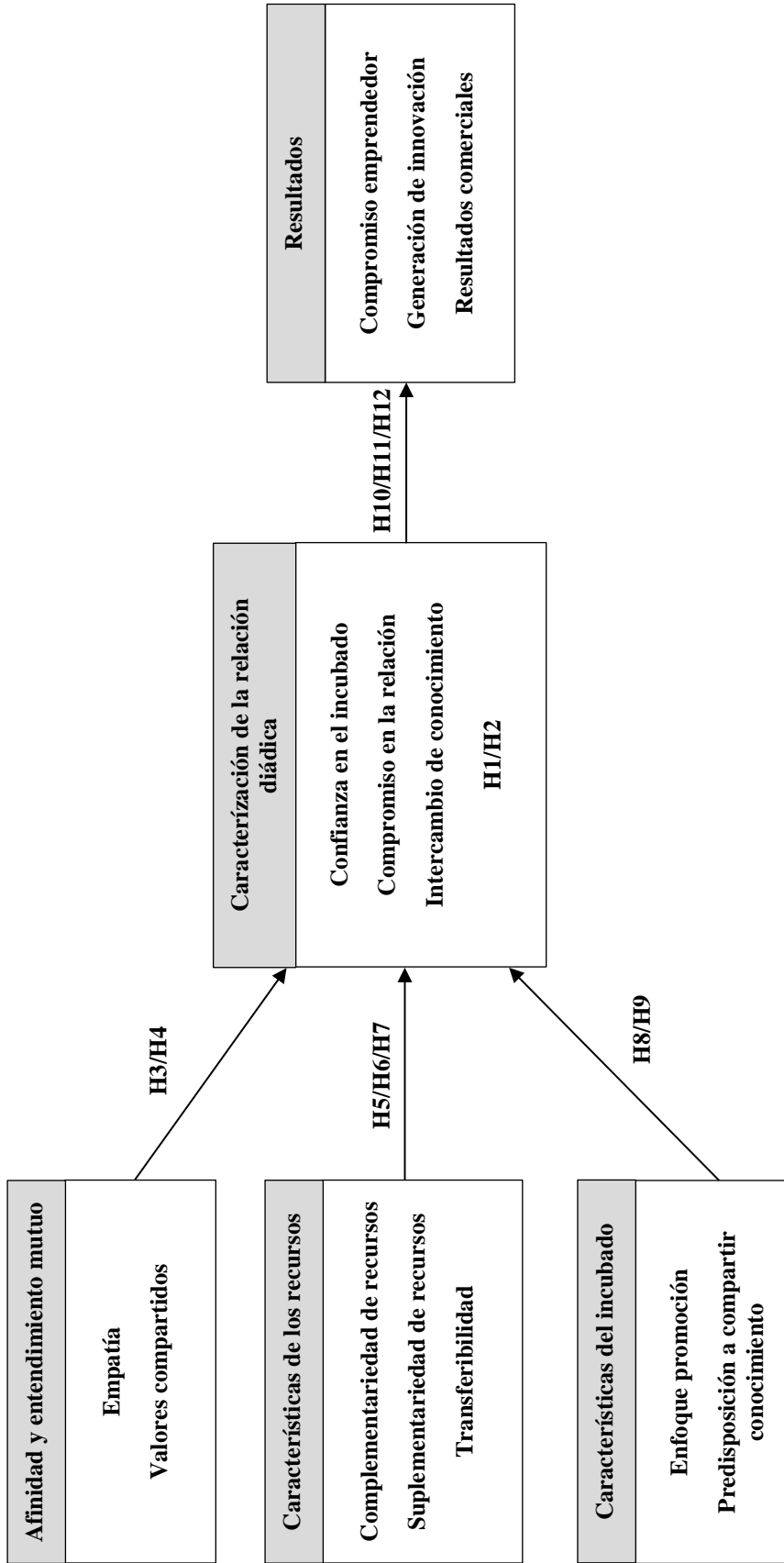
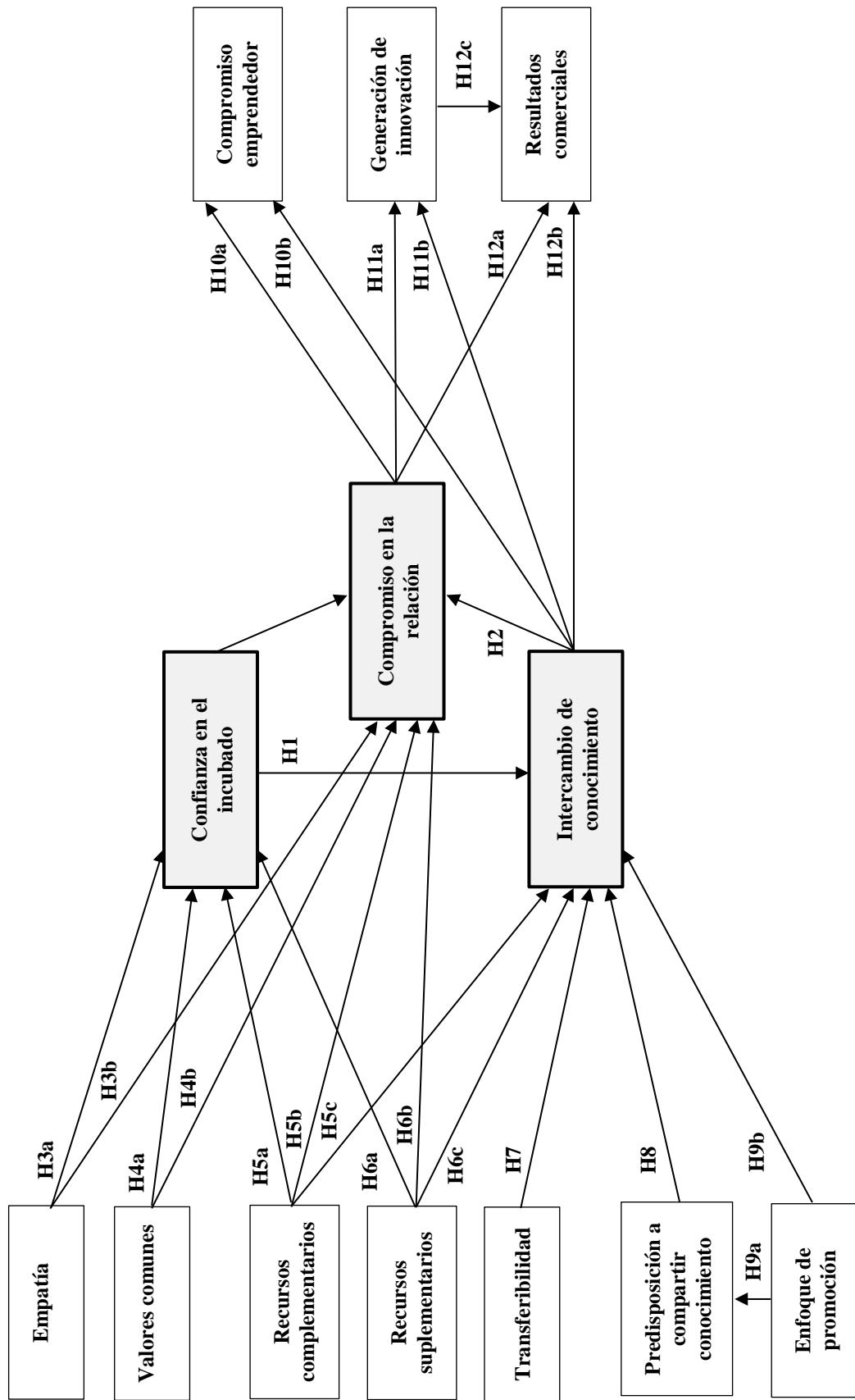


Figura 2.4. Propuesta de Modelo 1. Relaciones diádicas entre incubados



Capítulo 3. El rol del mánager en la generación de relaciones y capital social en las UBIs

3.1. Introducción

En el capítulo 2 planteamos y esbozamos diferentes cuestiones relativas a las relaciones diádicas entre incubados. Continuando en el ámbito concreto de las UBIs, en el presente capítulo introducimos la figura del *mánager*. El *mánager* (o el equipo de dirección en su defecto) es el encargado de organizar los servicios que se ofrecen a los incubados (NBIA, 2009). Su competencia para configurar los elementos del proceso de incubación y dar forma al contexto relacional en el que operan los incubados le convierten en un factor clave (Fry, 1987; Autio y Klofsten, 1998; Sherman, 1999; Lalkaka, 2002; Rice, 2002; Hackett y Dilts, 2004a; Hannon, 2005). Sin embargo, la literatura apenas ha prestado atención a la figura del *mánager* de las incubadoras (Theodorakopoulos *et al.*, 2014). Los trabajos se centran en tratar de explicar cómo el ámbito o el alcance de una incubadora puede estar influido y determinado por el organismo o la autoridad que lo desarrolla (Vanderstraeten y Matthyssens, 2012), por las competencias profesionales de los *mánagers* (von Zedtwitz, 2003), y/o por el papel del *mánager* en la selección de incubados (Anderson y Al-Mubarak, 2012; Wulung *et al.*, 2014).

A lo largo de los últimos años, distintos autores han prestado atención a los llamados *networked incubators* (Hansen *et al.*, 2000; Bøllingtoft y Ulhøi, 2005; Tötterman y Sten, 2005; McAdam y Marlow, 2007). En los estudios que han desarrollado se muestran cuáles son los mecanismos que los *mánagers* pueden emplear para crear y desarrollar relaciones entre los emprendedores dentro de las incubadoras, y también entre incubados y agentes externos. Sin embargo, son escasos los estudios empíricos y las aportaciones realizadas a este respecto.

En este contexto, se enmarcan dos de los objetivos de la presente tesis doctoral. El primero de ellos es analizar el papel de los *mánagers* de las UBIs como impulsores del tipo de servicios que se brinda a los emprendedores. Para abordar este objetivo se valora el papel del *mánager* desde el enfoque de la lógica institucional. El segundo objetivo se refiere al *mánager* como determinante clave del acceso a redes de relaciones y de la formación de un capital social dentro de la propia incubadora que pueda favorecer el desarrollo de los negocios incipientes e influir, en términos de eficiencia, en las empresas de los incubados. En este último caso, se ha seguido el enfoque del capital social.

En este tercer capítulo, con afán de analizar cada uno de los dos objetivos enunciados, explicaremos los enfoques de la lógica institucional y de capital social, plantaremos hipótesis, y se propondrán dos modelos explicativos, uno por cada objetivo. Las hipótesis formuladas, tanto en este capítulo como en el anterior, se pretenden testar en la parte empírica de la presente tesis doctoral, recogida en el capítulo 4.

3.2. Marco teórico para el rol del mánager: el enfoque de las lógicas institucionales

Thornton y Ocasio (1999, p. 804) definen la lógica institucional como “lo construido socialmente, patrones históricos de prácticas materiales, supuestos, valores, creencias, y normas por las que las personas producen y reproducen su subsistencia material, organizan el tiempo y el espacio, y proporcionan un sentido a su realidad social”. Este concepto de lógica institucional se basa en la idea de que las instituciones determinan los valores a través de los cuales los individuos y las organizaciones proporcionan sentido a sus actividades, organizan su tiempo y desarrollan sus experiencias. Los intereses, identidades, valores y asunciones de los individuos y las organizaciones están integrados dentro de las lógicas institucionales que prevalecen.

La literatura sobre las lógicas institucionales ha analizado los efectos de las lógicas, dado que cambian con el tiempo (Thornton y Ocasio, 1999; Thornton, 2002), la interacción entre diferentes lógicas (Battilana *et al.*, 2009), o la complejidad de organizaciones híbridas con lógicas institucionales competidoras (Battilana y Dorado, 2010; Pache y Santos, 2013).

La universidad y la empresa son dos ejemplos de mundos regidos por lógicas institucionales diferentes: la lógica académica y la lógica comercial, respectivamente (Merton, 1973; Perkmann y Salter, 2012). Las lógicas institucionales influyen en el comportamiento individual y organizacional, lo cual implica que la universidad y la empresa representan dos mundos con diferentes valores, formas de trabajo y objetivos. Bajo la lógica académica, los principales valores que prevalecen son la vocación por la ciencia y el desinterés económico. Estos valores pueden ser un obstáculo en el estímulo o en el desarrollo de comportamientos que llevan implícitos la transferencia de tecnología o la creación de *spin-offs* (Etzkowitz, 1998; Stuart y Ding, 2006). Por el contrario, en la lógica comercial, o en el mundo de los negocios, la obtención de

beneficios rige las actuaciones de las empresas. Para conseguir este objetivo, las empresas tienen que afrontar las condiciones cambiantes del mercado (Cyert y Goodman, 1997; Dealtry *et al.*, 2005), frente a los académicos, que trabajan en un entorno más previsible, aunque la ciencia pueda ser impredecible (van der Sijde *et al.*, 2014).

Un concepto interesante, introducido por DiMaggio (1988), es la noción de emprendedor institucional. El autor los define como aquellos actores que inician cambios que contribuyen a crear una nueva institución o a transformar una existente. En las UBIs, este rol podría ser desarrollado por los mángers, que son los responsables de transmitir la lógica de los negocios a los incubados académicos. Sin embargo, la eficiencia en el desarrollo de esta tarea dependerá de la lógica dominante. Según el enfoque de las lógicas institucionales, el comportamiento de los individuos en las organizaciones responderá a su grado de adhesión a la lógica prevaleciente. Pache y Santos (2013) señalan que la respuesta de los individuos a una lógica estará determinado por el grado de adhesión a la misma, pudiendo ser: novato, familiar e identificado. Un individuo es novato en relación a una lógica cuando tiene nada o poco conocimiento o información disponible al respecto. Un mayor nivel de disponibilidad, accesibilidad y activación de una lógica se da cuando un individuo está familiarizado. Esto supone que tiene conocimientos disponibles sobre la lógica en cuestión, que pone a disposición de otros individuos a través de interacciones sociales. Por último, un individuo que se identifica con una lógica es aquel para el que está disponible y altamente accesible. En este caso, la lógica marca qué hace el individuo y la forma en la que se relaciona con cualquier agente.

3.3. Relación entre el perfil profesional del mángers y la prestación de servicios

La realidad de las incubadoras nos muestra que, incluso aunque tengan objetivos similares, su funcionamiento no es homogéneo. Los servicios facilitados por las UBIs a sus inquilinos se estructuran en dos categorías. La primera de ellas se refiere a los típicos servicios ofrecidos por las incubadoras, los servicios de oficina, asistencia empresarial y el acceso a capital, entre otros. La segunda se centra en la universidad en sí y en los servicios relacionados que incluyen mentores académicos, acceso a estudiantes, imagen de la universidad, programas de transferencia de tecnología y

formación (Mian, 1996). Considerando estas posibilidades, en la presente investigación, consideramos tres tipos de servicios que básicamente describen cómo funcionan las incubadoras:

- (1) Asesoramiento personal a través de un *coach* que puede responder a cada uno de los requisitos de conocimiento específicos que demanden los emprendedores.
- (2) Asesoramiento empresarial relativo a diferentes funciones de gestión tales como marketing, recursos humanos, finanzas, etc.
- (3) Acceso a actividades de *networking* que favorezcan el desarrollo de habilidades sociales y la introducción de los incubados en redes profesionales.

No todas las incubadoras ofrecen estos servicios de forma sistemática y generalizada, sino que hay servicios que dependen, en gran medida, del perfil del *mánager*. Mientras en unas incubadoras la formación y el asesoramiento es general para todos los incubados y se centra en el ámbito empresarial, en otras se ofrece un asesoramiento más individualizado, mediante *coaching*, y se fomentan las relaciones entre los incubados y de éstos con otros agentes, de modo que consoliden un capital social interno y externo.

En los siguientes subepígrafes planteamos en qué medida los servicios ofrecidos por las UBIs se determinan por las lógicas institucionales de los *mánagers*. Más concretamente, explicamos la relación entre las lógicas institucionales, los valores predominantes y los servicios ofrecidos en las incubadoras.

3.3.1. La lógica comercial: experiencia del *mánager* en el mundo de los negocios

Un *mánager* con perfil profesional, bien porque haya creado su propio negocio o porque haya trabajado fuera del ámbito universitario, tendrá al menos un nivel familiar con la lógica comercial. Esto indica que el *mánager* ha estado inmerso en el mundo de los negocios. Su orientación es hacia el mercado. Sabe que la forma de trabajar y de obtener éxito es diferente en los negocios que en la universidad. Debido a su experiencia profesional, el *mánager* conoce el funcionamiento y los beneficios que se pueden obtener en los negocios. Así pues, en lo que se refiere a su actitud hacia esta lógica, y en su condición de “garante” de los incubados, estará dispuesto a “construir” un puente entre los dos mundos (van der Sijde *et al.*, 2014) con la finalidad de que los emprendedores académicos puedan optimizar su proceso de incubación.

El mánager con perfil profesional es consciente de que los incubados provienen del ámbito académico, y que su condición de principiantes en los negocios no les evitará tener que entrar a competir en el mercado con otras empresas, ni enfrentarse al resto de dificultades inherentes a ese ámbito. Más concretamente, y desde la visión de mercado del mánager, los emprendedores académicos se encontrarían con las siguientes barreras (Redondo Carretero *et al.*, 2014): piensan que la investigación es suficiente para establecer un negocio; se centran en trabajar en su producto; desarrollan sus productos sin considerar al mercado y a los clientes; no cuentan con una orientación hacia las ventas; y no tienen un comportamiento proactivo para hablar con otros individuos sobre negocios. Por otra parte, y también desde la óptica del mánager profesional, entre los beneficios que pueden derivarse de la incubación para los emprendedores académicos se encuentran los siguientes (Redondo Carretero *et al.*, 2014): obtener conocimientos e información sobre aspectos referidos a modelos de negocios y captación de financiación; aprender a priorizar las distintas actividades de negocios que deben realizar; y hacer contactos que les permitan construir su propia red, especialmente con personas del mundo de los negocios.

Siendo el mánager consciente de las limitaciones de los incubados y de los beneficios que puede reportar una UBI, parece probable que favorezca e impulse, fundamentalmente, servicios de asesoramiento empresarial, asesoramiento personal y *networking*. Primero, para superar limitaciones como la falta de visión de mercado, y para obtener conocimientos sobre modelos de negocios y otros aspectos, serían adecuados y necesarios los servicios de asesoramiento de negocios. Segundo, teniendo en cuenta que los incubados están lanzando sus empresas, las necesidades latentes e inherentes a ese momento serán variadas y numerosas. Así pues, para poder responder a ellas y a otros aspectos como la priorización de las actividades a desarrollar, el asesoramiento personal, *ad hoc*, a través de un *coach*, puede ser clave. Y, en tercer y último lugar, las actividades de *networking*. En los negocios las cuestiones en cuanto a procedimiento (tales como cuáles son las estrategias para implementar un producto) se pueden aprender, y en un plazo de tiempo menor que el necesario para formar un red de contactos. Dado que los contactos son clave para las empresas, y que los emprendedores académicos no suelen tener un comportamiento proactivo para relacionarse con agentes del mundo de los negocios, el mánager profesional impulsará actividades que

favorezcan los contactos, tanto a nivel interno (con otros incubados) como a nivel externo (profesionales fuera del mundo de la universidad). Por tanto:

H13: La experiencia en los negocios de los managers influye positivamente en el asesoramiento personal (H13a), pero también en el asesoramiento empresarial (H13b), y en el acceso de los incubados a networking (H13c).

3.3.2. La lógica académica: experiencia científica del manager

Un científico, inicialmente, no tiene orientación emprendedora, puesto que tiene una cultura académica y una clara preferencia por la investigación básica (Ndonzuau *et al.*, 2002). Incluso es posible que tenga dificultades para identificar oportunidades con aplicaciones comerciales (Lockett *et al.*, 2003).

Un manager con perfil científico, y que no tenga experiencia profesional fuera del ámbito académico, será novato en cuanto a la lógica de los negocios y familiar o identificado con la lógica académica⁸. Sin embargo, si considera su rol de manager de una UBI, tendrá en cuenta dos apreciaciones: (1) las incubadoras son centros de apoyo al desarrollo empresarial y (2) los inquilinos o incubados tienen, en su mayor parte, un perfil estrictamente académico y falta de experiencia en el mundo de los negocios (al igual que el propio manager). Por lo tanto, y ante esta situación, se planteará la siguiente cuestión: ¿qué servicios, de los que puede prestar una incubadora, pueden favorecer la preparación de los inquilinos para los negocios? Aquellos que les permitan obtener respuestas específicas y concretas a sus carencias (a través de asesoramiento personal), conocimientos empresariales a nivel procedimental (asesoramiento empresarial) y el acceso a redes de negocios (*networking*).

Parece adecuado suponer, por tanto, que el manager con perfil académico entenderá que los incubados demandan y necesitan asesoramiento específico personal y empresarial

⁸ Siguiendo el modelo ABC de van der Sijde *et al.* (2014), un académico, y por ende aquel que vaya a encargarse de dirigir una incubadora, puede presentar una de las tres posibles actitudes básicas para hacer frente a la lógica y al mundo de los negocios: (1) Reconocimiento (*Acknowledgement*). Los académicos saben que el mundo comercial tiene reglas de funcionamiento diferentes. Frente a ello, se decantan porque no haya una interferencia excesiva con la lógica académica. (2) Beneficios (*Benefits*). Conocen los beneficios que pueden derivarse del mundo de los negocios. Están dispuestos a tender un puente entre las dos lógicas, especialmente si los beneficios redundan en el mundo académico. (3) Cumplimiento (*Compliance*). Los académicos sólo cooperan con el mundo de la empresa cuando tienen la obligación de hacerlo. No muestran una disposición positiva a conocer o entender la lógica comercial.

que se adecúe a sus necesidades concretas, que serán distintas y variadas debido a la falta de experiencia empresarial de los incubados. Asimismo, esas necesidades dependerán del perfil de cada individuo, así como de la fase en la que se encuentre su negocio. Por último, y en cuanto al acceso a redes se refiere, los incubados ya están inmersos en sus propias redes dentro del mundo académico, y tienen desarrolladas habilidades sociales. Esas redes pueden ser las de su departamento, equipos de investigación con los que trabajen, investigadores o profesores de otras universidades con los que tengan contactos. Sin embargo, el *mánager* será consciente de que las redes empresariales son diferentes a las científicas, y deberá promover el acceso y la inmersión de los incubados en redes de negocios, para que puedan tener acceso a recursos específicos que no están presentes en el mundo científico.

Esta propuesta se traduce en las siguientes hipótesis:

*H14: La experiencia científica de los *mánagers* influye positivamente en el asesoramiento personal (H14a), pero también en el asesoramiento empresarial (H14b), y en el acceso de los incubados a *networking* (H14c).*

Pese al hecho de que un *mánager* académico tenga interés en fomentar los servicios de asesoramiento personal, asesoramiento empresarial y actividades de *networking*, su falta de experiencia como emprendedor puede restarle eficiencia en la promoción de estos servicios. El nivel de inexperto en el ámbito empresarial supone que el *mánager* no ha estado expuesto, ni ha interactuado con frecuencia, con individuos del mundo de la empresa. Piensa y actúa basándose en su formación y, sobre todo, en su experiencia en el mundo científico. En el mundo científico, los individuos tienen el conocimiento y el saber hacer para obtener resultados de investigación. Sin embargo, no son conscientes de que los resultados de investigación no son similares a los resultados de mercado (Redondo Carretero *et al.*, 2014). Por lo tanto, su idea acerca de cómo funciona el mercado se deriva de los estudios, proyectos e investigaciones que haya desarrollado. Todos ellos enmarcados en un nivel teórico, aunque se basen en datos u hechos procedentes del ámbito empresarial. En definitiva, esta falta de experiencia puede ir en detrimento de una oferta adecuada de servicios al emprendedor en comparación con la oferta que puede impulsar un *mánager* de perfil emprendedor. Por todo ello, proponemos:

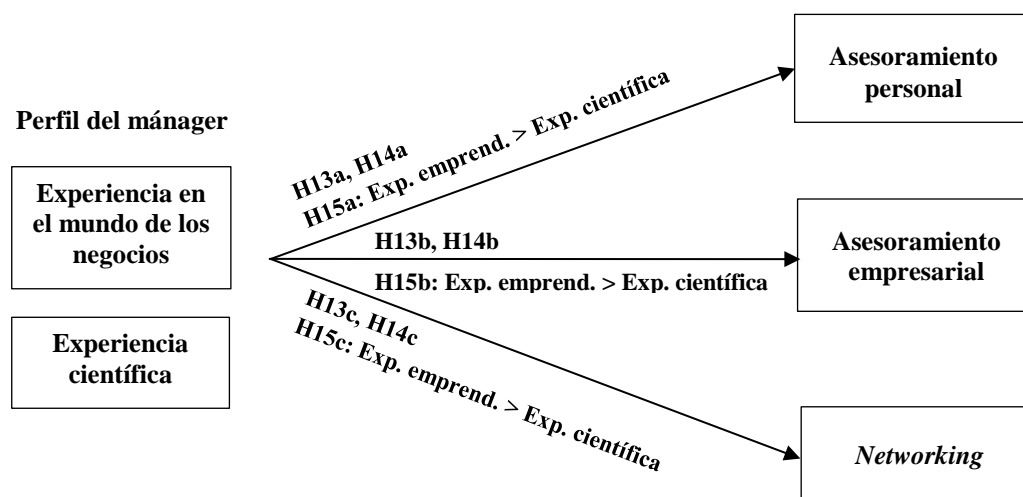
*H15: La experiencia científica de los *mánagers* tiene menor influencia en el asesoramiento personal (H15a), en el asesoramiento empresarial (H15b,) y en el*

acceso de los incubados a networking (H15c) que la experiencia emprendedora de los *mánagers*.

3.3.3. Propuesta de un modelo explicativo del perfil del *mánager* y la prestación de servicios

El segundo modelo propuesto en la presente tesis doctoral, **Modelo 2**, se ha configurado a través de las hipótesis H13, H14 y H15. Su objetivo es analizar en qué medida la experiencia científica y en el mundo de los negocios del *mánager* puede influir en los distintos servicios prestados en la incubadora, en los cuales pueden participar los emprendedores. La representación sintética del modelo se presenta a continuación, en la Figura 3.1.

Figura 3.1. Propuesta de Modelo 2. Perfil del *mánager* y servicios prestados



3.4. Marco teórico de las redes de relaciones: el enfoque del capital social

El concepto de capital social

El enfoque teórico del capital social incorpora aportaciones de diferentes ramas de las ciencias sociales (Adler y Kwon, 2002). Esto da lugar a una diversidad de propuestas acerca de su definición (Burt, 2000; Adler y Kwon, 2002; Vargas Forero, 2002), las dimensiones que lo componen y la forma de medirlas (Woolcock, 1998; Narayan y Cassidy, 2001; Chetty y Agndal, 2007). En todo caso, en las definiciones de capital social se alude, de forma explícita o implícita, a las redes de relaciones, a los recursos que contienen esas redes o a ambos (Payne *et al.*, 2011). Ello permite que a través del

capital social se capture el impacto de las relaciones humanas en la actividad económica (Barnes, 2001; Bathelt y Glückler, 2003; Boggs y Rantisi, 2003; Hauser *et al.*, 2007).

La primera aparición del concepto de capital social se remonta a 1916, cuando Lyda Judson Hanifan, un inspector de escuelas de Virginia del Oeste, puso de relieve que las relaciones sociales favorecen la eficiencia de actuaciones específicas en el medio rural. Más concretamente, a través de esa argumentación explicó la obtención de resultados superiores de determinadas comunidades de alumnos (Putnam, 2000). Posteriormente, algunos autores mencionaron, pero sin impacto académico, el término capital social⁹, hasta la definición aportada por Bourdieu en 1985. Sin embargo, antes de llegar a ese punto, y dado que el capital social se refiere a las redes de relaciones, es necesario enmarcar y explicar el estudio de las redes sociales. Para ello, debemos remontarnos al trabajo de Mark Granovetter. En 1973 desarrolla un artículo titulado “la fuerza de los lazos débiles”, el cual revisará y ampliará en el año 1983 con la publicación de “la fuerza de los lazos débiles: una teoría de redes revisitada”. Este autor plantea la hipótesis de que un tipo concreto de vínculos entre las personas, lazos débiles, tiene especial importancia (Granovetter, 1973). Los lazos débiles son aquellos que se tipifican como distantes, siendo el resultado de interacciones infrecuentes, pero que, a la vez, son propensos a ser fuentes de recursos novedades, tales como información (Granovetter, 1973). Tomando observaciones de una investigación sobre búsquedas laborales constata que los lazos débiles que un individuo acumula a lo largo de su carrera profesional predicen su desarrollo profesional en mayor medida que sus lazos fuertes, entendiendo como tales los vínculos que mantiene con familia y/o amigos (Granovetter, 1974).

Retomando la mención a Bourdieu (1985), encontramos que define el capital social como el conjunto de recursos actuales o potenciales relacionados con la posesión de una red duradera de relaciones en cierta medida institucionalizada. Bourdieu (1985) se refiere a los recursos a los que acceden los individuos debido a sus relaciones con otros, al igual que Coleman (1988)¹⁰. Sin embargo, el ámbito de aplicación del concepto se amplía con la aportación realizada por Putnam (1995, p.67), quién por capital social

⁹ Jacobs (1961) atribuye las bajas tasas de criminalidad y la pulcritud de determinados barrios antiguos de las ciudades a la densa red de relaciones sociales que se forman dentro de ellos; y Loury, en 1977, emplea el término capital social para explicar cómo el conjunto de redes de relaciones sociales que utilizan los jóvenes con la finalidad de desarrollar su capital humano (Trigilia, 2003).

¹⁰ Coleman (1988) define el capital social como los aspectos de la estructura social que facilitan determinadas acciones comunes de los actores que están dentro de la misma.

entiende “las características de la organización social, tales como las redes, las normas y la confianza social que facilitan la coordinación y la cooperación para un beneficio mutuo”.

Siguiendo a Adler y Kwon (2002) hay dos formas diferentes de crear valor a través del capital social: Coleman y las redes cerradas, frente a Burt y las redes dispersas y los agujeros estructurales. Ambas propuestas, que explicamos a continuación, constituyen las bases sobre las que se asienta el enfoque teórico del capital social.

Coleman (1988) sostiene que una red con una estructura cerrada, en términos de lazos existentes entre los actores, facilita la aparición de normas efectivas que, a su vez, mantienen la confianza entre los miembros. Esas normas fortalecen el capital social dentro de la estructura de la red, disminuyendo comportamientos oportunistas. Por el contrario, en una estructura de red más abierta, el incumplimiento de las normas puede no ser detectado y, por tanto, quedar impune. Esto llevaría a una menor confianza dentro de la estructura de la red. En consecuencia, una estructura de red abierta es más débil en relación al capital social, mientras que una red cerrada, con una estructura cohesionada y única, basada en normas y confianza entre sus miembros, favorece el capital social. No obstante, una red cerrada es más rígida y menos innovadora que una red abierta.

En contraste con Coleman (1988), quién ensalza la estructura y el funcionamiento de las redes cerradas, Burt (1992) argumenta que una red dispersa, con pocos lazos redundantes, a menudo proporciona mayores beneficios en cuanto a capital social se refiere. Esto se debe a la noción de agujeros estructurales del propio Burt (1992). Para explicarlo, se basa en los peligros de las normas consistentes fomentadas en las redes cohesionadas, y con ello plantea un argumento similar a los planteados por Granovetter (1983), quién sostiene que las redes cohesionadas y densas no proporcionan el ambiente más favorable para conexiones sociales activas. Esta función se realiza a través de lazos débiles, es decir, conexiones temporales o intermitentes a través de las cuales se canalizan inesperados flujos de información. Enlazándolo con ello, Burt (1992) afirma que la diversidad de información y las oportunidades de *brokerage* derivadas de la falta de lazos redundantes que existen dentro de una red dispersa son la fuente de valor. La existencia de agujeros estructurales dentro de una red permite a un agente actuar como bróker de información mediante la combinación de información de diferentes actores dentro de una red. Es decir, el individuo que ocupa un agujero estructural en una red

controla los flujos de información y de recursos entre los miembros de la mencionada red (Burt, 1992). A su vez, los agujeros estructurales sirven de nexo entre individuos que, de otro modo, no estarían conectados.

La razón por la que Coleman y Burt sugieren condiciones opuestas, redes cerradas frente a redes dispersas, y un uso diferente del capital social, radica en la diferencia entre sus respectivos enfoques, interno y externo, y en la diferencia en los objetivos asumidos (Adler y Kwon, 2002). A modo de resumen, podemos plantear que siguiendo a Coleman, una red cohesionada y cerrada proporciona beneficios a nivel de capital social dentro de la comunidad o grupo, mientras que en una red dispersa, los agujeros estructurales (Burt, 1992) suministran al actor focal los recursos efectivos que permiten acciones competitivas. Estos dos aspectos, los cuales se refieren a diferentes tipos de conexiones de red, se concretan y toman denominaciones específicas en el marco del capital social: *bridging* y *bonding* (Putnam, 2000).

Granovetter (1973, p. 1364) introduce el concepto de *bridge* como “una línea en una red que provee el único camino entre dos puntos”. Posteriormente, en 1983, utiliza el término *bridging* para referirse a cómo los vínculos débiles pueden crear puentes entre el contexto social de un actor y el de otro, lo que contribuye a ampliar su marco de referencia. El término de Granovetter (1983) es desarrollado por Putnam (2000), quién define el capital social *bridging* como lazos débiles, vínculos más relajados entre los actores, contactos con otros grupos de personas con diferentes *backgrounds*, pero que pueden permitir el acceso a nuevos recursos. El *bridging* implica heterogeneidad y diversidad de la red (Lee, 2009).

De otra parte, el capital social *bonding* representa relaciones estrechas, lazos fuertes entre individuos que se conocen bien, dentro de grupos homogéneos, los cuales permiten el intercambio de recursos entre los mismos, y a menudo excluyen la interacción fuera del grupo. La cohesión o la existencia de lazos fuertes es un rasgo característico de aquellas redes en las que se desalientan los comportamientos oportunistas y que favorecen el intercambio de información entre sus miembros (Granovetter, 1973; Coleman, 1990; Levin y Cross, 2004).

La combinación de patrones diferentes de capital social *bonding* y *bridging* tiene efectos positivos. Las relaciones densas y agrupadas fomentan la confianza y la colaboración estrecha, mientras que los lazos distantes actúan como puentes para que fluya información nueva y no redundante (He y Fallah, 2009). Así pues, las organizaciones

necesitan una mezcla de ambos lazos, fuertes y débiles, ya que los lazos fuertes implican intercambios más profundos, mientras que los lazos débiles proporcionan más amplitud y diversidad de conocimientos y recursos (Parmigiani y Rivera-Santos, 2011).

Niveles de análisis y dimensiones del capital social

En cuanto a los niveles de análisis del capital social, se puede diferenciar entre individual y colectivo (Payne *et al.*, 2011). El nivel individual se refiere al capital social de un individuo, y alude a las redes que él mismo ha creado en su propio beneficio. El nivel colectivo, por su parte, hace referencia a un recurso público, basado en comunidades y redes sociales de las que se benefician todos los miembros del grupo, comunidad o colectivo en cuestión. Ambos tipos de capital social, individual y colectivo, tienen sus propios antecedentes y resultados, pero pueden interrelacionarse entre sí (Portes, 1998; Woolcock, 1998).

En un mayor grado de detalle, y siguiendo a Payne *et al.* (2011), el capital social colectivo se puede diferenciar entre capital social interno y externo. El capital social interno es el que se establece entre los miembros de un grupo, centrándose en las características internas de los miembros involucrados (Adler y Kwon, 2002). Mientras que el capital social externo se refiere a los vínculos que una organización mantiene con agentes externos (Adler y Kwon, 2002; Yli-Renko *et al.*, 2002). El capital social interno guarda un paralelismo con el capital social *bonding*, al igual que el capital social externo hace lo propio con el *bridging* (Adler y Kwon, 2002; Chetty y Agndal, 2007).

Puesto que el capital social es el resultado de las redes de relaciones del individuo, Nahapiet y Ghoshal (1998)¹¹ plantean tres dimensiones que aluden a las características de esas redes: estructural, relacional y cognitiva.

(1) **La dimensión estructural** abarca la interacción social que se produce en una red, centrándose en las propiedades del sistema social y de la red de relaciones como un todo (Nahapiet y Ghoshal, 1998). Más concretamente, se refiere al modelo de conexiones entre los actores de una red, representando a quién se alcanza y cómo (Burt, 1992). El

¹¹ Nahapiet y Ghoshal (1998) plantean que el capital social es la suma de los recursos actuales y potenciales a los que puede acceder el individuo a través de sus redes de relaciones. Así pues, el capital social representa los recursos relacionales alcanzables por los actores a través de nexos sociales (Coleman, 1990; Bourdieu y Wacquant, 1992; Putnam, 1995; Adler y Kwon, 2002), pudiendo ser de distinta índole: conocimiento, experiencia, habilidades, y otras capacidades como innovación y colaboración (Yli-Renko *et al.*, 2001; Hatzakis *et al.*, 2005; Liao y Welsch, 2005).

capital social, bajo esta dimensión, se puede analizar a través de la configuración de la red, que determina las uniones entre sus miembros, en términos de densidad, conectividad y jerarquía (Nahapiet y Ghoshal, 1998). Burt (2000), por su parte, se centra en las siguientes variables para configurar una red: densidad, jerarquía, y tamaño. En la investigación que nos ocupa, vamos a centrarnos en la propuesta de Burt (2000). La densidad se asocia con la flexibilidad y la facilidad en el nivel de contacto o de accesibilidad entre los miembros de una red (Ibarra, 1992; Nahapiet y Ghoshal, 1998). La jerarquía hace referencia a redes verticales, en las que se vinculan agentes desiguales en relaciones asimétricas de dependencia (Putnam, 2000). Y, por último, el tamaño se refiere al número de miembros que forman parte de una red (Burt, 2000).

(2) El capital social en su **dimensión relacional** alude al grado en el cual dentro de una red existen relaciones fluidas entre los participantes. En concreto, Nahapiet y Ghoshal (1998) caracterizan el capital social relacional a partir del grado de confianza, normas comunes, obligaciones e identificación como grupo. Putnam (1993) indica la necesidad de que las organizaciones, internamente, inculquen a sus miembros hábitos de cooperación y solidaridad. Esos hábitos se pueden verter posteriormente en la participación de sus miembros en otras organizaciones, y pueden generar confianza (Eklinder-Frick *et al.*, 2012). Altos niveles de confianza lleva a que los individuos estén más dispuestos a participar en el intercambio social y en interacciones cooperativas, tales como pedir ayuda, tener conversaciones espontáneas y reuniones no planificadas, así como intercambio de información, conocimiento y recursos (Lee *et al.*, 2005).

(3) Por último, el **capital social cognitivo** se refiere a la capacidad de los individuos para interactuar a través de lenguajes comunes, códigos, formas narrativas, y entendimiento entre los miembros de una comunidad, así como a través de objetivos compartidos y una cultura común (Nahapiet y Ghoshal, 1998).

Las redes de relaciones en las que puede estar inmerso un individuo son de distinta índole. Stone y Hughes (2002) sugieren que el capital social presente en cada una de ellas no tiene por qué ser similar y, por ello, proponen diferenciar tres tipos de redes y analizarlas por separado. El primer tipo son las denominadas relaciones informales, de las cuales forman parte familiares, amigos, conocidos y compañeros de trabajo. El segundo son las relaciones generalizadas, que hacen referencia a las que se tienen con colectivos como asociaciones, agrupaciones o comunidades en general. Y el tercer tipo se refiere a relaciones institucionales, que son aquellas mantenidas con miembros de

organismos públicos y medios de comunicación, entre otros. En la investigación que nos ocupa nos centraremos específicamente en las redes de negocios o de ámbito empresarial en la que las empresas puedan relacionarse directamente con otras empresas, a nivel horizontal.

Capital social, marketing de relaciones y relaciones entre empresas

Las evidencias son cada vez mayores acerca del efecto que tiene el capital social en el acceso a los recursos y capacidades de otros agentes, así como en el establecimiento y mantenimiento de relaciones de negocios (Partanen *et al.*, 2008). El capital social y el marketing de relaciones se convierten, por tanto, en enfoques complementarios dado que se centran en las relaciones como mecanismo para acceder a recursos y poder intercambiarlos, así como para mejorar capacidades de los individuos implicados. Es más, hay algunos autores, como Lawson *et al.* (2007), que vinculan conceptos de ambas teorías. En concreto, se da un paralelismo entre los conceptos de capital social relacional y orientación relacional de las relaciones diádicas.

Sin embargo, mientras que el marketing de relaciones también se enfoca al estudio del establecimiento, desarrollo, y mantenimiento de relaciones diádicas (Morgan y Hunt, 1994), y se ha aplicado de manera extensa al ámbito empresarial, el enfoque de capital social resalta la importancia de las redes de relaciones y el acceso a los recursos que contienen (ej. Gilmore *et al.*, 2006).

En relación a las bondades del capital social en el ámbito empresarial, se puede decir que es un recurso estratégico para las empresas y una fuente de acceso a conocimiento, experiencia, habilidades y otras capacidades como la innovación (Hatzakis *et al.*, 2005). Pero no sólo eso, sino que a través de las relaciones con las empresas que están dentro de una red se pueden favorecer intercambios entre ellas, por ejemplo basados en conocimiento (Nahapiet y Ghoshal, 1998). Para ello, las partes implicadas tienen que mostrar predisposición y capacidad para identificar, intercambiar y asimilar conocimiento (Yli-Renko *et al.*, 2001). Las empresas son capaces de incrementar la profundidad, amplitud y eficiencia del intercambio de conocimiento mediante una estrecha interacción social (Lane y Lubatkin, 1998). Así pues, y considerando que las empresas son depositarias de conocimiento y competencias (Kogut y Zander, 1996; Spender, 1996), el capital social permite a una empresa involucrada en una relación aprovechar el conocimiento de su compañero de intercambio.

El emprendimiento y las incubadoras bajo el enfoque del capital social

Las investigaciones sobre emprendimiento y capital social se han ido incrementando a lo largo de los años, poniendo de manifiesto una relación entre ambas disciplinas (Hoang y Antoncic, 2003; Slotte-Kock y Coviello, 2010). La razón para ello la encontramos en que las ideas procedentes del capital social han sido aplicadas con éxito al ámbito del emprendimiento (Smeltzer *et al.*, 1991; Lin y Steven, 2010; Comeche y Loras, 2010). Así pues, un número significativo de estudios en ese campo se ha centrado en las relaciones en redes, su estructura y mecanismos de gobernanza (Hoang y Antoncic, 2003). Es más, algunos autores han identificado al capital social como un tema clave en la literatura sobre emprendimiento (Fornoni *et al.*, 2011).

Los emprendedores necesitan recursos de distinta índole. Además, tienen que enfrentarse a dificultades y trabas inherentes al carácter novel de su negocio y a su nueva condición profesional para acceder a ellos. Con frecuencia complementan sus recursos mediante el acceso a sus contactos (Aldrich y Zimmer, 1986; Aldrich *et al.*, 1991; Cooper *et al.*, 1995; Hansen, 1995). Los contactos que conducen a resultados exitosos son su capital social y constituyen un componente clave de las redes empresariales (Burt, 1992). Por tanto, y a tenor de lo expuesto, los nuevos emprendedores pueden desarrollar capital social como una estrategia que ayude a adquirir recursos clave para el desarrollo de sus negocios, tales como conocimiento (Yli-Renko *et al.*, 2001). Las evidencias empíricas señalan que los emprendedores utilizan su capital social para acceder a recursos no de manera puntual, sino en cada una de las fases de proceso de establecimiento de sus negocios (Greve y Salaff, 2003). A este respecto, se pueden diferenciar tres fases claves (Wilken, 1979):

- (1) Fase de motivación. El individuo discute su idea inicial y desarrolla el concepto de su negocio con sus contactos más próximos.
- (2) Fase de planificación. El potencial emprendedor prepara la creación de su negocio. Para ello necesita conocimientos y recursos. La obtención de los mismos conlleva muchas actividades de distinta naturaleza (Zhao y Aram, 1995; Carter *et al.*, 1996). Esta fase, dotada de incertidumbre, es la que más tiempo requiere para buscar y establecer relaciones (Hansen, 1995).
- (3) Fase de establecimiento. El emprendedor establece la empresa. Dirige las actividades diarias y la resolución de problemas que van surgiendo. Debe hacer

frente a numerosos contactos con diferentes agentes, y es precisamente en esta fase cuando desarrolla y potencia su capital social.

A lo largo de este proceso, la construcción de relaciones varía en función del número de contactos y del tiempo dedicado a la creación y al mantenimiento de las mismas, dependiendo de la fase en la que se encuentre el emprendedor (Greve y Salaff, 2003).

Centrándonos en el ámbito de la investigación que nos ocupa, las incubadoras de empresas, apreciamos que los trabajos que han tratado el capital social que se desarrolla en el ámbito de las incubadoras son de muy diversa índole. Como se observa en la Tabla 2.2., en la que se describen las investigaciones más relevantes que analizan el capital social en las incubadoras, abundan los estudios de casos, donde los datos se han recogido en un número reducido de incubadoras (Lyons, 2002; Bøllingtoft y Ulhøi, 2005; Tötterman y Sten, 2005; Ahmad, 2014), centrados en empresas tecnológicas (Scillitoe y Chakrabarti, 2005; Studdard, 2006; Hughes *et al.*, 2007; Scillitoe y Chakrabarti, 2010; Hughes *et al.*, 2011), y en países nórdicos y Estados Unidos (Lyons, 2002; Bøllingtoft y Ulhøi, 2005; Scillitoe y Chakrabarti, 2005; Tötterman y Sten, 2005; Studdard, 2006; Scillitoe y Chakrabarti, 2010). Solamente uno de ellos, el realizado por Tötterman y Sten (2005), considera el capital social de las incubadoras en sus tres dimensiones, pero ninguno diferencia entre el capital social del incubado y de la incubadora.

Tabla 3.1. Síntesis de la literatura sobre capital social en incubadoras

Autor/es (año)	Objetivo	Unidad de análisis	Metodología	Contexto	Rol del mánager de la incubadora
Lyons (2002)	Aproximación a la construcción de capital social basado en las necesidades específicas de las empresas rurales.	Empresa incubada	Entrevistas electrónicas y telefónicas en profundidad, y recursos secundarios.	Dos programas de incubación y un programa de desarrollo económico basado en la comunidad, en Estados Unidos.	No se considera.
Bøllingtoft y Ulhøi (2005)	Examinar porqué el modelo de <i>networked incubator</i> ha emergido y qué le distingue de los modelos de incubadoras más tradicionales.	Incubadora	Metodología etnográfica: notas de campo, observaciones procedentes de la participación en reuniones y eventos, acceso a la lista de correo, y otros documentos de archivo.	Un <i>networked incubator</i> en Dinamarca.	El mánager de la incubadora puede organizar y controlar las redes formales en mayor medida que las informales.
Scillitoe y Chakrabarti (2005)	Comprender cómo las incubadoras tecnológicas pueden crear capital social que permita acelerar el aprendizaje tecnológico de nuevas empresas de base tecnológica (NEBTs).	Empresa incubada	Cuestionario on-line a 42 incubados (26 NEBTs estadounidenses y 17 NEBTs finlandeses).	19 incubadoras que han tenido relaciones contractuales con NEBTs en Finlandia (8) y en Estados Unidos (11).	No se considera.
Tötterman y Sten (2005)	Explicar cómo las incubadoras de empresas pueden ayudar a los emprendedores en sus esfuerzos para construir redes para el beneficio de sus propias empresas.	Incubadora	Cuestionario y entrevista en profundidad a 21 participantes (mánagers de incubadoras, incubados, y emprendedores post-incubados).	Tres incubadoras no lucrativas en Finlandia.	Figura central en apoyar la confianza, lo cual permite la creación de redes e interacciones sociales entre los miembros de la red de la incubadora.
Studdard (2006)	Explorar cómo la adquisición de conocimientos de procesos empresariales, por parte de empresas noveles, como resultado de interacciones con el mánager de la incubadora impacta en el desarrollo de nuevos productos.	Empresa incubada	Cuestionario on-line a 48 incubados.	Incubadoras orientadas a la tecnología en Finlandia y Estados Unidos.	El mánager de la incubadora debería focalizarse más en asesoras a las NEBTs con crecimiento en el mercado.
Hughes et al. (2007)	Identificar cómo las empresas incubadas eligen comportarse para aprovechar las oportunidades en red.	Proceso de incubación	Cuestionario on-line a 211 mánagers de empresas incubadas.	143 incubadoras de alta tecnología en el Reino Unido.	El mánager de la incubadora necesita cuidar la selección de quién debe formar parte de la red de la incubadora.

Tabla 3.1. Síntesis de la literatura sobre capital social en incubadoras (continuación)

Autor/es	Objetivo	Unidad de análisis	Metodología	Contexto	Rol del mánager de la incubadora
Fang <i>et al.</i> (2010)	Examinar un modelo de aprendizaje emprendedor en programas de incubación mediante la investigación centrada en la proactividad de los incubados y en el capital social incubadora-incubado.	Proceso de incubación	Cuestionario postal a 101 mánagers de empresas incubadas.	Programas de incubación en Taiwan.	No se considera.
Honig y Karlsson (2010)	Estudiar las características de las redes de los propietarios de las empresas, distinguiendo entre empresas incubadas y no incubadas.	Empresa incubada	Cuestionario a 87 empresas (51 incubadas y 36 no incubadas).	Dos grupos de empresas canadienses: incubadas y no incubadas.	El mánager de la incubadora juega un papel en la comunidad. Su importancia va más allá de su jurisdicción en la incubadora, hacia la promoción del sector de la pequeña empresa en general.
Scillitoe y Chakrabarti (2010)	Analizar el rol de asesoramiento y las interacciones de networking entre la gestión de la incubadora y las NEBTs, en lo referido a beneficios para los negocios y asistencia técnica.	Proceso de incubación	Cuestionario on-line a 42 incubados (28 NEBTs estadounidenses y 14 NEBTs finlandeses).	Incubadoras que han tenido relaciones contractuales con NEBTs en Finlandia y Estados Unidos.	Las interacciones entre los incubados y la dirección de la incubadora influye el asesoramiento técnico y de negocios.
Hughes <i>et al.</i> (2011)	Examinar qué comportamientos en red generan capital social cómo el capital social influye el aprendizaje organizacional en las empresas incubadas.	Proceso de incubación	Cuestionario postal a 210 NEBTs.	143 programas de incubación para NEBTs en el Reino Unido.	El mánager de la incubadora puede ayudar a identificar problemas y a poner en contacto a una empresa incubada con otra o con una de la red externa para solucionar los problemas. Pero depende de la tolerancia de la NEBT para ello.
Ahmad (2014)	Considerar incubación como un proceso social, basado en la teoría diádica, teoría de capital social y teoría de redes sociales.	Proceso de incubación	Metodología etnográfica: entrevistas semiestructuradas (con 57 incubados y 11 miembros de organización de incubadoras) y observación no participativa.	Dos incubadoras de empresas; una incubadora universitaria y un centro de empresas comunitario en Dublín (Irlanda).	Se da un rol positivo a nivel relacional entre el mánager de la incubadora y los incubados durante el proceso de incubación.
Ebbbers (2014)	Estudiar el comportamiento en red como un antecedente de la formación de vínculos entre los incubados.	Incubado	Cuestionario on-line a 101 incubados.	Incubadoras de empresas especializadas en industrias creativas en los Países Bajos.	Recomendación para fomentar las redes de los incubados.

A la vista de lo expuesto con anterioridad, e inmersos en la tesis doctoral, el marco teórico de capital social nos permitirá responder diferentes cuestiones, entre las que se encuentran:

- ¿Cómo se pueden fomentar los contactos internos y externos de los emprendedores que están en incubadoras?
- ¿Cuál es la labor del mánager en la construcción del capital social de la incubadora y del incubado?
- ¿Cuál es la influencia del capital social interno de la incubadora en la formación del capital social propio del incubado y en el desarrollo de su negocio?

Adoptando el enfoque del capital social, en esta tesis explicaremos el papel de las incubadoras como espacios para el desarrollo de capital social interno (a nivel cognitivo y relacional) y analizaremos en qué medida el capital social interno de la incubadora favorece el desarrollo del capital social individual del incubado (a nivel estructural) y el desarrollo de su negocio.

3.5. El papel del mánager en la creación de capital social

Los mánagers pueden añadir valor al proceso de fomento y generación de relaciones en las incubadoras. Es más, la relación entre el mánager y los inquilinos es una de las variables que afecta directamente al éxito de los incubados (Fry, 1987; Udell, 1990; Autio y Klofsten, 1998; Sherman, 1999; Rice, 2002). A pesar de ello, hay un número limitado de estudios en los que se analiza el rol del mánager como impulsor de relaciones dentro y/o fuera de la incubadora (Hansen *et al.*, 2000; Rice, 2002; Hannon y Chaplin, 2003; Tötterman y Sten, 2005; Scillitoe y Chakrabarti, 2010; Cooper *et al.*, 2012; Vedel y Gabarret, 2014).

Los estudios sobre incubadoras y capital social se han centrado en el funcionamiento de las relaciones dentro de las incubadoras (Lyons, 2002; Hughes *et al.*, 2007), la comparación del capital social de incubados y no incubados (Honig y Karlsson, 2010) o el rol del mánager como asesor (Studdard, 2006; Scillitoe y Chakrabarti, 2010; Ahmad, 2014) y apoyo en la formación de vínculos entre los incubados y agentes externos (Bøllingtoft y Uihøi, 2005; Tötterman y Sten, 2005). Ebbers (2014) también resalta la importancia de que el mánager fomente redes entre los incubados. Sin embargo, pese a

que la literatura ha enfatizado la idea de que las incubadoras contribuyen al desarrollo de capital social, no existen trabajos que analicen empíricamente las relaciones causa-efecto entre la labor del mánager como elemento central para el desarrollo de capital social ni la influencia del capital social colectivo en el capital social individual y en el éxito de los negocios incubados.

Aunque los contactos entre los mánagers y los inquilinos suelen ser infrecuentes (Honig y Karlsson, 2010), el interés por la faceta relacional del mánager y el reducido número de investigaciones desarrolladas nos lleva a explicar a continuación cómo y en qué medida la orientación relacional del mánager puede favorecer la creación y el desarrollo de diferentes dimensiones del capital social en la incubadora en pro de vínculos entre los incubados, y de éstos con agentes externos, y cómo todo ello, a su vez, permite mejorar la eficiencia de los negocios incubados.

3.5.1. El capital social dentro de las incubadoras. Dimensiones e interrelación

El capital social puede analizarse a nivel individual, cuando se refiere a un recurso privado de un individuo y que alude a las redes que él mismo ha creado en su propio beneficio, o a nivel colectivo, cuando se refiere a un recurso público, basado en comunidades y redes sociales de las que se benefician todos los miembros (Payne *et al.*, 2011). En las UBIs los individuos tienen la posibilidad de desarrollar tanto su capital social individual, como la posibilidad de ser miembros de un grupo o un colectivo (incubados), y acceder así al capital social colectivo.

El capital social colectivo de una incubadora se deriva de vínculos internos entre los incubados, vínculos que se pueden caracterizar por las tres dimensiones previamente definidas (estructural, relacional y cognitivo). Si bien en el caso de las incubadoras universitarias, a nivel estructural, no existen diferencias relevantes entre ellas, ni en densidad (el número de incubados suele ser semejante en todas las incubadoras) ni en conectividad (puesto que comparten espacios, en todas las incubadoras todos los incubados tienen posibilidad de contactar entre sí).

Por otro lado, el capital social individual del incubado incluye tanto las relaciones que mantiene dentro de la incubadora como el acceso a redes y contactos en el exterior. De acuerdo con Lyons (2000), las redes internas y externas son fundamentales para los

emprendedores que están en incubadoras, dado que les ayudan a tener acceso a redes de negocios. Para medir el capital social del incubado nos centramos en la estructura de su red de relaciones. Como ya se apuntó anteriormente, la estructura de una red ha sido asociada con dos tipos de conexiones: *bonding* y *bridging* (Granovetter, 1973; Putnam, 2000; Lee, 2009). Bajo el término *bonding* social capital se recogen relaciones estrechas, lazos fuertes entre individuos que se conocen bien, los cuales permiten el intercambio de recursos entre los mismos. Por su parte, *bridging* social capital hace referencia a lazos débiles, a contactos con otros grupos de personas con diferentes *backgrounds*, pero que pueden permitir el acceso a nuevos recursos.

A continuación procedemos a explicar las interrelaciones que pueden establecerse entre las distintas dimensiones de capital social en las incubadoras, y su influencia en la eficiencia de los negocios de los incubados.

3.5.1.1. Capital social estructural del incubado

El capital social estructural indica la configuración y estructura de las relaciones que se dan en una red. De acuerdo con la literatura de capital social (Granovetter, 1973; Burt, 1992), esta estructura se caracteriza por el capital social *bonding*, o cohesión entre sus miembros, y por el capital social *bridging*, o acceso y contacto con otras redes o grupos. En el caso de los incubados, las relaciones que establecen dentro de la incubadora les permitirán crear una red de relaciones que, siguiendo este planteamiento, caracterizaremos por el número de contactos estrechos con otros incubados (capital social *bonding* del incubado), y por el acceso que consiga a redes externas (capital social *bridging* del incubado).

El capital social *bonding* hace referencia a los lazos estrechos y a la cohesión que caracterizan a una red de relaciones, y al nivel de confianza mutua que facilita el intercambio y la acción colectiva (Putnam, 1995). De acuerdo con Coleman (1988), los miembros de una red cohesionada confían unos en otros, lo que disminuye la incertidumbre de los intercambios y permite la cooperación. El capital social *bridging* alude a los lazos débiles o “menos estrechos” que los individuos establecen con otros grupos y que les pueden brindar acceso a nuevas ideas, oportunidades o información (Putnam, 1995). Podríamos decir que es el capital social “puente” hacia nuevo conocimiento.

La incubadora es un entorno que favorece el desarrollo de relaciones entre los incubados (Bøllingtoft y Ulhøi, 2005) y, por tanto, la adquisición de capital social *bonding*. Este capital social *bonding* del incubado, esto es, el grado en el cual él mantiene relaciones estrechas con otros miembros de la incubadora, es un recurso intangible cuyo valor radica en que permite el acceso de los incubados a diferentes recursos valiosos para su negocio difíciles de obtener por otra vía. En el caso de los incubados universitarios es evidente su necesidad de diversos recursos, como se ha mencionado con anterioridad, así como las dificultades y trabas para acceder a ellos derivado de su falta de *expertirse* en el mundo empresarial. Gracias a los contactos y relaciones que mantienen los incubados entre ellos, se produce un intercambio de información que permite mejorar sus habilidades empresariales y acceder a recursos.

El capital social *bonding* del incubado también permite el desarrollo de relaciones externas. La relación con otros incubados puede ser el “puente” para conectar con otras redes o grupos externos, es decir, acceder a capital social *bridging*. Otros emprendedores con una posición de *brokerage* (Burt, 2000) pueden actuar como agujeros estructurales (Burt, 1992) que conectan a un incubado con otros grupos. Entre los contactos y relaciones dentro de la incubadora, el emprendedor puede encontrar agujeros estructurales que le vinculen con otras redes y otros contactos, de los que pueden derivarse ventajas competitivas para sus incipientes negocios (Baron y Markman, 2000). Concretamente, esas interacciones podrán extenderse a potenciales clientes y socios que estén fuera de la incubadora (Bøllingtoft y Ulhøi, 2005). Por tanto, y considerando todo lo anterior, se enuncia la siguiente hipótesis:

H16: El capital social bonding del incubado influye positivamente en su capital social bridging.

En el contexto del emprendimiento, los emprendedores tendrán más posibilidades de éxito cuando tienen conexiones de negocios con otros emprendedores e instituciones diversas, tales como consultores y centros de información (Smilor y Gill, 1986). Las redes de relaciones de una empresa, y por extensión de un incubado, pueden abarcar relaciones con organizaciones, grupos de empresa, así como a otras personas que ayudan en el proceso de establecimiento de la empresa (Hansen, 1995).

En relación al caso de investigación que nos ocupa, los emprendedores académicos pueden tener acceso a redes externas empresariales a través de las UBIs en las que están

ubicados, bien por los propios acuerdos de la UBI, los contactos del mánager o bien a través del contacto con otros incubados. Cuando el negocio es incipiente, y derivado de las dificultades a las que se enfrentan, puede que sea el único medio que los emprendedores tengan para acceder a esas redes, compuestas por profesionales de distinta índole, de las que pueden obtener beneficios para sus negocios. En definitiva, el acceso a capital social *bridging* permite a los emprendedores ser más eficientes y acceder a oportunidades de negocio privilegiadas (Batjargal, 2003; Baregheh *et al.*, 2009; Toivonen y Tuominen, 2009; Abreu *et al.*, 2010; Rubalcaba *et al.*, 2010). Por ende:

H17: El capital social bonding del incubado – H17a – y el capital social bridging – H17b - influyen positivamente en la eficiencia de su negocio.

3.5.1.2. Capital social relacional de la incubadora

Como ya se indicó en el epígrafe 3.4., el capital social relacional alude al grado en el cual dentro de una red existen relaciones fluidas entre los participantes. En concreto, Nahapiet y Ghoshal (1998) caracterizan el capital social relacional a partir del grado de confianza, normas comunes, obligaciones e identificación como grupo. En el contexto de los incubados, las relaciones que se pueden dar entre ellos no suelen implicar obligaciones (ni tácitas ni explícitas), pero sí puede surgir confianza entre ellos y generarse un sentimiento de identidad y normas de reciprocidad. Por tanto, nos centraremos con estas tres dimensiones (confianza, identificación y reciprocidad) como principales características del capital social relacional de una incubadora.

(1) La primera dimensión, la confianza, se refiere a la creencia de los individuos de una organización (una incubadora) en la buena fe y capacitación de la propia organización y de los miembros integrantes de la misma (incubados) (Nahapiet y Ghoshal, 1998; Leana y van Buren, 1999).

(2) La identificación, por su parte, es el proceso mediante el cual las personas se ven a sí mismas como uno, en relación a otra persona o a un grupo de personas determinado (Nahapiet y Ghoshal, 1998).

(3) Por último, la reciprocidad se refiere a las obligaciones mutuas que fomentan normas que facilitan la cooperación (Nahapiet y Ghoshal, 1998). Según Putnam (2000) existen dos tipos de reciprocidades. La reciprocidad es específica cuando uno hace algo

por otro, si el otro le corresponde con otra acción. Por otra parte, el autor señala la reciprocidad generalizada, la cual se refiere a yo hago esto por ti, sin esperar de ti nada concreto, al menos por el momento.

Interacción entre las dimensiones del capital social relacional

Un elemento fundamental del capital social relacional es la confianza entre los miembros del grupo. En las incubadoras, la proximidad favorece la posibilidad de interactuar en el día a día, los contactos frecuentes (Lyons, 2000) y la generación de confianza entre los incubados (McAdam y Marlow, 2008). Esta confianza posee una relevancia considerable en un contexto en el que los emprendedores temen que las ideas y secretos sobre sus negocios puedan ser robados, tanto por otros incubados (McAdam y Marlow, 2007; Vanderstraeten y Matthyssens, 2012) como por expertos y/o consultores externos (Chan y Lau, 2005). De este modo, el hecho de que los incubados forjen relaciones dentro de la incubadora basadas en la confianza, fomenta la reciprocidad entre los incubados. En un entorno donde prima la confianza, los incubados estarán dispuestos a brindarse ayuda mutuamente porque el riesgo de oportunismo es menor. Por ello:

H18a: El capital social relacional en su dimensión confianza dentro de la incubadora influye positivamente en el capital social relacional en su dimensión reciprocidad.

La identificación como grupo es un sentimiento que puede nacer entre los inquilinos de la incubadora como consecuencia de la situación común que comparten. Hay que tener presente que los incubados de las UBIs, por norma general, no han trabajado fuera del entorno académico o, en caso de haberlo hecho, no durante un periodo de tiempo prolongado. Esto lleva a que se encuentren con diversas trabas en el desarrollo del ejercicio de su actividad empresarial, dado que no conocen cómo funciona el mercado en realidad. Puede que, incluso, algunos emprendedores académicos tengan cierta hostilidad o adversidad hacia ese escenario diferente y cargado de incertidumbre. Sin embargo, necesitan introducirse y competir en el mismo, dado que su futura trayectoria profesional depende de que lo hagan con éxito. Todo ello les lleva a identificarse como colectivo que comparte una misma idiosincrasia. Este sentimiento de grupo y de

colectividad facilitará que los miembros estén dispuestos a ayudarse mutuamente y a que surja, dentro de la incubadora, una norma tácita de reciprocidad. Por tanto:

H18b: El capital social relacional en su dimensión identidad dentro de la incubadora influye positivamente en el capital social relacional en su dimensión reciprocidad.

Influencia del capital social relacional dentro de la incubadora en el capital social estructural del incubado y en la eficiencia del negocio

Los recursos y las oportunidades que ofrece una incubadora a sus inquilinos pueden ser tangibles o intangibles (Bøllingtoft y Ulhøi, 2005). Uno de esos intangibles son las relaciones entre los incubados. Centrándonos en el estudio que estamos desarrollando, el recurso más importante ofrecido por las incubadoras es la oportunidad de desarrollar relaciones de confianza, identidad y reciprocidad entre los inquilinos.

El hecho de que los incubados mantengan relaciones basadas en confianza, identidad y reciprocidad entre ellos hace que tengan su propio capital social *bonding*. Esto se traduce en que a nivel individual cada incubado tiene relaciones estrechas con otros emprendedores de la incubadora. Asimismo, lo anterior les habilita para el *networking* y para que puedan acceder a otras redes externas. Más concretamente, la confianza y la reciprocidad facilitan que estén dispuestos a poner su propia red de relaciones a disposición de otros incubados, de modo que estos últimos tengan así la posibilidad de crear su propio capital social *bridging*. Además, cuando dentro de la incubadora se dan relaciones de igual a igual entre los incubados y surge entre ellos un sentimiento de pertenencia e identificación como grupo (inquilinos de la misma UBI), es más fácil que adquieran seguridad en sí mismos y en su reciente condición de emprendedores, y que desarrollen habilidades sociales. Esta seguridad y habilidades les facilitarán desarrollar vínculos con otros agentes externos e iniciar relaciones comerciales en el mercado. En definitiva, crear su propio capital social *bridging*. Asimismo, y como ocurre con la confianza, la reciprocidad y la identificación como grupo facilita que los incubados pongan sus recursos relacionales a disposición del resto y se fomenten las relaciones externas.

Por otro lado, la confianza entre las partes favorece el intercambio de conocimiento (Tsai y Ghoshal, 1998; Levin y Cross, 2004). Los incubados intercambiarán conocimiento con aquellos miembros de la incubadora con los que tengan confianza,

con lo beneficioso que supone para las partes implicadas y sus negocios. En esta misma línea, el desarrollo de capital relacional basado en la identidad y reciprocidad entre los incubados convierte a la UBI en un entorno amigable, agradable para el ejercicio de la actividad profesional, que puede llevar a que los emprendedores sean más eficientes en la gestión e implementación de actividades concretas de sus respectivos negocios.

Así pues, se proponen las hipótesis que a continuación se enuncian:

H19: El capital social relacional dentro de la incubadora -en sus dimensiones confianza (H19a), identidad (H19b) y reciprocidad (H19c)- influye positivamente en el capital social bonding.

H20: El capital social relacional dentro de la incubadora -en sus dimensiones confianza (H20a), identidad (H20b) y reciprocidad (H20c)- influye positivamente en el capital social bridging.

H21: El capital social relacional dentro de la incubadora -en sus dimensiones confianza (H21a), identidad (H21b) y reciprocidad (H21c)- influye positivamente en la eficiencia del negocio del incubado.

3.5.1.3. Capital social cognitivo de la incubadora

El capital social cognitivo se refiere a que los individuos que forman parte de una red compartan el mismo lenguaje, así como objetivos y una cultura común (Nahapiet y Ghoshal, 1998). Esto facilita los contactos y la comunicación entre los implicados, dificultándolo en el caso contrario. Así, cuando los individuos no comparten el mismo vocabulario o lenguaje se dificulta el entendimiento entre las partes (Reagans y McEvily, 2003).

Las UBIs son entornos favorables a la formación de capital social cognitivo. Las razones para ello, las cuales enunciamos a continuación, se hallan en características específicas de los inquilinos que se alojan en las citadas UBIs.

- (1) Tienen una procedencia común: la universidad. Aunque su vinculación con la misma difiere de unos a otros, desde egresados a profesores e investigadores.
- (2) Poseen una falta de experiencia generalizada en el mundo empresarial.
- (3) Comparten un objetivo similar: poner en marcha un negocio en el mismo momento de tiempo.

Sin embargo, también es probable que haya diferencias entre ellos porque el grupo de incubados tiene un carácter “híbrido”, debido a que puede conjugar perfiles académicos dispares (distintas áreas de conocimiento, diferente trayectoria investigadora y/o diferencias en la experiencia de gestión, entre otros aspectos).

En la medida en que dentro de la incubadora se favorece un sentimiento de pertenencia e identidad entre los inquilinos, se estará formando un capital social cognitivo que favorece que fluya un buen entendimiento y comunicación entre los incubados. Esto, unido a contactos frecuentes en el ambiente protegido en incubación frente al exterior, puede fomentar un clima de confianza. Por consiguiente, se propone la siguiente hipótesis:

H22: El capital social cognitivo dentro de la incubadora influye positivamente en el capital social relacional en sus dimensiones confianza (H22a), identidad (H22b), y reciprocidad (H22c).

3.5.1.4. Orientación relacional del mánager

En una incubadora es fundamental la labor del mánager como impulsor de relaciones y redes, tanto de las relaciones individuales que crean los incubados, como de la consolidación de un capital social colectivo del que se benefician todos los incubados. Sin embargo, el comportamiento de los mánagers es dispar a este respecto. Podemos caracterizar a los mánagers en función de su orientación relacional, entendiendo como tal la predisposición y tendencia a fomentar contactos entre los incubados, así como contactos con agentes fuera de la incubadora. Algunos tienen una baja orientación relacional y tienden a desempeñar un papel más pasivo, como *gatekeepers*, mientras otros manifiestan una mayor orientación relacional, lo cual les lleva a desempeñar un papel activo como intermediarios, facilitando contactos entre incubados y otros agentes como asesores, mentores, académicos e inversores (Lewis *et al.*, 2011; UKBI, 2012).

En las UBIs todos los inquilinos tienen vinculación con la universidad y sus empresas son intensivas en conocimiento. Asimismo, comparten inquietudes y pretensiones inherentes a su condición de emprendedores noveles. Los mánagers tienen constancia de esta procedencia y anhelos comunes, que pueden configurar las bases sobre las que se cimienta el capital social cognitivo en las UBIs. Sin embargo, cada individuo, y por ende, cada negocio tiene sus propios objetivos. Esto no es incompatible con objetivos

colectivos. Por ello, si no hay personas o mecanismos que velen por el interés conjunto del grupo de incubados, que promuevan una cultura y unos objetivos comunes, no se podrá crear el citado capital social cognitivo. El mánager debiera proyectarse como una bisagra, como el eje vertebrador de la incubadora que fomente objetivos comunes y relevantes a nivel empresarial para los inquilinos, lo cual repercutirá en el éxito de la incubadora en su conjunto y de los incubados, en particular. Derivado de lo anterior, se propone la siguiente hipótesis:

H23: La orientación relacional del mánager influye positivamente en el capital social cognitivo.

Las incubadoras y sus redes internas son especialmente útiles para construir capital social relacional. El capital social relacional puede surgir por el simple hecho de compartir el mismo espacio físico. Más concretamente, Tötterman y Sten (2005) señalan que los incubados ven como los contactos entre ellos se ven favorecidos por compartir necesidades similares y espacio físico. Algunos autores entienden que la acción del mánager no es una condición necesaria para que se creen relaciones, porque existe una tendencia natural de los incubados a colaborar entre sí (Bøllingtoft, 2012).

No obstante, junto a este rasgo inherente a una incubadora, la orientación relacional del mánager también puede estimular la reciprocidad y la puesta en común de recursos, lo cual elimina barreras de acceso y disponibilidad (Lyons, 2000, 2002). Para que puedan fluir y se puedan optimizar las relaciones en las incubadoras, los mánagers resaltan la importancia de que los incubados tengan una predisposición a implicarse en las distintas actividades que organizan y a actuar de manera recíproca (Vanderstraeten y Matthyssens, 2012). Asimismo, los mánagers son agentes que articulan y fomentan redes e interacciones sociales, basadas en confianza, entre los miembros de la incubadora (Tötterman y Sten, 2005). Así pues, la orientación relacional del mánager puede favorecer relaciones cordiales entre los incubados, la generación de un clima de confianza, así como la reciprocidad y el sentimiento de comunidad entre ellos. Por lo tanto, se plantean las siguientes hipótesis:

H24: La orientación relacional del mánager influye positivamente en el capital social relacional en sus dimensiones confianza (H24a), identidad (H24b) y reciprocidad (H24c).

Los mánagers pueden estimular la frecuencia de los contactos y la cooperación entre los incubados a través de la oferta de actividades interactivas tales como talleres, conferencias y eventos de *networking* para los incubados (Chan y Lau, 2005) y del esfuerzo por crear un buen ambiente de trabajo y confianza (Tamásy, 2002). Este último aspecto es fundamental dado que los incubados temen que sus ideas y secretos de negocio puedan ser robados por otros individuos que estén en la incubadora (McAdam y Marlow, 2007; Vanderstraeten y Matthyssens, 2012). Como ya hemos indicado, todo ello favorece el capital social relacional dentro de la incubadora, pero también la posibilidad de que cada incubado, a nivel particular, cree lazos estrechos y duraderos con otros incubados.

De lo anterior se desprende la siguiente hipótesis:

H25: La orientación relacional del mánager influye positivamente en el desarrollo de capital social bonding del incubado.

En la presente tesis doctoral, los individuos objeto de estudio provienen del ámbito universitario y están orientados a la ciencia. Pero han comenzado una aventura empresarial que les llevará a estar inmersos en el mundo de los negocios. Así pues, necesitan orientarse al mercado, así como acceder y formar parte de redes empresariales, y no sólo mantener sus redes en el mundo académico (Redondo Carretero *et al.*, 2014). Así pues, los emprendedores universitarios necesitan introducirse en redes empresariales externas y, de nuevo, el mánager puede actuar de enlace entre los incubados y aquellas redes externas útiles y necesarias para sus negocios. De esta forma, el mánager se convierte así en un agujero estructural (Burt, 1992) que pone en contacto a los incubados con otros agentes externos. A través del mánager o el equipo de dirección de la incubadora, los incubados pueden iniciar contactos con consultores, entidades financieras o profesionales de diferentes industrias (Bøllingtoft y Ulhøi, 2005; Buche y Scillitoe, 2007). Además, dado que los mánagers pueden tener experiencia, incluyendo experiencia previa en el ámbito de las incubadoras o a nivel profesional (Hannon, 2005), pueden traer consigo una variedad de contactos

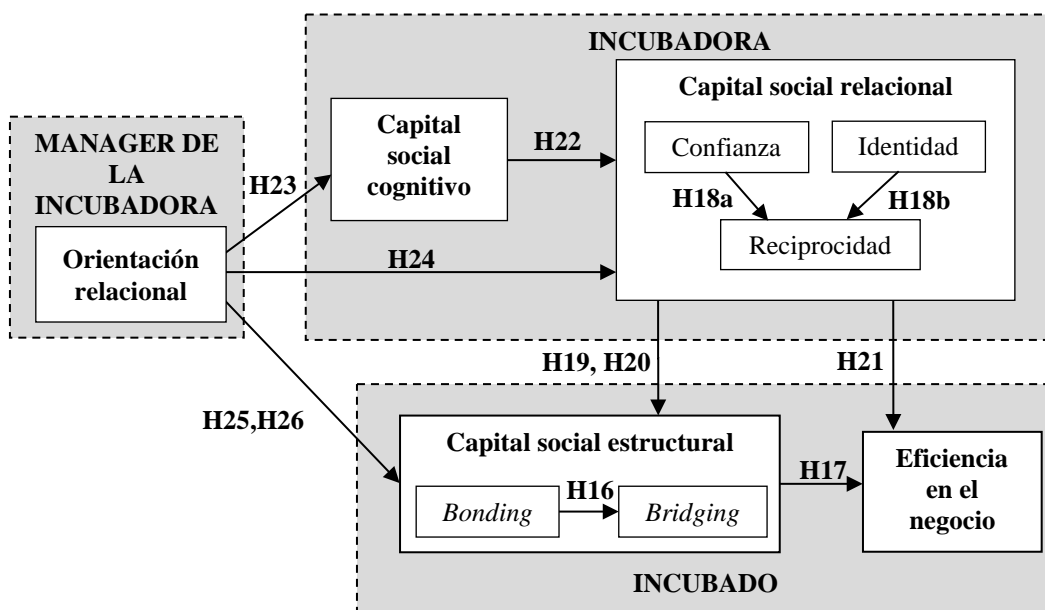
del mundo de los negocios y ponerlos a disposición de los incubados (Vanderstraeten y Matthyssens, 2012). Por lo tanto:

H26: La orientación relacional del mánager influye positivamente en el desarrollo de capital social bridging del incubado.

3.5.2. Propuesta de un modelo explicativo de capital social y eficiencia en los negocios de los incubados

Por último, las hipótesis H16 a H26 configuran el tercer modelo, **Modelo 3**, propuesto en la presente tesis doctoral. Este modelo se ha planteado para analizar el efecto que la orientación relacional del mánager puede tener sobre la creación y el fomento de las diferentes dimensiones de capital social dentro de la incubadora, la interrelación entre ellas, así como sobre la eficiencia de los negocios incubados. Para mayor nivel de detalle, se puede consultar la Figura 3.2., en la que se recoge el modelo planteado y las hipótesis propuestas.

Figura 3.2. Propuesta de Modelo 3. Capital social y eficiencia en incubadoras



Capítulo 4. Methodology and research design: data collection and analysis

4.1. Introduction

The synthesis of the proposed global model in this doctoral dissertation is shown in Figure 4.1 and the set of proposed hypotheses, structured by research objectives, is shown in Table 4.1.

Figure 4.1. Proposed global model. Dyadic and network relationship in incubators

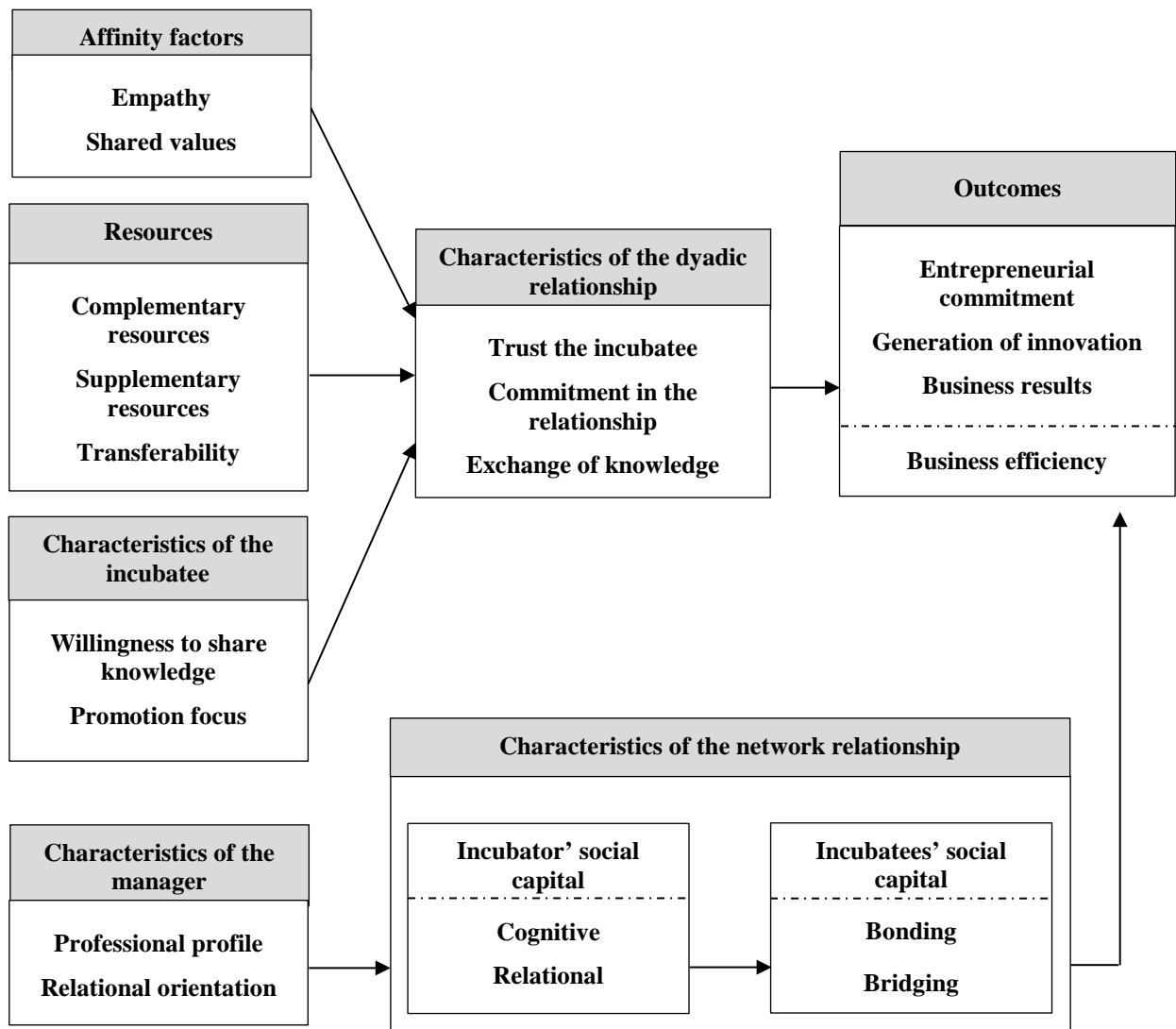


Table 4.1. Set of proposed hypotheses

Research objectives		Hypotheses	Statements
Characteristics of dyadic relationships	Quality	H1:	Trust between incubatees has a positive influence on exchange of knowledge
	Content	H2:	Exchange of knowledge between incubatees has a positive influence on the commitment in the relationship
Antecedents of dyadic relationships	Affinity	H3a:	Incubatee empathy towards other incubatees has a positive influence on confidence in the other party
		H3b:	Incubatee empathy towards other incubatees has a positive influence on commitment in the relationship
		H4a:	Incubatee perception of shared values with other incubatees has a positive influence on confidence in the other party
		H4b:	Incubatee perception of shared values with other incubatees has a positive influence on commitment in the relationship
	Resources	H5a:	Incubatee perception of complementary resources with other incubatees has a positive influence on confidence in the other party
		H5b:	Incubatee perception of complementary resources with other incubatees has a positive influence on commitment in the relationship
		H5c:	Incubatee perception of complementary resources with other incubatees has a positive influence on exchange of knowledge
		H6a:	Incubatee perception of supplementary resources with other incubatees has a positive influence on confidence in the other party
		H6b:	Incubatee perception of supplementary resources with other incubatees has a positive influence on commitment in the relationship
		H6c:	Incubatee perception of supplementary resources with other incubatees has a positive influence on exchange of knowledge
		H7:	Transferability of knowledge has a positive influence on exchange of knowledge between incubatees
	Characteristics of the incubatee	H8:	Incubatee willingness to share knowledge has a positive influence on exchange of knowledge with other incubatees
H9a:		Incubatee promotion focus has a positive influence on willingness to share knowledge	
H9b:		Incubatee promotion focus has a positive influence on exchange of knowledge with other incubatees	

Table 4.1. Set of proposed hypotheses (II)

Outcomes of dyadic relationships	H10a:	Commitment in the relationship between incubatees has a positive influence on incubatees' entrepreneurial commitment	
	H10b:	Exchange of knowledge between incubatees has a positive influence on incubatees' entrepreneurial commitment	
	H11a:	Commitment in the relationship between incubatees has a positive influence on the generation of innovation of an incubatee's business	
	H11b:	Exchange of knowledge between incubatees has a positive influence on the generation of innovation of an incubatee's business	
	H12a:	Exchange of knowledge in the relationship between incubatees has a positive influence on an incubatee's business results	
	H12b:	Commitment in the relationship between incubatees has a positive influence on an incubatee's business results	
	H12c:	Generation of innovation in the relationship between incubatees has a positive influence on an incubatee's business results	
Characteristics of the manager	Professional profile	H13a:	Managers' business experience has a positive influence on personal assistance amongst incubatees
		H13b:	Managers' business experience has a positive influence on business assistance amongst incubatees
		H13c:	Managers' business experience has a positive influence on networking amongst incubatees
		H14a:	Managers' scientific experience has a positive influence on personal assistance amongst incubatees
		H14b:	Managers' scientific experience has a positive influence on business assistance amongst incubatees
		H14c:	Managers' scientific experience has a positive influence on networking amongst incubatees
		H15a:	Managers' scientific experience has less influence on personal assistance amongst incubatees than managers' entrepreneurial experience
		H15b:	Managers' scientific experience has less influence on business assistance amongst incubatees than managers' entrepreneurial experience
		H15c:	Managers' scientific experience has less influence on networking amongst incubatees than managers' entrepreneurial experience
	Relational orientation	H23:	A manager's relational orientation has a positive influence on the incubator's cognitive social capital
		H24a:	A manager's relational orientation has a positive influence on the trust dimension of the relational social capital
		H24b:	A manager's relational orientation has a positive influence on the identity dimension of the relational social capital
H24c:		A manager's relational orientation has a positive influence on the reciprocity dimension of the relational social capital	
H25:		A manager's relational orientation has a positive influence on incubatees' bonding social capital	
H26:		A manager's relational orientation has a positive influence on incubatees' bridging social capital	

Table 4.1. Set of proposed hypotheses (III)

Characteristics of the network relationship	Incubatees' social capital	H16: Incubatees' bonding social capital has a positive influence on bridging social capital
	Incubator social capital	H18a: The trust dimension of the incubator's relational social capital has a positive influence on the reciprocity dimension
		H18b: The identity dimension of the incubator's relational social capital has a positive influence on the reciprocity dimension
		H19a: The trust dimension of the incubator's relational social capital has a positive influence on bonding social capital
		H19b: The identity dimension of the incubator's relational social capital has a positive influence on bonding social capital
		H19c: The reciprocity dimension of the incubator's relational social capital has a positive influence on bonding social capital
		H20a: The trust dimension of the incubator's relational social capital has a positive influence on bridging social capital
		H20b: The identity dimension of the incubator's relational social capital has a positive influence on bridging social capital
		H20c: The reciprocity dimension of the incubator's relational social capital has a positive influence on bridging social capital
		H22a: The incubator's cognitive social capital has a positive influence on the trust dimension of the relational social capital
H22b: The incubator's cognitive social capital has a positive influence on the identity dimension of the relational social capital		
H22c: The incubator's cognitive social capital has a positive influence on the reciprocity dimension of the relational social capital		
Outcomes of the network relationship	Business efficiency	H17a: Incubatees' bonding social capital has a positive influence on business efficiency
		H17b: Incubatees' bridging social capital has a positive influence on business efficiency
		H21a: The trust dimension of the incubator's relational social capital has a positive influence on incubatees' business efficiency
		H21b: The identity dimension of the incubator's relational social capital has a positive influence on incubatees' business efficiency
		H21c: The reciprocity dimension of the incubator's relational social capital has a positive influence on incubatees' business efficiency

Empirical testing of the hypotheses proposed was carried out using three different studies.

Study I aims to assess the relevance and consistency of the proposed variables and hypotheses (H1 to H6), concerning antecedents and consequences of relations between incubatees, in order to draw initial conclusions. To this end, we conducted an

exploratory qualitative analysis based on semi-structured interviews with entrepreneurs located in Spanish Business Innovation Centres (BICs).

Study II aims to explore the antecedents which favour relations between incubatees and the consequences of these relations through a quantitative comparison of hypotheses H1 to H12, which make up **Model 1**, dealt with in chapter 2. To achieve this, we follow the sequence of analysis set out below and which will be explained throughout this chapter, using PLS-SEM (Partial Least Squares-Structural Equation Modelling) as an estimation procedure. First, a description is provided of the variables measured in the study, and an explanation is given of the process used to validate the scales of the various constructs. The results to emerge from estimating the structural model are then presented as are the indirect and total effects. Finally, a robustness analysis is included and the results to come out of the hypotheses posited are evaluated.

Study III seeks to gauge the extent to which the manager influences the business and relational skills developed by incubatees, set out in **Models 2 and 3**, and explained in chapter 3. This study is divided into two parts. **Study III.1** explores how the manager's professional profile may shape the type of services offered to incubator tenants. Specifically, a quantitative comparison is made of hypotheses H13, H14 and H15 (**Model 2**). Finally, **Study III.2** aims to provide insights into the influence of an incubators' internal social capital in developing incubatees' individual social capital and the efficiency of their businesses as well as the role of the incubator manager in building incubator and incubatee social capital. In this study, we quantitatively test hypotheses H16 to H26 (**Model 3**). The estimation process followed is similar to Study II.

In order to estimate Models 1, 2 and 3, information was gathered from UBIs located in Spain and the Netherlands. Specifically, for Studies II and III.2, information collected through a questionnaire aimed at incubatees was used, whereas for Study III.1 information was provided by UBI managers. In order to identify possible differences between incubatees and managers in the two countries, a test was carried out to check for the possible existence of a different response pattern for the indicators used. This was done by conducting a homogeneity analysis of the samples employed (Spanish and Dutch incubatees) through a *t* test for independent samples.

4.2. Study I. Relationships between entrepreneurs in BICs. An exploratory case study

This section explains how **Study I** was developed in order to achieve the objective described above, and to evaluate the relevance of hypotheses H1 to H6. First, we describe the data collection process as well as the analysis technique used. We then explain the detailed case study analysis, and conclude with a summary of the main results.

4.2.1. Methodology

Case study based research is one of the most frequently used methodological tools in the area of qualitative research. Case studies allow for descriptions and provide for explanations or interpretations of the phenomenon being investigated, permitting the nature and function thereof to be explored and evaluations to be made (Merriam, 1988; Yin, 2009). Yin (2009), a seminal reference in the field of case studies, points out that one of the main biases linked to case studies is that their conclusions are not statistically generalizable. However, the purpose of such a research tool is to understand the interaction between the various parts involved in a system and to gain key insights into it, such that the analysis carried out may be applied generically (Hartley, 1994) even when based on a single case. More than establishing correlations or cause and effect relations (Gummesson, 2000), an understanding may therefore be gained of the processes, structure, and driving forces involved.

4.2.1.1. Data Collection

Literature on business incubators has considered four levels of analysis: incubators themselves, firms located in incubators, entrepreneurs, and entrepreneurial teams of entrepreneurs involved in these firms and at a systemic level (Phan *et al.*, 2005). In the present study, the unit of analysis is the entrepreneur, and we analyze nine such cases. Prior to selection, we chose two Spanish BICs, which form part of the Chamber for Business Creation and Development (INCYDE) network of incubators¹². This agency, in conjunction with Chambers of Commerce and Industry as well as local public agencies, and European Union ERDF funds, has set up in Spain the largest network of incubators in Europe, with a total of 96 currently operating. The incubators in the

¹²See www.incyde.org/viveros-empresas.aspx

INCYDE network provide entrepreneurs with access to ideally priced office space under favourable terms and conditions when they embark on their business activity. Some incubators also boast specific buildings where certain industrial activities may be conducted in addition to the offices which are used more for services. Entrepreneurs can also benefit from services which offer guidance and training in business creation and management, internationalization, quality management, environmental issues, occupational health and safety, as well as legal advice offered through the corresponding provincial Chamber of Commerce and Industry. The services offered through the INCYDE network are available to newly created firms who put forward a financially viable project, who have undergone a self-employment or business creation training programme or who commit to doing so, and whose business address is registered in the province in which the incubator in question is located.

One final point worth highlighting is that the INCYDE network does not envisage any particular formal action plan to promote or foster relationships. Individual incubator managers may opt to undertake action in this matter at their own initiative. Therefore, any relationships which emerge between entrepreneurs are informal and brought about or actively sought by themselves.

From a perspective focused more on understanding rather than on verification, we opted to conduct the empirical work on the basis of an exploratory study of multiple cases, grounded on the experience of nine entrepreneurs, selection of whom was based on the following criteria: entrepreneurs had commenced their business activity in one of the incubators involved in the INCYDE network at least two years prior to the interview and had had at least one cooperation experience with another company in the same incubator with the idea of continuing (since the study seeks to investigate relationships, not transactions). Eisenhardt (1989) suggests that between four and ten cases is an appropriate number for a case study, contending that the larger the number of units studied the greater the reliability that can be achieved. Voss *et al.*, (2002) hold that there is no optimal number, but rather that the cases chosen should embrace the range of possible situations. Therefore, we chose cases that represent different driving forces at the start of a relationship as well as different features related to maintaining the relationships. In order to access appropriate entrepreneurs, we contacted the managers of two incubators, in an effort to explain to them the goal of our research and to request their cooperation in the selection process. We were provided with a list of the contact

details of the firms housed in the incubators at that time as well as of some who had just left. We telephoned all of them, and found that seven incubator tenants fulfilled all the criteria required to take part in the research, together with a further two entrepreneurs who had recently left.

These nine cases were representative of typical entrepreneurs and provided us with the opportunity to show both similarities and differences in business relationship experiences. The nine entrepreneurs taking part belonged to BICs in the INCYDE network, all of them having set up there between December 2006 and January 2008. All of the entrepreneurs shared a series of common traits, namely that they had completed a university education related to the business activity in which they were engaged, and described themselves as restless and determined to consolidate their position in the field in which they were involved. There were, however, differences with regard to the number of members (there are five single-person firms), in terms of gender (two women as opposed to seven men), and as regards age, which ranged from 28 to 52 years of age. As for the reasons why they had decided to become entrepreneurs, some described themselves as entrepreneurs whereas others referred to themselves as *continuers*, the loss of their job as salaried workers having triggered their decision to set up their own business. The entrepreneurs' business activities are summarized in Table 4.2.

Table 4.2. Sampling of interviewees.

Label	Business activity	Date they set up in the BIC
E1	Services related to boilers, heating and cooling equipment	December 2006
E2	Consulting services: projects in innovation and development	December 2006
E3	Developing customised software	February 2006
E4	Consulting services: market studies and marketing plans	April 2006
E5	Advertising agency focusing on the Internet	April 2008
E6	Human resources: training, management skills and selection process	January 2005
E7	Engineering projects and consulting	April 2008
E8	Programming and specializing in webpage design	June 2007
E9	Computer sales, repair and maintenance	January 2008

In order to gather data, we conducted an interview with each of the nine entrepreneurs between February and March 2010. The interviews were held in their own offices, and each lasted 45-60 minutes. We used a semi-structured interview, following a script comprising the following themes: (1) first cooperation experience with another incubator tenant, (2) a description of the business relationships that had commenced in the incubator, were still going strong, and which the entrepreneurs intended to pursue in

the future; and (3) a failed cooperation experience with an incubator tenant (if there had been one).

In February 2012, we again telephoned the nine entrepreneurs in order to ascertain the continuity or otherwise of the relationships about which they had initially been asked. In all instances, we were assured that relationships remained ongoing. We did this in order to expand the horizon of inquiry. If a relationship had broken down, the entrepreneur would have been asked about the causes, specifically, whether it had been related to the fact that the entrepreneurs were no longer in the incubator.

4.2.1.2. *Data analysis techniques*

We followed certain case study techniques in order to increase research reliability and validity (Riege, 2003; Yin, 2009). We first attempted to refine the case study protocol so as to ensure reliability. All the interviews were recorded and later transcribed verbatim to guarantee accuracy of the information. We also used the same study protocol for each case, again so as to ensure the empirical validity of the information. Second, in order to ensure construct validity, in addition to semi-structured interviews, we collected certain data about the entrepreneurs (features in contacts between them) from incubator managers. Data from these sources were triangulated to enhance information credibility. Third, to increase internal validity, the transcripts and notes were read by the researchers and data were organized and catalogued in a database around topics and central questions. Data was then carefully examined to see how it fitted or failed to fit the expected categories or variables that define the drivers and characteristics of relational exchange. Finally, external validity was ensured using several case studies (nine entrepreneurs) and comparing the evidence with the extant literature.

According to Langley and Royer (2006), in multiple case studies, it is essential to determine similarities or differences between the cases being studied. In our research, although all cases were initially treated similarly, only four of the nine entrepreneurs had had failed experiences with another incubator tenant, and so we only explored this question in these cases. Following these premises, below we describe the outcomes of the interviews.

4.2.2. Case study analysis

Case study analysis was structured into three parts: relationship drivers, mechanisms of relational exchange, and relationship outcomes.

4.2.2.1. Relationship drivers

The starting point in the interviews was the reasons that led entrepreneurs located in the same incubator to cooperate with another. Through this, we sought to evaluate the relevance of the variables and the pertinence of hypotheses H3 to H6.

Empathy, not only as a result of being entrepreneurs but also due to having started out in the business incubator, was highlighted by five entrepreneurs. Sharing *common values*, *complementarity*, personal attention and a professional approach are the traits cited by various entrepreneurs to define the relationships with other companies that are, or in most cases were, incubator tenants. Other variables cited were specialization, sharing a common focus toward the client, flexibility in each task, a specific knowledge of the particular working philosophy.

The results of this part of the interviews are organized according to six key aspects: (1) *empathy*; (2) *solidarity* and *common awareness*; (3) *shared values*; (4) *complementarity*; (5) *linking-persons*; (6) *proximity* and *time-saving*.

Empathy. In several cases, the interviewees highlighted how much they were aware of being entrepreneurs and empathy as key factors in sparking the relation.

Entrepreneur 1 provides a wide range of services related to boilers as well as heating and cooling equipment, with two other partners. He describes themselves not as entrepreneurs in the strict sense of the word but as *continuers*. From the moment they entered the incubator, they had a clear idea that when the need for anything arose they would seek the help of another entrepreneur in the incubator rather than resort to an outside firm. One of the members put it in these terms:

We've worked with other people in the incubator (...). Rather than seeking the help of another firm that offers the same services as me, they asked me to do it. And I, since we were here, rather than asking another firm who could do the same job, because we know that we're all entrepreneurs and we're all just starting out, and we know each other and are all in the same boat, well, we have to help each other out.

This meant that one of their earliest business needs, namely website and server maintenance as well as the supply of computer consumables, was met by an incubator tenant, giving rise to their first experience of cooperation.

Empathy, but more specifically the awareness that they were entrepreneurs at the same time and in the same place, was the main factor that led Entrepreneur 2 to seek an advisory service amongst the entrepreneurs located in the incubator when they moved in. However, there were two entrepreneurs offering the same service, and so the choice was made based on the following:

The first thing we did was to speak to the incubator manager who told us about the two contacts. We then spoke to both and finally decided on one. The main advantage we saw at the beginning, and indeed we still see, is that the people were in the same situation as us and had recently been through the same experience as us (...) It was a direct experience. That was also one of the reasons that led us to decide, apart from the fact that they offered us a good price. You could say that at first, in order to get yourself customers, you have to charge less.

Solidarity and common awareness. As soon as they needed computer services, Entrepreneur 7, who works in the area of engineering projects and consulting, did not hesitate and visited the office of an incubator tenant who specialized in computer matters. In their opinion, entrepreneurs are keen to cooperate and to work with others but find it hard to take the first step.

The first time I worked with an entrepreneur in the incubator was when they did my website for me and I went to the only company that offered that kind of service. After that, when we were in the incubator we used to go into each other's office and chat for a while. One thing is clear; people are keen to do things. The problem is that sometimes it's hard to break the ice.

Shared values. Entrepreneurs that set up in the Chamber of Commerce incubators have to do a business start-up course in which they are given basic knowledge on a range of business related matters. During this course, Entrepreneur 6, who specializes in human resources, met another incubator tenant and realised that they shared a similar working philosophy, as well as being in the same situation of starting up a business. This,

together with the need to have a website, was what led to this first job as a client-supplier. This was how the entrepreneur in question described it:

When I started out I didn't have a website or anything like it. There was a computer firm in the incubator and I spoke to the guy. I already knew him because we'd done the business start-up course together. I mentioned the fact that I wanted to set up a website and we discussed some options, and he showed me some work he'd done, and so on. I really liked the way he went about things. I think we really hit it off because our philosophy is very similar.

Complementarity. In instances in which entrepreneurs cooperate in order to offer their clients a specific product or service, complementarity of activities was one of the key drivers.

Entrepreneur 3's activity focuses exclusively on developing customised software. The first contact with another entrepreneur in the incubator was due to a hardware maintenance service they were asked to perform. Since Entrepreneur 3 did not provide such a service but knew of another entrepreneur in the incubator who did, Entrepreneur 3 acted as a go-between. Making such a contact possible was the first step towards establishing a link with the other entrepreneur, the two realising that they provided complementary services and could work together. Many clients needed software development and installation and not only hardware maintenance and networks systems installations, and vice-versa. The situation was summed up by Entrepreneur 3 thus:

We engaged in specific and spontaneous cooperation, which proved simple and quick, but that was the first cooperation I had. After that, we actually became friends and realised that we were two entrepreneurs who offered complementary services and that was how more long-term cooperation began.

Physical proximity proved to be the key factor to the first contact, although complementarity, empathy, and shared values were what led the initial contact to develop positively and favourably into a relationship between the two entrepreneurs, which remains until today.

Complementarity was also the reason which led Entrepreneur 5, an advertising agent focusing on the Internet, to engage in their first experience of cooperation with another entrepreneur in the incubator, specifically one focusing on payment through the Internet. In addition to coinciding in the same space and being in the same situation at a

business level, their contact proved beneficial at a professional level because they spoke the same professional jargon.

... we could converse using the same jargon. We understood each other, which is important.

Linking-persons. Another prominent feature is having a mutual contact who acts as a link and a kind of security or guarantor in the relationship. For instance, Entrepreneur 4, who provides consulting services to their clients, needed a technological supplier to undertake a project in innovation and development. This was the reason for their search, which proved to be very short since the entrepreneur they successfully cooperated with was located in the office next door. The key to starting this joint cooperation was through a mutual contact who was able to vouch for the professionalism of both parts.

The initial contact was strange because the entrepreneur was located next door to us and we got to know about them through another firm we had both worked for and who had been satisfied with the work we'd done. We did the project and we were so pleased with the supplier that we've worked with them on other projects.

Proximity and saving time. Some entrepreneurs stressed proximity as a vital factor in the initial contact as well as the time variable. Entrepreneur 8, specializing in webpage design and programming, received a visit from an entrepreneur who was an incubator tenant and who had two clear ideas: setting up a website for her firm and the possibility of cooperating by passing on clients in exchange for a commission. The entrepreneur seeking these services did not spend much of her time in the incubator because she had a number of business trips, but knew that when she was there she wanted to make the most of the time she saved by being in the same place as others. At that moment, there was only one entrepreneur offering the kind of services she was looking for.

The entrepreneur I had my first experience with in that sense was with a person who was just starting up. She saw my office and came in to ask me something. She first suggested that I should set up her website for her and then, as she had a list of clients, she proposed bringing me clients in exchange for commission. This was what this entrepreneur needed when she came in and I was the only IT entrepreneur in the incubator at that time. As she had experience in the field, you could say she had a very clear of what she wanted her company to be like

and she didn't want to waste much time setting it up or on any of the other basic issues you have to deal with when starting out. She wanted to do it as quickly as possible.

When IT problems arise they have to be dealt with sharply in order to be able to carry on working. This was how Entrepreneur 9 had their first contact as a supplier for another incubator tenant, specifically with the one right next door, after the latter's email server was down. The immediate solution to the problem heralded the first satisfactory contact between the two entrepreneurs. In this particular case, the time factor, in the sense of solving a problem quickly, was the key.

The first experience of cooperation I had was with one of our neighbours, who was right next door. I remember he knocked on the door and looked a bit flustered. He had a basic knowledge of IT but only enough to work in his particular area. He told me that he had a problem with his e-mail and that it didn't work. I went into his office, fixed it for him and he was really grateful. After that initial experience, we must have had between seven and ten entrepreneurs from the incubator coming in to ask us about things.

In most cases, these examples of initial cooperation experiences between entrepreneurs in the incubator proved successful. Specifically, seven of the experiences have led to long-term relationships which still exist today. Despite being successful, Entrepreneur 5's experience did not continue because the client closed down the business. In Table 4.3, we show the first cooperation experience for each entrepreneur.

Table 4.3. First experience of cooperation with an incubator tenant

Label	Date	Type of relation	Collaboration goal	Reasons for collaborating	Development
E1	December 2006	Client-supplier relation	Server maintenance and computer consumables	Use of common areas, affability, awareness of being entrepreneurs, empathy, future reciprocity and greater attention to detail when working	Long-term relation
E2	January 2007	Client-supplier relation	Accounting and tax consultancy	Physical proximity, empathy, awareness of being entrepreneurs, direct experience in the process of creating a firm and competitive prices	Long-term relation
E3	May 2006	Cooperation relation with client	Hardware maintenance service	Physical proximity, empathy, complementarity, similar socio-demographic traits, open personality, mutual contact and future reciprocity	Long-term relation
E4	September 2006	Cooperation relation with client	Developing customised software	Physical proximity, empathy, mutual contact and future reciprocity	Long-term relation
E5	May 2008	Cooperation relation with client	On-line marketing: positioning on the Internet	Physical proximity, empathy, use of common areas, same professional jargon and specialization	One of the firm closed down
E6	February 2005	Client-supplier relation	Setting up a website	Physical proximity, empathy, professional service and greater attention to detail when working	Long-term relation
E7	April 2008	Client-supplier relation	Setting up a website	Physical proximity, empathy and willingness to collaborate	Long-term relation
E8	July 2007	Supplier-client relation	Setting up a website	Physical proximity, time-saving, empathy and greater attention to detail when working	Long-term relation
E9	July 2008	Supplier-client relation	Solving a computer problem	Physical proximity, "urgency" to solve a problem and mutual contact	Specific transaction

From the above, it may be concluded that three of the proposed variables (*empathy* – H3, *shared values* – H4, and *complementarity resources* – H5) are highlighted by interviewees, although none of the incubatees mentioned *supplementarity resources*. This result is not surprising since all the interviewees mentioned relationships with other entrepreneurs with different business activities as well as different experiences and professional skills.

On the other hand, two aspects not included in the model were mentioned as determinants of the relationships: contact persons, and proximity.

4.2.2.2. Mechanisms of relational exchange

The second aspect discussed in the interviews was the characteristics that determine the success and the endurance of the relationships. All the entrepreneurs concurred when pointing to continuity, followed by trustworthiness, frequency in contacts and friendship, which were mentioned by seven of the nine entrepreneurs. Other aspects were the consolidation of the relationship, and involvement, the latter stemming from having been working together since the outset of their business activity.

Trustworthiness. Trust was considered a basic element for relationship success. In fact, different ways of working and mistrust were cited as the reasons for failure.

Entrepreneur 3 provided a service for a client, who needed a further service which was not offered by the first entrepreneur. In order to help the client out and increase their client's satisfaction, entrepreneur three contacted an incubator tenant who specialized in providing such a service, an incubator tenant that entrepreneur three did not know previously and about whom they had no references. The second entrepreneur completed the work, but entrepreneur three was not satisfied because the two did not share the same work philosophy or way of dealing with the client. This led to dissatisfaction on the part of entrepreneur three, who decided not to work with the second one again, and led them to change their ideas about recommending others if they did not have any prior knowledge of how they worked.

I knew that in the incubator there were two or three entrepreneurs that provided a particular service I needed for my client. I chose one of them just as I could have chosen another, as I hadn't had any previous references or contact with any of them. The entrepreneurs in question made a favourable impression on me although I didn't like the way they worked. We get on well personally, but the way they went about their work just did not fit in with my idea of things. I wasn't happy with how the final product turned out, the impression they made on the client, and I wasn't happy with the way they dealt with the client. It simply wasn't the way I like to go about my work; and that was the bad experience.

Entrepreneur 4 suggested an original business idea to another incubator tenant whereby each of them would be responsible for the specific aspects of their proposal and would, if the proposal were approved, subsequently take charge of the part they specialized in. The proposal was not drawn up jointly, each entrepreneur doing it individually as they

were unable to agree over certain technical issues in the project. The entrepreneur ultimately chosen to carry out the project was not entrepreneur four, but the other one, who did not compensate or involve entrepreneur four in any way despite the latter having provided them with the idea. This failed experience led to entrepreneur four displaying mistrust towards engaging in projects if they had not previously worked with the entrepreneur or firm.

This failed experience arose as a result of another entrepreneur that we did not initially consider to be a competitor, but who eventually proved to be so as they gradually saw that our business might prove profitable. That leads you to mistrust others, and I still have misgivings about other firms when it comes to large scale projects. This was affected by the character of the other entrepreneur. There was no mutual feeling either at a personal or a business level. This led us to break off relationships with that particular entrepreneur, although we do cooperate with many others. That particular experience did not signal the end of our cooperation.

Trust was also related to the partner's capabilities and honesty. In fact, what stood out behind the failure of relationships in these cases was the lack of agreement or failure to establish prior conditions.

Entrepreneur 5 was hired by another incubator tenant to provide an ad-hoc service for a client, although the service the client required was not very clearly defined. This led to a timeframe for the delivery of a series of items which proved unworkable. This sparked discontent in the client, who decided to break off all contact with entrepreneur five, who in turn saw the unsuccessful episode as a learning experience, realising that even if both parts know each other, the terms and conditions of any agreement have to be set out very clearly.

It was an entrepreneur who commissioned a job, also I think because they didn't really know what it was about. When we thought out the project, a delivery timeframe was set out which we apparently failed to meet, leading the first entrepreneur to break off the relationship, and that was that. I think there were other reasons behind it which made them take that decision, although I don't know what they were.

Entrepreneur 6 was asked to do a specific task by another incubator tenant they were friends with. The work involved conducting a selection process. After the whole procedure had been completed, entrepreneur six billed their client for the service, and the latter did not want to pay as they knew each other and had seen it as a personal favour. Entrepreneur 6 was annoyed, as they had provided a professional service from which they make their living and had not seen it as a personal favour.

I had the chance to cooperate in a selection process with one of the people I'd done the business start-up course with, and who had a renewable energies firm. But this person thought that I wasn't going to bill him because we knew each other, and that I was just going to do it. But it wasn't like that. This is my job and this is how I make my living. I thought it was quite cheeky of him to think that just because we got on well with each other and were both entrepreneurs and have to help each other that well you know.... But that's not the way things work.

These failed experiences with incubator tenants are shown in Table 4.4.

Table 4.4. Failed experiences with incubator tenants.

Label	Reasons for starting the collaboration	Key factors	Result
E3	Physical proximity and friendly attitude of the entrepreneurs	Cooperation relation with a client. They made a bad impression on the client.	Less trust
E4	Physical proximity and proposal for collaboration	Initial proposal for a joint project between two firms. Finally, the firm became a competitor.	Less trust
E5	Physical proximity	Delivery timeframe was set out which the firm failed to meet.	Experiential learning
E6	Physical proximity and empathy	An incubator tenant saw a professional service as a personal favour	Trust may not be reciprocated

Cooperation and exchange of knowledge. None of the entrepreneurs have gone so far as to materialize such cooperation in formal agreements, mergers or the creation of joint firms, not even with the entrepreneurs with whom they had their initial cooperation experience in the incubator and which continues to today, although the following comments were made.

Entrepreneur 4 (has been collaborating with another entrepreneur since September 2006):

... we have come to see them as a technological partner.

Entrepreneur 6 (has been collaborating with another incubator tenant since January 2005):

... he has always lived up to expectations. I consult him on all matters related to his field, which is the IT sector, even on matters familiar to me.

Entrepreneur 8 (has been collaborating with another entrepreneur since July 2007):

If he can do something for me, he doesn't hesitate, and he suggests various projects in which to cooperate.

Commitment and expectations of continuity. All the entrepreneurs involved in the research currently maintain the relationships they commenced with other entrepreneurs located in the incubator.

Entrepreneur 2 had their initial cooperation experience when they first entered the incubator. Specifically, it was with an entrepreneur who was a consultant and left the incubator a few months later, but with whom they are still working.

The consultant left a few months later because he had been one of the first to set up in the incubator and he had then opened an office elsewhere. We are still working with him and we get on really well.

Entrepreneur 1 made specific reference to the fact that relationships with other entrepreneurs are not restricted to when they are in the incubator but continue when they leave, as they remember the entrepreneurs that were there.

When entrepreneurs leave, they do remember us. In fact, not just one but quite a few. I think that what most drives them in this sense is being aware of how difficult it is, how hard it is to attract clients, sell your products, etc. In the end, if you can help the guys next door... we've all helped one another out.

4.2.2.3. Relationship outcomes

Finally, incubatees were asked about the outcomes and advantages to emerge from the relationships (Table 4.5).

Table 4.5. Characterizations of relationships born in the incubator.

Label	Features used to Describe the Relations	Advantages
E1	Trust, physical proximity, personalized treatment, continuity and involvement	Introduction into networks and professional service
E2	Trust, frequency, empathy, personal relation, specialization, personalized treatment and continuity	Tremendous availability and involvement in joint projects
E3	Trust, frequency, similar working philosophy and continuity	Entrepreneurs share the common values which tend to characterize business people
E4	Empathy, personal relation, continuity, similar working philosophy and client approach	Availability, competitive prices and professional services
E5	Frequency, "business friends", continuity, empathy, relation with peers, capability and consolidation	Introduction in networks, experience and assurance
E6	Trust, flexibility, continuity, frequency, capability, empathy and friendship	Adaptability, professional services and introduction into networks
E7	Frequency, trust, friendship, continuity and empathy	Introduction into networks
E8	Frequency, continuity, trust, friendship and similar working philosophy	Tremendous availability
E9	Trust, frequency, friendship and continuity	Convenience

Introduction in networks and assurance. Firstly, entrepreneurs cited matters related to having shared the same physical area, such as the assurance that comes from working with entrepreneurs they have known close at hand, and the large number of contacts that can be made in a short space of time. Entrepreneur 5 explained:

... being in an incubator is like taking a crash course in entrepreneurship, which, on the one hand, makes you less afraid. If you have not been in an incubator, then you might engage in relationships with other firms differently; if you go to a bigger firm you feel a bit intimidated because you don't know how to approach them (...). But when you've dealt with a large number of firms, big companies are just like any other.

In the words of entrepreneur 5, we can figure out that those entrepreneurs who are in incubation can strengthen their entrepreneurial commitment because of the trust and the confidence they gain due to relations in the incubator.

Flexibility, availability and convenience. Secondly, factors which were cited to a greater extent relate to actual entrepreneurship. Specifically, these factors are relationships with peers, since business incubator tenants are people who share similar sociodemographic traits, competitive prices, tremendous flexibility and availability, greater attention to detail when working, and the convenience factor when engaging in joint projects. Entrepreneur 5:

When you leave, you might have relationships with other companies, but it's not the same. In the incubator, you reveal information about your firm that you would never disclose out there in the market. That's because peer relationships occur since we are small business people, and most of us are aged between 30 and 40. This allows friendly business relationships to spring up, but not friendship. Outside the incubator, if you are going to meet an entrepreneur who employs 40 workers, you can share a coffee but you don't talk to each other as equals.

The incubator is a protected environment for business that allows exchange of knowledge that can foster generation of innovation, contrary to the market, where the development of innovation may delay for a considerable period of time.

New projects. Finally, aspects stemming from the experience of working or cooperating were mentioned. These include creating networks, involvement in joint projects and, in specific cases, totally frank cooperation. These were the comments of Entrepreneurs 4 and 2:

Collaboration is established for three years. As things developed so normally, there was no need to sign contracts because there is enough trust for you to be able even to introduce your clients to other entrepreneurs.

During our time in the incubator, we have always felt that sharing similar experiences, working together, and being so close, gave us the chance to set up joint projects and even create our own joint brand name "incubator firms" with aim of attracting more clients.

The opportunity to be involved in new projects allows entrepreneurs commit more with their businesses and open doors to new pathways in income generation.

4.2.3. Summary of results

This study shows three key aspects in the dyadic relationships between incubatees: (1) the main factors that influence the creation of this type of relationship; (2) the mechanisms that encourage its development; and (3) the most immediate results in the field of incubators. Figure 4.2 illustrates the relevant variables at each stage of the relationship.

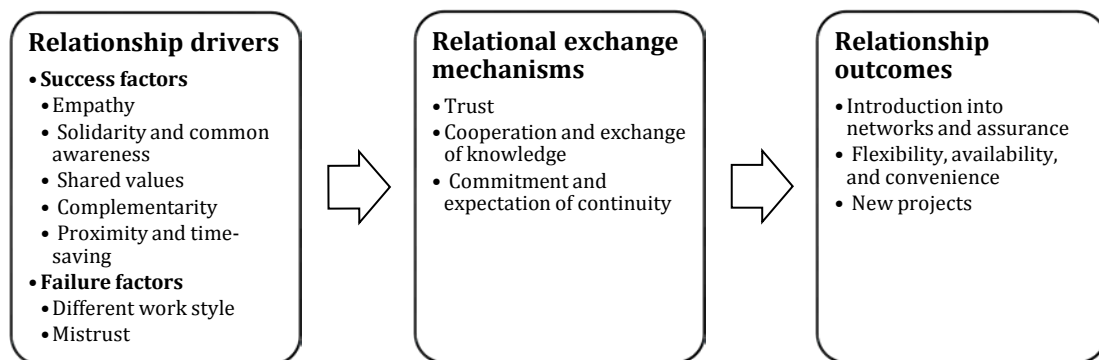
With regard to the drivers that foster the beginning and the creation of relationships, as proposed in hypotheses H3, H4 and H5, *empathy*, *shared values* and *complementarity* were mentioned. It can thus be concluded that hypotheses H3 to H5 are relevant, although there is no empirical support for hypothesis H6 (the effect of *supplementarity resources*).

Among the mechanisms that characterize the survival and continuity of relationships are *trust*, *commitment*, and *exchange of knowledge*, thus confirming the dimensions of relationships in the proposed model. Worth highlighting is the key role played by trust/mistrust as a vital factor in either sustaining the relationship (supporting hypothesis H1) or causing it break down. In this study, we also detect, in line with hypothesis H2, the link between exchange of knowledge and commitment. Successful knowledge exchanges were associated with expectations of continuity.

Other complementary aspects of the relationships are special treatment, flexibility, and involvement.

Finally, as regards relationship outcomes, inclusion in networks and open collaboration were mentioned. However, business efficiency and generation of innovation, proposed variables in the model, were not specified by the interviewees.

Figure 4.2. Relevant variables at each stage of the relationship.



Further conclusions of this research, in line with the other studies, are explained in Chapter 5.

4.3. Data collection for quantitative studies

After **Study I**, which is qualitative, **Studies II, III.1** and **III.2** were carried out. These are quantitative and aim to further, extend as well as confirm the results to emerge from the first study and to analyse empirically the other hypotheses proposed in the thesis. Information for three studies was collected through questionnaires aimed at UBI managers and incubatees in Spain and the Netherlands. Specifically, two questionnaires were drawn up: one for incubatees and the other for incubator managers. It was decided to use the format of a compulsory answer on-line questionnaire for all the questions posed, which ensured that no data were missing.

Since the information is common to all three surveys, this section explains the process used when devising the questionnaires, measuring the variables and gathering data. In addition, the study sample is described, and further details are then given concerning each study carried out and the results obtained.

4.3.1. Questionnaire to incubatees: design and description

In order to ensure the questionnaire fulfilled its purpose as a measurement tool that did not distort reality, two sources were used: bibliographical review and specific information from the field of UBIs.

First, a review was conducted of the academic literature, focusing primarily on empirical works within the framework of relationship marketing, incubators and entrepreneurship, as set out in previous chapters.

Secondly, information from the field of UBIs was used, this proving to be key when drawing up the final questionnaire. This information was obtained by reviewing external documentation although it was mainly gathered through conversations with incubator managers and tenants in Spain and the Netherlands. This enabled items to be adapted to the specific area of research and even for ad hoc indicators to be designed.

After drawing up an initial version of the questionnaire, two pre-tests were carried out in order to check the validity of its content, in other words determining to what extent a questionnaire measures what it sets out to measure (Fink, 1995; Creswell, 2003). The

first pre-test was developed personally and *in situ* with six incubatees from the ACE Venture Lab¹³, located in Amsterdam, in November 2013¹⁴.

This proved to be particularly important as it led to the wording of several items being changed so as to make them clearer and easier to understand, and it ensured they were not open to subsequent misinterpretation by respondents when answering the questionnaire. After making the necessary changes, in December the same year the second pre-test was carried out with three members of a research group from Vrije University Amsterdam.¹⁵ Thanks to this group, it could be seen that the scales reflected the content and scope of the constructs included in the proposed models. The possibility of asking about one relationship that had been successful and another that had failed, or about all of the relationships that respondents had had with other incubatees, was also discussed. However, both possibilities were ruled out: the first because cooperation between entrepreneurs might prove to be neutral, and need not necessarily be either positive or negative. In the case of the second option, it was felt that the answers would not be so specific when asking a general question concerning all the relationships taken as a whole. Bearing in mind that the goal of the research focused on describing the relationships to develop in the incubators, without biasing or restricting in any way towards a specific type of cooperation, it was decided, as had initially been posited, that individuals should consider one particular interaction, contact or professional relation they had had with another entrepreneur whilst in the incubator so as to be able to respond to the questions put to them. This can be seen in the final version of the questionnaire, both in Spanish and in English, and which may be found in Annexes 1 and 2, respectively. The indication was as follows:

¹³ The Amsterdam Center for Entrepreneurship (ACE) Venture Lab is an incubator set up by the University of Amsterdam, the Vrije University Amsterdam, and the Amsterdam University of Applied Sciences. Its main goal is to support researchers, PhDs, students, graduates, and science based start-ups to facilitate the growth and commercialization of feasible business ideas.

¹⁴ At the same time as the pre-test was being conducted, qualitative research was also being carried out in the same incubator (see Redondo *et al.*, 2014). This allowed us "...to understand the context or setting of the participants through visiting this context and gathering information personally" (Creswell, 2003, p. 9).

¹⁵ Members of the group: Professor Dr. Peter van der Sijde, and the researchers Firmansyah David and Hans Frederik. Their research interests are entrepreneurship, university-business cooperation, technology transfer and university programs in IT and interaction with the professional field.

“Consider ONE professional relationship, interaction or contact that you have or have had with ANOTHER ENTREPRENEUR IN THE INCUBATION PROCESS and answer the following questions”

Before moving on to the explanation concerning the design of the questionnaire, one clarification should be made. The proposed model was posited for relationships between individuals both at the pre-incubation as well as incubation stage. In order to adjust the questionnaire to each stage, the wording of certain questions and items was adapted. One example is that in the pre-incubation stage reference is made to the idea of business, and in the incubation stage to the actual business itself, since this has already been created, which is not the case in the previous stage. When gathering the information, 101 incubatee responses were obtained, of which 92 correspond to individuals at the incubation stage and only nine to those at pre-incubation.

With regard to measuring the variables included in the questionnaire, all of these are set out below, grouped as follows: (1) affinity and mutual understanding; (2) characteristics of resources; (3) characteristics of the incubatee; (4) description of the dyadic relationship; (5) results of the dyadic relationship; (6) manager’s relational orientation; (7) social capital; (8) efficiency of the incubatee’s business; and (9) control variables.

(1) Affinity and mutual understanding

Affinity and mutual understanding are specified in two variables: *empathy* and *shared values*.

An incubatee’s *empathy* towards another incubatee was measured through a single item, the one displaying the greatest content validity and consistency in the present study, taken from Hogan’s original scale (1969), and which has been widely used and verified in a number of empirical works.

In order to identify a scale for measuring the *shared values* on the part of the other party involved in the dyad, the works of a number of authors were reviewed. It was decided to use a three-item reflective scale based on Sarkar *et al.* (2001), due to its concurrence with the goals of research regarding the variable in question, and given its validity.

Table 4.6 shows the corresponding measurement items for the two variables.

Table 4.6. Measurement of affinity and mutual understanding: items and references

Variables and items	References
<i>Empathy</i> (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Evaluate the following statements:</i>	
I have little difficulty in “putting myself into other people’s shoes”	Hogan (1969)
<i>Shared values</i> (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>This entrepreneur:</i>	
His/her values and conduct norms are congruent with mine	Sarkar, Echambadi, Cavusgil, and Aulakh (2001)
His/her philosophy/approach to business is compatible with mine	
His/her goals and objectives are compatible with mine	

(2) Characteristics of resources

Measuring the supplementarity and complementarity of incubatees’ resources was carried out using the scales proposed by Sarkar *et al.* (2001) and Lambe *et al.* (2002). In both cases, and as emerged from the first pre-test, it was necessary to modify the wording of the items in order to improve the understanding thereof and so as to ensure they would not be misinterpreted. The greatest changes were made to *supplementarity of resources*. Given the absence of a reliable and valid scale that could be used, a scale similar to the one employed for the complementarity of resources was drawn up. Four indicators for complementarity and three for supplementarity were used, all of which are reflective. Both variables were measured from the viewpoint of the respondent with regard to a specific incubatee they had been involved with.

In order to measure *transferability of knowledge*, two reflective items taken from the empirical work carried out by Simonin (1999) were included, said model being one which has also been widely validated. Each item’s content is similar, as can be seen in Table 4.7, although there is a difference vis-à-vis the standpoint from which they are measured: in the first person and with regard to the other part of the dyad.

Table 4.7. Measurement of variables of characteristics of resources: items and references

Variables and items	References
Resource complementary (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>This entrepreneur:</i>	
Has different resources to mine that are very precious to me	Sarkar, Echambadi, Cavusgil, and Aulakh (2001)
His/her resources are necessary to achieve my goals	Lambe, Spekman, and Hunt (2002)
Has different and complementary resources to mine	
His/her resources, combined with mine, enable me to achieve more satisfactory results	
Resource supplementary (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>This entrepreneur:</i>	
Has similar resources to mine, but nevertheless they are very precious to me	From Sarkar, Echambadi, Cavusgil, and Aulakh (2001)
Has resources that are similar but supplementary to mine	From Lambe, Spekman, and Hunt (2002)
His/her resources are similar to mine, but when combined, allow me to achieve more satisfactory results	
Transferability. (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Regarding my knowledge or training applied to the business I have started:</i>	
The knowledge (technical-scientific) held by me is easily transferable	Simonin (1999)
<i>Evaluate the following statements about this entrepreneur:</i>	
The knowledge (technical-scientific) held by him/her is easily transferable	

(3) Incubatee characteristics

Measurement of incubatees’ individual traits was based on a review of the literature. The traits in question are: *willingness to share knowledge* and *promotion focus*.

As regards the *willingness to share knowledge* variable, three reflective indicators proposed by van den Hooff and de Leeuw van Weenen (2004) were included. Two of these measure willingness to acquire knowledge and the other the willingness to share it.

Determining whether the individual displays a *promotion focus* was measured through three items of a reflective nature. The first is one proposed by Higgins *et al.* (2001) to measure whether individuals seek and pursue opportunities that will enable them to accomplish their goals, reflected in achievements and growth. To complete the scale and to adapt it to the area of entrepreneurship, two further items proposed by Florin *et al.*, (2007) were used. Said authors explain the attitudinal dimensions of the urge to engage in entrepreneurship, which they define as: “an individual’s perception of the desirability and feasibility to proactively pursue opportunities and creatively respond to challenges, tasks, needs, and obstacles in innovative ways” (Florin *et al.*, 2007, p. 26). These dimensions include proactivity, a feature of promotion focus individuals.

The three personal variables were formulated in the first person, without reference to the other entrepreneur with whom individuals were cooperating, since these are subjects' own and specific attributes which might shape the relationship they are involved in. Table 4.8 shows the variables in question as well as the items and scales used to measure them, together with the sources from which they were taken.

Table 4.8. Measurement of individual characteristics: items and references

Variables and items	References
<i>Willingness to share knowledge</i> (5-point Likert scale, anchored by "strongly disagree" and "strongly agree")	
<i>Evaluate the following statements:</i>	
When I learn something new, I tell my colleagues	van den Hooff and de Leeuw van Weenen (2004)
I share the information I have with my colleagues when they ask me to	
I share my skills with my colleagues when they ask me to	
<i>Promotion focus</i> (5-point Likert scale, anchored by "never or seldom" and "very often")	
<i>The following questions concern specific events in your life:</i>	
I feel like I have made progress toward being successful in my life	Higgins, Friedman, Harlow, Idson, and Ayduk (2001)
(5-point Likert scale, anchored by "strongly disagree" and "strongly agree")	
<i>Evaluate the following statements: (*)</i>	
I am always looking for better ways to do things	Florin, Karri, and Rossiter (2007)
No matter what the odds are, if I believe in something I will make it happen	

(4) Characterization of the dyadic relationship

The quality of the relationship between incubatees was reflected through variables which have been widely studied in relationship marketing: *commitment* and *trust*.

Mutual *commitment* in the relationship was measured through a reflective scale comprising six indicators, adapted from the scale proposed by Wilson and Vlosky (1997) and also used by Moberg and Speh (2003). As these were closely aligned to the objectives pursued, three items were formulated in the first person and the other three with regard to the other person involved in the collaboration.

As regards *trust*, and in an effort to ensure measurement was comprehensive and covered the dimensions of honesty and kindness, scales taken from the empirical works of Ganesan (1994), Sarkar *et al.* (2001), and McKnight *et al.* (2002) were used. Specifically, a seven-item reflective scale was devised to measure incubatee *trust* towards those with whom they were cooperating.

Cooperation content was also reflected in terms of *exchange of knowledge*. In order to measure various dimensions of this variable, a total of fifteen items were used, which make up two reflective scales: one nine-indicator scale to measure *knowledge transfer*

and another six-indicator scale to measure *communication*. The knowledge transfer scale was constructed based on the items proposed by Yli-Renko *et al.* (2001) and by Simonin (1999).

Communication in the relationship was measured using the reflective scale proposed by Mohr and Spekman (1994). Also included were two indicators reflecting the frequency of contacts, proposed by Nicholson *et al.* (2001).

The scales of trust, commitment, and exchange of knowledge are shown in Table 4.9.

Table 4.9. Measurement of characterization of the dyadic relationship: items and references

Variables and items	References
Commitment (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Evaluate the following statements:</i>	
I intend to strengthen our relationship over time	
I intend to continue our relationship for a long time	
I am committed to sharing ideas and knowledge with him/her	Wilson and Vlosky (1997); Moberg and Speh (2003)
<i>This entrepreneur:</i>	
He/she is willing to strengthen our relationship over time	
He/she is willing to continue our relationship for a long time	
He/she is committed to sharing ideas and knowledge with me	
Trust (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>This entrepreneur:</i>	
He/she is honest and truthful	Sarkar, Echambadi, Cavusgil, and Aulakh (2001)
The information he/she exchanges with me is reliable	
He/she honestly communicates any problem that may affect me	Ganesan (1994)
He/she is willing to provide assistance and support when circumstances so require	
I believe that he/she acts in my best interest	McKnight, Choudhury, and Kacmar (2002)
In general, he/she is a person who honours his/her commitments	
He/she is competent and effective	
Exchange of knowledge	
Knowledge transfer (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Through this entrepreneur:</i>	
I learn from his/her knowledge	
I learn from his/her experience	
I assimilate the knowledge that he/she gives me and it helps develop my start-up	Simonin (1999)
<i>Through me, the other entrepreneur:</i>	
Learns from my knowledge	
Learns from my experience	
Assimilates the knowledge that I give him/her and it helps develop his/her start-up	
<i>Through this entrepreneur:</i>	
I acquire technical knowledge and a tremendous amount of know-how	Yli-Renko, Autio, and Sapienza (2001)
<i>Through me, the other entrepreneur:</i>	
Has access to market knowledge	
Acquires technical knowledge and a tremendous amount of know-how	
Communication (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>In our relationship:</i>	
We seek mutual advice and recommendations	
We share all types of information	Mohr and Spekman (1994)
We provide any information that may be useful to the other party	
Each party informs the other about events that may affect them	
<i>In our relationship:</i>	
We work together frequently	Nicholson, Compeau, and Sethi (2001)
We frequently have contact	

(5) Outcomes of the dyadic relationship

The model proposes three outcomes that might emerge from relationships between incubatees: *entrepreneurial commitment, generation of innovation and business results.*

Entrepreneurial commitment was measured through a four-item reflective scale defined by Erikson (2002). Its content refers to the level of commitment, demands and the individual's business goals.

Generation of innovation was reflected through a five-indicator reflective scale, three reflecting what the relationship has provided up to that point and two dealing with future expectations in terms of what innovation might emerge from the cooperation. After reviewing the literature and failing to find any scale which exactly reflected what we were aiming to measure, one was designed *ad hoc*.

Finally, the *business results* outcome was included. This was reflected through three reflective indicators from the work of Gassenheimer and Ramsey (1994) in the area of relations. Specifically, the items deal with sales, profits and new market opportunities.

The measurement of the three variables of the results proposed is shown in Table 4.10.

Table 4.10. Measurement of the dyadic relationship: items and references

Variables and items	References
<i>Entrepreneurial commitment</i> (5-point Likert scale, anchored by "strongly disagree" and "strongly agree")	
<i>The relationship with this entrepreneur has allowed me:</i>	
To be more committed to my entrepreneurial goals	Erikson (2002)
To be more demanding about my entrepreneurial goals	
To be more ambitious about my entrepreneurial goals	
<i>Generation of innovation</i> (5-point Likert scale, anchored by "strongly disagree" and "strongly agree")	
<i>The relationship with this entrepreneur has enabled my business to:</i>	
Become more innovative in terms of product or service	<i>Ad hoc</i>
Reach a wider market	
Become more feasible in its development	
<i>In the future, I think the relationship with this entrepreneur will stimulate:</i>	
Generation of innovation	
New products/services	
<i>Business results</i> (5-point Likert scale, anchored by "strongly disagree" and "strongly agree")(*)	
<i>The relationship with this entrepreneur has allowed me:</i>	
To increase sales	Gassenheimer and Ramsey (1994)
To create new market opportunities	
To generate profits	
(*) Only for incubation.	

(6) Manager's relational orientation

Another of the variables included in the incubatees' questionnaire dealt with the *manager's relational orientation*. To measure this, the manager's involvement vis-à-vis fostering contacts and relations amongst incubatees and with agents from outside the incubator was considered. Due to its specific nature and the lack of any empirical

studies addressing this issue, a reflective scale containing four indicators defined *ad hoc* was constructed (Table 4.11) for the present research.

Table 4.11. Measurement of manager’s relational orientation: items and reference

Variable and items	Reference
<i>Manager’s relational orientation</i> (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Think of the incubator manager and assess your level of agreement or disagreement with each of the following statements:</i>	
I think he/she encourages contacts between entrepreneurs	<i>Ad hoc</i>
He/she tries to establish links between entrepreneurs who can thus collaborate	
He/she facilitates networking between all entrepreneurs	
He/she facilitates contacts outside the incubator	

(7) Social capital

Measuring the creation of social capital in UBIs included a total of fifteen items dealing with its various dimensions.

First, to measure incubatees’ structural social capital, and following social capital literature (Granovetter, 1973; Burt, 1992), the concepts of *bridging social capital* and *bonding* were taken. Specifically, in order to measure *bridging social capital* an *ad hoc* scale was devised comprising two formative items. As regards *bonding social capital*, a question was introduced to give an indication of the number of incubatees with whom frequent contacts were maintained.

The incubator’s *relational social capital* was measured through the three dimensions of: trust, identity and reciprocity (Nahapiet and Ghoshal, 1998). For the dimension of *trust*, the four-indicator reflective scale proposed by Chiu *et al.* (2006) was used. The scale used by said authors for identification with the community was also used to measure *relational social capital* in its *identification* dimension through two reflective items. Finally, to measure *reciprocity*, the two-item reflective scale proposed by Wasko and Faraj (2005) was considered.

To measure the components of *cognitive social capital*, two reflective indicators from the shared language scale proposed by Chiu *et al.* (2006) were used, together with a further two reflective items from the shared interests scale of Kleijnen *et al.* (2009).

All the dimensions of social capital, as well as the items used and the references, are shown in Table 4.12.

Table 4.12. Measurement of social capital: items and references

Variables and items	References
Structural social capital. Bridging social capital (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Since I joined incubation, I have managed ...</i>	
To develop social skills for the business world	<i>Ad hoc</i>
To increase my network of business contacts	
Structural social capital. Bonding social capital	
Indicate the number of incubatees with whom you are in frequent contact	<i>Ad hoc</i>
Relational social capital. Dimension trust (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>The entrepreneurs who are in incubation, in the same incubator as me ...</i>	
Would not take advantage of others even if the opportunity arose	Chiu, Meng, and Wang (2006)
Always keep their promises	
Behave in a consistent and honest manner	
Are truthful when dealing with one another	
Relational social capital. Dimension identity (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Evaluate the following statements:</i>	
There is a sense of group belonging within us, the incubatees	Chiu, Meng, and Wang (2006)
I have the feeling of group togetherness or closeness	
Relational social capital. Dimension reciprocity (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Evaluate the following statements:</i>	
When I ask for help, I feel that other incubatees will provide it	Wasko and Faraj (2005)
Even if an incubatee I have helped cannot help me in the future, others will be able to	
Cognitive social capital (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>The entrepreneurs who are in incubation, in the same incubator as me ...</i>	
Use a similar language and jargon to me	Chiu, Meng, and Wang (2006)
Use an understandable communication pattern	
Share similar interests to mine	Kleijnen, Lievens, de Ruyter, and Wetzels (2009)
Are people whose interests I can identify with	

(8) Business efficiency

A specific result to emerge from incubation was considered: namely *business efficiency*. As no empirical work has been carried out in which this construct has been measured for the specific area under study, three reflective indicators were devised *ad hoc*. These measured whether during the incubation process the entrepreneur had managed to become more efficient in a range of aspects (planning, management and implementation), as shown in Table 4.13.

Table 4.13. Measurement of incubation result: items and reference

Variable and items	Reference
Business efficiency. (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Since I joined incubation, I have managed</i>	
To be more efficient in planning and strategy for my business	<i>Ad hoc</i>
To be more efficient in managing my business	
To be more efficient in implementing specific activities for my business	

(9) Control variables

In order to conclude the measurement of the variables through the questionnaire for incubatees, mention should be made of the nine control variables included, which were kept constant so as to offset their effects on the dependent variable posited. These variables are the following: *entrepreneurial experience*, *experience as an employee in a company*, *academic/scientific experience*, *partners*, *time in incubation*, *existence of a coach*, *country* and *proactivity of the university*.

Entrepreneurial experience. In the case of our particular study, academic incubatees (for example, teaching staff and researchers) do not tend to have any prior entrepreneurial experience. Although this is the usual case, it is by no means an axiom. As a result, a control variable was introduced to determine whether the individual had had any *prior business experience* (dichotomous scale 0=No, 1=Yes).

Experience as an employee in a company. Professional experience outside the academic and entrepreneurial field might impact on how individuals relate. Professional experience was thus also measured using a dichotomous variable through the question: “have you ever been a salaried worker outside the academic field?” (0=No, 1=Yes).

Academic/scientific experience. Possible UBI tenants are teaching staff, researchers, students and former students, all of whom have in one form or another been linked to the academic world, albeit in a different way. Students have benefitted from the university through the education and training they have received, although not all of them have scientific or academic experience. As a result, they were specifically asked whether they had any professional experience at a university or research centre (dichotomous scale 0=No, 1=Yes).

Partners. Academics tend to work in teams, yet not everyone who decides to engage in entrepreneurship and to enter a UBI has partners with whom to undertake their project. As a result, the following question was asked: “do you have partners?” (dichotomous scale 0=No, 1=Yes).

Time in incubation. The time individuals might spend in an incubator varies depending on a range of variables. What is more, each UBI can decide whether it establishes a maximum period its tenants can stay. In order to determine the exact value of this control variable, the number of months in incubation was measured.

Existence of a coach. UBIs offering incubatees the services of a coach is optional. A dichotomous question was therefore included to determine whether individuals in the sample had been afforded this service (0=No, 1=Sí).

Country. At the start of the questionnaire, after being asked the name of the incubator, the following question dealt with the country in which it was located. Spain took the value 0 and the Netherlands the value 1.

Proactivity of the university. Finally, aspects related to the university or research centre should be mentioned since the entrepreneur comes from said institutions and the UBI is linked and influenced by it. As a result, and in order to measure the proactive nature of the university with regard to entrepreneurship, a three-item reflective scale was included, shown in Table 4.14, and taken from the work of Morales (2008).

Table 4.14. Measurement of proactivity of the university: items and reference

Variable and items	Reference
<i>Proactivity of the university</i> (5-point Likert scale, anchored by “strongly disagree” and “strongly agree”)	
<i>Rate the following aspects of your university/research centre of origin:</i>	
There is a tradition of creating spin-offs	Morales (2008)
There are specific regulations for creating spin-offs at my university/research centre	
There is a positive attitude within my university/research centre towards entrepreneurship	

4.3.2. Questionnaire to managers: design and description

The drafting and design of the questionnaire given to managers was similar to that used for the incubatees’ questionnaire. The sources used were bibliographical review and UBI information.

Amongst other sources, the review of UBI literature was based on the work of Radosevich (1995), Mian (1996), Jones-Evans and Klofsten (1998), Heydebreck *et al.* (2000), Grimaldi and Grandi (2001), dealt with in Chapter 1. In addition to contacting both Spanish and Dutch managers, documents from various agencies and bodies that foster entrepreneurial initiatives were consulted as were European UBIs that are examples of good practice¹⁶.

After drafting a version of the questionnaire which could have been final, a pre-test was conducted with the manager of the UBI at the Centre for the Transfer of Applied

¹⁶ These include the IDEAS Institute at Valencia Polytechnic University, UNINOVA at the University of Santiago de Compostela, and The Netherlands Institute for Knowledge Intensive Entrepreneurship (NIKOS).

Technologies (CTTA)¹⁷ in September 2014. The pre-test led to the wording of various items being changed so as to make them more precise and easier to understand and to ensure they reflected what they sought to measure. Likewise, an indicator dealing with the services provided was added, specifically “guidance and support in securing funding, presentation of R&D&i projects to national and European calls, etc.”

Managers can be in charge of different incubation programmes: pre-incubation, incubation, and post-incubation. Bearing this in mind, they were asked in the questionnaire about the services provided in each, as can be seen in the final version of the questionnaire in Spanish, in Annex 3, and in English in Annex 4.

An explanation is given below of the various concepts measured in the questionnaire, as well as the items used to accomplish this. Given the specific nature of the study and the lack of empirical works, all scales were created *ad hoc*.

The variables were grouped into: (1) profile of the manager; (2) services offered by incubators; and (3) control variables.

(1) Profile of the manager

The UBI managers’ professional career varies enormously: some only have experience in the academic world, others only have experience in business, and there are managers who have been involved in both worlds; hence, the importance and timeliness of gaining an insight into the managers’ professional profile.

Scientific experience was measured through a single item, years of experience in the world of science. *Experience in business* was reflected in two formative items that dealt with years of experience as an entrepreneur and in the business world. Both were measured in five-item interval scales, 1 indicating “no experience”; 2 “up to 3 years”; 3 “between 3 and 5 years”; 4 “between 5 and 10 years”; and 5 “over 10 years”.

(2) Services offered by incubators

For each incubation programme, a list of services was detailed allowing managers to indicate whether these had been provided or not in the UBI they managed and if they were offered, to what extent they were fostered.

¹⁷ The CTTA belongs to and is located in the University of Valladolid Science Park. The person in charge of the incubator is Lourdes Rodríguez Blanco.

The first variable, *personal assistance*, was measured based on a single indicator dealing with the availability of *coaching* or *mentoring*. For *business assistance*, four formative indicators were considered, encompassing assistance in financial planning, strategic decisions, preparing a business plan, and training in entrepreneurship. Finally, *networking* through the incubator was measured through two formative items reflecting access to incubator networks (business, associations, *freelance*, etc.), and meetings and events amongst incubatees aimed at promoting contacts amongst them.

All of these items (Table 4.15) were measured in six-position scales, where 1 indicates the service was not available in the incubator and 6 indicates the service was promoted very strongly.

Table 4.15. Measurement of incubation services: variables and items

Variables	Items
<i>Personal assistance</i>	Coaching or mentoring
<i>Business assistance</i>	Assistance in planning financing and in obtaining financing
	Assistance in strategic decisions (internationalization, commercialization, implementation of products and services, etc.)
	Sparring and assistance in preparing a business plan
	Business and entrepreneurship training (workshops, sessions, etc.)
<i>Networking</i>	Access to networks outside the incubator (business, associations, freelance, etc.) Meetings and events between incubatees in order to foster contacts and relationships between them

(3) Control variables

Three control variables were considered. *Years the incubator had been in operation* and *years as incubator manager* were each measured with a single item, the number of years the incubator had been operating and the number of years the manager had been running it, respectively. Finally, the *country* variable was included.

4.3.3. Data collection

Data were collected between September 2014 and March 2015 from UBIs in Spain and the Netherlands. The decision to opt for these two countries was based on the interest they created and the possibility they afforded of obtaining information concerning UBIs.

Since there are no databases of the number of UBIs in Spain and the Netherlands, we consulted each university webpage or phoned to find out the number of incubators. In

Spain, 52 universities have an incubator¹⁸. Some are involved in more than one incubation initiative in collaboration with other universities or with different types of agencies. One university even has two incubators. To sum up, in Spain there are 53 university incubators, and in the Netherlands there are 16¹⁹.

The data collection process commenced in Spain on 15 September 2014, and was conducted in two stages. During the first stage, all UBI managers were contacted by phone. The procedure followed was very much the same in each call: an explanation of the framework and goal of the study, and a two-fold request for their cooperation (asking them to fill in the questionnaires designed specifically for them as the person in charge of the various incubation programmes, and asking them to pass on the information and a questionnaire to their incubatees). If we received a positive reply, the link was immediately sent via e-mail indicating where the questionnaire for the manager together with the information and questionnaire for the incubatees could be found. The second stage commenced three weeks after the first had concluded. When no reply had been received from the manager and/or incubatees, managers were again contacted to remind them and to re-send them the information.

Whilst the first series of contacts was being completed with the managers of the Spanish incubators, collection of data from the Netherlands commenced. To do this, between 17 November and 9 December 2014, personal visits were made to two UBIs in the Netherlands (ACE Venture Lab in Amsterdam and TU/e Innovation Lab in Eindhoven). During these two visits, personal interviews were held with the managers. The latter filled in the questionnaires and contacted various incubatees, who were then provided with the information and questionnaires. Subsequently, the remaining managers and incubatees were telephoned and e-mailed to request their participation in the research. When a further three weeks had elapsed without receiving any reply from managers and/or incubatees, the information and questionnaires were sent once again.

¹⁸ In Spain, there are 83 universities according to the information provided by the Spanish Government Ministry of Education, Culture and Sport through their website: www.universidad.es/universidades. At the time the present research was conducted, 31 universities had no incubator and were not directly involved in any incubation initiatives.

¹⁹ In order to obtain this information, in addition to conducting an online search and consultation, we were fortunate to have the invaluable help of Professor Dr. Peter van der Sijde from VU University Amsterdam and Robert Al, founder of STARTUP/Eindhoven, the student incubator at Eindhoven University of Technology.

Managers were asked to fill in one questionnaire for each incubation programme they ran (pre-incubation, incubation or post-incubation), since the management and services offered in each programme might differ. In certain instances, managers filled in up to three questionnaires.

After this process had concluded, 47 responses were obtained from managers, who provided information concerning a total of 93 incubation programmes and 101 incubatees.

Since we cannot know the exact number of tenants in the incubators (there are no databases of the number of UBIs and incubatees), we calculated an approximate sampling error. First, we calculated the approximate mean number of tenants in the UBIs in each country (from data provided by the managers), and then multiplied this figure by the number of UBIs in Spain, 53, and in the Netherlands, 16.

Population sizes, sample sizes, and sampling errors, for a confidence level of 95%, are shown in Table 4.16 (managers) and Table 4.17 (incubatees).

Table 4.16. Population and sample sizes, and sampling errors of managers.

Location of incubator	Population	Sample	Sampling error
Spain	53	39	8.14 %
The Netherlands	16	8	25.30%
Total	69	47	8.13%

Table 4.17. Population and sample sizes, and sampling errors of incubatees.

Location of incubator	Estimated population	Sample	Sampling error
Spain	1.855 *	66	11.85 %
The Netherlands	544 **	35	16.04%
Total	2.399	101	9.55%

(*) Population of incubators in Spain (53) x Average number of incubatees in Spain (35)

(**) Population of incubators in the Netherlands (16) x Average number of incubatees in the Netherlands (34)

4.3.4. Sample description

The UBIs that form part of the sample account for 68.12% of the total population. Table 4.18 shows their features. Worth highlighting is the fact that 38.3% offer two (of the possible three) incubation programmes; 42.55% are supported by a university as well as by at least a further two other organisations; and 51.06% have no means of self-financing.

Table 4.18. Description of the sample of incubators (47 incubators)

	No.	%
<i>Location of incubator</i>		
Spain	39	82.98
The Netherlands	8	17.02
<i>Years incubator has been in operation</i>		
Up to 2 years	8	17.02
Between 3 and 5 years	14	29.79
Between 6 and 8 years	12	25.53
More than 8 years	13	27.66
<i>Incubation programmes/services</i>		
Pre-incubation	6	12.77
Incubation	9	19.15
Pre-incubation and incubation	12	25.53
Incubation and post-incubation	6	12.77
Pre-incubation, incubation and post-incubation	14	29.79
<i>Organizations that support and are involved with the incubator</i>		
University	15	31.91
2 organizations	12	25.53
More than 2 organizations	20	42.55
<i>Self-financed incubator</i>		
0%	24	51.06
Between 1% and 25%	3	6.38
Between 26% and 50%	6	12.77
Between 51% and 75%	2	4.26
Between 76% and 100%	12	25.53

As regards incubation programmes, displayed in Table 4.19, it is worth highlighting that pre-incubation has the shortest stay period (up to 6 months, or between 7 and 12 months), incubation the longest period (between 13 and 36 months), and that post-incubation is noticeable for not having any maximum periods of stay in the programme (this happens in 65% of instances). As regards the cost of each programme for beneficiaries, pre-incubation stands out because it is free (81.25%), and incubation and post-incubation because they depend on the various services in which incubatees are involved. Of the three, incubation displays the highest occupation rates and graduation ratio.

Table 4.19. Description of the sample of incubation programs (93 incubation programs)

	Pre-incubation		Incubation		Post-incubation	
	No.	%	No.	%	No.	%
Location of incubator						
Spain	26	81.25	33	80.49	17	85.00
The Netherlands	6	18.75	8	19.51	3	15.00
Maximum incubation period						
No maximum	2	6.25	4	9.76	13	65.00
Up to 6 months	15	46.88	3	7.32	2	10.00
Between 7 and 12 months	15	46.88	6	14.63	0	0.00
Between 13 and 36 months	0	0.00	20	48.78	5	25.00
More than 36 months	0	0.00	8	19.51	0	0.00
Average incubation period (*)						
Up to 6 months	20	66.67	4	10.26	2	25.00
Between 07 and 12 months	10	33.33	7	17.95	0	0.00
Between 13 and 36 months	0	0.00	25	64.10	5	62.50
More than 36 months	0	0.00	3	7.69	1	12.50
Space available (office, labs, etc.) in order to work on business plan/to develop business activities						
Yes	28	87.50	40	97.56	20	100.00
No	4	12.50	1	2.44	0	0.00
Cost per month						
Free	26	81.25	7	17.07	8	40.00
Variable	1	3.13	23	56.10	10	50.00
Fixed	5	15.63	11	26.83	2	10.00
Maximum occupancy (number of projects/start-ups/firms)						
No maximum	8	25.00	4	9.76	10	50.00
Up to 5	10	31.25	5	12.20	1	5.00
Between 6 and 10	7	21.88	10	24.39	1	5.00
Between 11 and 20	4	12.50	8	19.51	3	15.00
Between 21 and 50	2	6.25	11	26.83	4	20.00
More than 50	1	3.13	3	7.32	1	5.00
Occupancy (number of projects/start-ups/firms)						
No projects	5	15.63	0	0.00	0	0.00
Up to 5	12	37.50	11	26.83	5	25.00
Between 6 and 10	9	28.13	11	26.83	5	25.00
Between 11 and 20	3	9.38	9	21.95	4	20.00
Between 21 and 50	2	6.25	9	21.95	5	25.00
More than 50	1	3.13	1	2.44	1	5.00
Occupancy (number of incubatees/partners)						
No incubatees	5	15.63	0	0.00	0	0.00
Up to 5	8	25.00	6	14.63	4	20.00
Between 6 and 10	5	15.63	5	12.20	2	10.00
Between 11 and 20	7	21.88	10	24.39	6	30.00
Between 21 and 50	6	18.75	17	41.46	5	25.00
More than 50	1	3.13	3	7.32	3	15.00
Rate of graduated projects/companies (**)						
Up to 20%	5	20.83	1	3.13	-	-
Between 21% and 40%	6	25.00	4	12.50	-	-
Between 41% and 60%	6	25.00	2	6.25	-	-
Between 61% and 80%	4	16.67	12	37.50	-	-
More than 80%	3	12.50	13	40.63	-	-

(*) This data is not available for the entire sample because some programmes/services were launched a year ago.

(**) This data is not available for the entire post-incubation sample because (1) some programmes/services were offered a year ago, (2) in 65% of sample incubators there is no maximum post-incubation period and (3) some managers have no access to this information.

In the case of the **managers**, 82.98% of responses came from Spanish managers and the remaining 17.02% from Dutch managers. Taking into account the characteristics of the sample, shown in Table 4.20, managers are mainly between the ages of 36 and 45, and hold a master's degree in the area of social sciences. They have experience as entrepreneurs in the academic world and in the business world. They have also combined their work as UBI managers with other professional activities over the last year.

Table 4.20. Description of the sample of managers (47 managers)

	No.	%
<i>Location of incubator</i>		
Spain	39	82.98
The Netherlands	8	17.02
<i>Age of manager</i>		
Between 25 and 35	8	17.02
Between 36 and 45	24	51.06
Between 46 and 55	12	25.53
Between 56 and 65	3	6.38
<i>Gender</i>		
Male	24	51.06
Female	23	48.94
<i>Qualifications</i>		
PhD	10	21.28
Master	22	46.81
Bachelor	15	31.91
<i>Area of knowledge</i>		
Sciences	11	23.40
Health sciences	2	4.26
Social sciences	27	57.45
Engineering & architecture	6	12.77
Arts & humanities	1	2.13
<i>Experience in the science world</i>		
No experience	18	38.30
Up to 3 years	7	14.89
Between 4 and 5 years	3	6.38
Between 6 and 10 years	9	19.15
More than 10 years	10	21.28
<i>Experience in the business world</i>		
No experience	14	29.79
Up to 3 years	7	14.89
Between 4 and 5 years	3	6.38
Between 6 and 10 years	12	25.53
More than 10 years	11	23.40
<i>Entrepreneurial experience</i>		
No experience	21	44.68
Up to 3 years	6	12.77
Between 4 and 5 years	6	12.77
Between 6 and 10 years	6	12.77
More than 10 years	8	17.02
<i>Years as manager of the incubator</i>		
Up to 12 months	16	34.04
Between 13 and 24 months	6	12.77
Between 25 and 36 months	8	17.02
Between 37 and 48 months	4	8.51
More than 48 months	13	27.66
<i>Incubator manager as only job</i>		
Yes	14	29.79
No	33	70.21

As regards the **incubatees**, Spaniards accounted for 65.34% compared to 34.66% Dutch. The incubatees who make up the sample are mainly male (71.29%), aged between 25 and 35 (57.43%), are graduates (51.49%) from the field of engineering and architecture (49.50%), with no prior entrepreneurial experience (77.22%). The full description of the sample is shown in Table 4.21.

Table 4.21. Description of the sample of incubatees (101 incubatees)

	No.	%
<i>Location of incubator</i>		
Spain	66	65.35
The Netherlands	35	34.65
<i>Age of incubatee</i>		
Less than 25	15	14.85
Between 25 and 35	58	57.43
Between 36 and 45	20	19.80
Between 46 and 55	7	6.93
Between 56 and 65	1	0.99
<i>Gender</i>		
Male	72	71.29
Female	29	28.71
<i>Highest qualification</i>		
PhD	14	14.29
Master	34	34.69
Bachelor	50	51.02
<i>Incubatees studying at present (type of studies)</i>		
PhD	3	9.09
Master	18	54.54
Bachelor	12	36.36
<i>Status</i>		
Professor	5	4.95
Researcher	16	15.84
Student	28	27.72
Graduate	52	51.49
<i>Area of knowledge</i>		
Sciences	23	22.77
Health sciences	6	5.94
Social sciences	18	17.82
Engineering & architecture	50	49.50
Arts & humanities	4	3.96
<i>Experience as an employee in a company</i>		
No experience	35	34.65
Up to 3 years	29	28.71
Between 4 and 5 years	7	6.93
Between 6 and 10 years	15	14.85
More than 10 years	15	14.85
<i>Previous entrepreneurial experience</i>		
No experience	78	77.22
Up to 3 years	15	14.85
Between 4 and 5 years	4	3.96
Between 6 and 10 years	2	1.98
More than 10 years	2	1.98
<i>Academic/scientific experience at a university/research centre</i>		
No experience	79	78.22
Up to 3 years	14	13.86
Between 4 and 5 years	1	0.99
Between 6 and 10 years	2	1.98
More than 10 years	5	4.95
<i>Research group</i>		
Research Group Member	12	11.88
Research Group Director	8	7.92
No member/director	81	80.20
<i>Number of months in incubation</i>		

Less than 6 months	19	18.81
Between 6 and 12 months	38	37.62
Between 13 and 24 months	27	26.73
More than 24 months	17	16.83
<i>Coach assigned</i>		
Yes, only for me	16	15.84
Yes, he/she is a group coach	28	27.72
No	57	56.44
<i>Group coach (number of people in the group)</i>		
Between 2 and 4	7	25.00
Between 5 and 8	7	25.00
Between 9 and 12	6	21.43
More than 12	8	28.57
<i>Participation in pre-incubation</i>		
Yes	43	42.57
No	58	57.43
<i>Partners</i>		
No partners	29	28.71
1 partner	24	23.76
2 partners	27	26.73
3 or more partners	21	20.79
<i>Open to having partners</i>		
No partner/s	14	13.86
Yes, only academic background	2	1.98
Yes, only business background	51	50.49
Yes, but background not important	25	24.75
It could be a possibility, but only academic background	1	0.99
It could be a possibility, but only business background	4	3.96
It could be a possibility, but background not important	4	3.96

4.4. Study II. Determinants and outcomes of dyadic relationships between incubatees

Study II aims to quantitatively test hypotheses H1 to H12, which make up Model 1 proposed in chapter 2. More specifically, this study seeks to explore the determinants driving the creation of relations between incubatees, and to examine the effect such relations have on new entrepreneurs and their businesses.

An explanation of how this sequence of analysis was carried out is given below. First, the descriptive statistics of the variables included in the study are shown, together with an analysis of the homogeneity of the samples used (Spanish and Dutch incubatees). Subsequently, the process for validating the scales of the various constructs is explained, and the results of estimating the structural model are presented together with the indirect and total effects. Finally, the results of the hypotheses posited are evaluated.

4.4.1. Descriptive statistics of the measurement variables

Part of the information gathered through the questionnaire given to incubatees was used in the present research. Table 4.22 shows the descriptive statistics corresponding to the variables and measures used. The lowest mean (2.68) corresponds to one of the indicators used to measure *supplementarity of resources*. By contrast, the highest mean (4.43) is found in an indicator of the *promotion focus* variable. Standard deviations range between 0.634, the lowest, and 1.304, the highest.

Table 4.22. Descriptive statistics of the variables (Study II)

	Mean	S.D.	Min.	Max.
<i>Empathy. Evaluate the following statements:</i>				
I have little difficulty in “putting myself into other people’s shoes”	3.23	1.256	1	5
<i>Shared values. This entrepreneur:</i>				
His/her values and behavioural norms are congruent with mine	3.76	0.802	2	5
His/her philosophy/approach to business is compatible with mine	3.59	0.866	2	5
His/her goals and objectives are compatible with mine	3.72	0.862	2	5
<i>Complementary resources. This entrepreneur:</i>				
Has different resources to mine that are very precious to me	3.50	1.119	1	5
His/her resources are necessary to achieve my goals	3.11	1.240	1	5
Has different and complementary resources to mine	3.66	1.023	1	5
His/her resources, combined with mine, enable me to achieve more satisfactory results	3.89	1.048	1	5
<i>Supplementary resources. This entrepreneur:</i>				
Has similar resources to mine, but nevertheless they are very precious to me	2.68	1.166	1	5
Has similar resources to mine, but supplementary to mine	2.92	1.181	1	5
His/her resources are similar to mine, but when combined, allow me to achieve more satisfactory results	2.98	1.304	1	5
<i>Transferability. Regarding my knowledge or training applied to business that I have started:</i>				

The knowledge (technical-scientific) held by me is easily transferable	3.05	1.135	1	5
<i>Evaluate the following statements about this entrepreneur:</i>				
The knowledge (technical-scientific) held by him/her is easily transferable	3.07	1.032	1	5
Willingness to share knowledge. <i>Evaluate the following statements:</i>				
When I learn something new, I tell my colleagues	3.41	1.022	1	5
I share the information I have with my colleagues when they ask me to	4.28	0.709	2	5
I share my skills with my colleagues when they ask me to	4.27	0.691	2	5
Promotion focus. <i>The following questions regard specific events in your life (from 1. never or seldom to 5. very often):</i>				
I feel like I have made progress toward being successful in my life	3.92	0.845	1	5
<i>Evaluate the following statements:</i>				
I am always looking for better ways to do things	4.43	0.634	2	5
No matter what the odds are, if I believe in something I will make it happen	4.12	0.810	2	5
Trust in the incubatee. <i>This entrepreneur:</i>				
is honest and truthful	4.30	0.701	2	5
exchanges information with me that is reliable	4.27	0.720	2	5
honestly communicates any problem that may affect me	4.06	0.746	2	5
is willing to provide assistance and support when circumstances so require	4.07	0.778	2	5
in my opinion acts in my best interest	3.90	0.922	1	5
is, in general, a person who honours his/her commitments	4.11	0.799	2	5
is competent and effective	4.13	0.730	2	5
Commitment in the relationship. <i>Evaluate the following statements:</i>				
I intend to strengthen our relationship over time	4.09	0.907	1	5
I intend to continue our relationship for a long time	4.08	0.913	1	5
I am committed to sharing ideas and knowledge with him/her	4.00	0.872	1	5
<i>This entrepreneur:</i>				
is willing to strengthen our relationship over time	3.98	0.894	2	5
is willing to continue our relationship for a long time	4.01	0.943	1	5
is committed to sharing ideas and knowledge with me	3.90	0.922	2	5
Exchange of knowledge.				
Communication-Frequency. <i>In our relationship:</i>				
We ask for mutual advice and recommendations	3.91	0.918	1	5
We share all types of information	3.66	0.972	1	5
We provide any information that may be useful to the other party	3.93	0.951	1	5
Each party informs the other about events that may affect them	3.97	0.921	1	5
We frequently work together	3.31	1.027	1	5
We frequently have contact	3.81	0.891	1	5
Knowledge transfer.				
<i>Through this entrepreneur:</i>				
I get technical knowledge and a tremendous amount of know-how	3.39	1.104	1	5
I learn from his/her knowledge	3.61	0.959	1	5
I learn from his/her experience	3.43	1.043	1	5
I assimilate the knowledge that he/she gives me and it contributes to the development of my start-up	3.57	0.973	1	5
<i>Through me, the other entrepreneur:</i>				
Has access to market knowledge	3.11	1.207	1	5
Acquires technical knowledge and a tremendous amount of know-how	3.62	1.028	1	5
Learns from my knowledge	3.67	0.850	1	5
Learns from my experience	3.39	0.948	1	5
Assimilates the knowledge that I give him/her, and which contributes to the development of his/her start-up	3.51	1.006	1	5
Entrepreneurial commitment. <i>The relationship with this entrepreneur has allowed me:</i>				
To be more committed to my entrepreneurial goals	3.35	1.170	1	5
To be more demanding about my entrepreneurial goals	3.38	1.148	1	5
To be more ambitious about my entrepreneurial goals	3.59	1.106	1	5
Generation of innovation. <i>The relationship with this entrepreneur has enabled my business:</i>				
To be more innovative in terms of product or service	3.56	1.117	1	5
To reach a wider market	3.72	1.115	1	5
To be more feasible in its development	3.68	1.174	1	5
<i>In the future, I think the relationship with this entrepreneur will stimulate:</i>				

Generation of innovation	3.81	1.046	1	5
New products/services	3.81	1.093	1	5
Business results. The relationship with this entrepreneur has allowed me:				
To increase sales	3.07	1.274	1	5
To create new market opportunities	3.48	1.162	1	5
To generate profits	3.14	1.263	1	5

As the sample is made up of individuals in Spain and the Netherlands, in order to pinpoint possible differences amongst incubatees from one country and another, the possibility of a different response pattern for the indicators used was examined. This analysis was performed by using a *t* test for independent samples. Table 4.23 shows the results of comparing the means for each indicator. As can be seen in the Table referred to, only 13 of the 60 items used evidence differences in the means for the two groups. Specifically, Spanish incubatees gave higher scores to indicators measuring *empathy* and *experience as a salaried worker outside the academic world*. For their part, the Dutch awarded higher scores to *complementarity* and *supplementarity of resources*, *promotion focus*, *trust* and *exchange of knowledge*. In the light of these results, it can be affirmed that the two samples display a high degree of homogeneity.

It is worth noting that the two individual incubatee characteristics, *promotion focus* and *willingness to share knowledge*, have high values in both samples.

Table 4.23. Means test (Study II)

	Country	N	Mean	S.D.	t
Empathy					
I have little difficulty in "putting myself into other people's shoes"	Spain	66	3.39	1.311	1.848 ⁺
	The Netherlands	35	2.91	1.095	
Shared values					
His/her values and behavioural norms are congruent with mine	Spain	66	3.73	0.869	-0.654
	The Netherlands	35	3.83	0.664	
His/her philosophy/approach to business is compatible with mine	Spain	66	3.65	0.860	0.955
	The Netherlands	35	3.47	0.879	
His/her goals and objectives are compatible with mine	Spain	66	3.76	0.842	0.556
	The Netherlands	35	3.66	0.906	
Complementary resources					
Has different resources to mine that are very precious to me	Spain	66	3.55	1.192	0.659
	The Netherlands	35	3.40	0.976	
His/her resources are necessary to achieve my goals	Spain	66	3.02	1.271	-1.044
	The Netherlands	35	3.29	1.178	
Has different and complementary resources to mine	Spain	66	3.73	1.089	0.861
	The Netherlands	35	3.54	0.886	
His/her resources, combined with mine, enable me to achieve more satisfactory results	Spain	66	3.73	1.117	-2.402*
	The Netherlands	35	4.20	0.833	
Supplementary resources					
Has similar resources to mine. Nevertheless, they are very precious to me	Spain	66	2.45	1.139	-2.798**
	The Netherlands	35	3.11	1.105	
Has similar resources to mine. However, they are supplementary to mine	Spain	66	2.73	1.158	-2.311*
	The Netherlands	35	3.29	1.152	

His/her resources are similar to mine, but when combined, allow me to achieve more satisfactory results	Spain	66	2.73	1.259	-2.765**
	The Netherlands	35	3.46	1.268	
Transferability					
The knowledge (technical-scientific) held by me is easily transferable	Spain	66	2.97	1.176	-0.970
	The Netherlands	35	3.20	1.052	
The knowledge (technical-scientific) held by him/her is easily transferable	Spain	66	2.97	1.081	-1.337
	The Netherlands	35	3.26	0.919	
Willingness to share knowledge					
When I learn something new, I tell my colleagues	Spain	66	3.39	1.080	-0.161
	The Netherlands	35	3.43	0.917	
I share the information I have with my colleagues when they ask me to	Spain	66	4.30	0.764	0.501
	The Netherlands	35	4.23	0.598	
I share my skills with my colleagues when they ask me to	Spain	66	4.29	0.739	0.409
	The Netherlands	35	4.23	0.598	
Promotion focus					
I feel I have made progress towards being successful in my life	Spain	66	3.82	0.875	-1.692 ⁺
	The Netherlands	35	4.11	0.758	
I am always looking for better ways to do things	Spain	60	4.38	0.666	-1.066
	The Netherlands	32	4.53	0.567	
No matter what the odds are, if I believe in something I will make it happen	Spain	60	3.93	0.800	-3.166**
	The Netherlands	32	4.47	0.718	
Commitment in the relationship					
I intend to strengthen our relationship over time	Spain	66	4.08	0.933	-0.202
	The Netherlands	35	4.11	0.867	
I intend to continue our relationship for a long time	Spain	66	4.03	0.944	-0.738
	The Netherlands	35	4.17	0.857	
I am committed to sharing ideas and knowledge with him/her	Spain	66	3.94	0.909	-0.959
	The Netherlands	35	4.11	0.796	
He/she is willing to strengthen our relationship over time	Spain	66	3.89	0.947	-1.336
	The Netherlands	35	4.14	0.772	
He/she is willing to continue our relationship for a long time	Spain	66	3.91	0.972	-1.484
	The Netherlands	35	4.20	0.868	
He/she is committed to sharing ideas and knowledge with me	Spain	66	3.80	0.980	-1.581
	The Netherlands	35	4.09	0.781	
Trust in the incubatee					
He/she is honest and truthful	Spain	66	4.21	0.755	-1.688 ⁺
	The Netherlands	35	4.46	0.561	
The information he/she exchanges with me is reliable	Spain	66	4.24	0.745	-0.476
	The Netherlands	35	4.31	0.676	
He/she honestly communicates any problem that may affect me	Spain	66	4.08	0.751	0.301
	The Netherlands	35	4.03	0.747	
He/she is willing to provide assistance and support when circumstances so require	Spain	66	4.05	0.849	-0.421
	The Netherlands	35	4.11	0.631	
I believe that he/she acts in my best interest	Spain	66	3.80	0.964	-1.475
	The Netherlands	35	4.09	0.818	
In general, he/she is a person who honours his/her commitments	Spain	66	4.00	0.823	-1.906 ⁺
	The Netherlands	35	4.31	0.718	
He/she is competent and effective	Spain	66	4.11	0.767	-0.426
	The Netherlands	35	4.17	0.664	
Exchange of knowledge					
Communication					
We ask for mutual advice and recommendations	Spain	66	3.82	0.975	-1.401
	The Netherlands	35	4.09	0.781	
We share all types of information	Spain	66	3.62	1.034	-0.596
	The Netherlands	35	3.74	0.852	
We provide any information that may be useful to the other party	Spain	66	3.82	1.006	-1.646
	The Netherlands	35	4.14	0.810	
Each party informs the other about events that may affect them	Spain	66	3.91	0.988	-0.916
	The Netherlands	35	4.09	0.781	

We work together frequently	Spain	66	3.29	1.064	-0.255
	The Netherlands	35	3.34	0.968	
We frequently have contact	Spain	66	3.76	0.978	-0.927
	The Netherlands	35	3.91	0.702	
Knowledge transfer					
<i>Through this entrepreneur:</i>					
I get technical knowledge and a tremendous amount of know-how	Spain	66	3.24	1.124	-1.817 ⁺
	The Netherlands	35	3.66	1.027	
I learn from his/her knowledge	Spain	66	3.59	1.037	-0.329
	The Netherlands	35	3.66	0.802	
I learn from his/her experience	Spain	66	3.52	1.099	1.186
	The Netherlands	35	3.26	0.919	
I assimilate the knowledge that he/she gives me and it contributes to the development of my start-up	Spain	66	3.53	1.056	-0.621
	The Netherlands	35	3.66	0.802	
<i>Through me, the other entrepreneur:</i>					
Acquires technical knowledge and a tremendous amount of know-how	Spain	66	3.48	1.070	-1.888 ⁺
	The Netherlands	35	3.89	0.900	
Learns from my knowledge	Spain	66	3.55	0.898	-2.275*
	The Netherlands	35	3.91	0.702	
Learns from my experience	Spain	66	3.39	0.959	0.113
	The Netherlands	35	3.37	0.942	
Assimilates the knowledge that I give him/her and contributes to the development of his/her start-up	Spain	66	3.44	1.083	-1.119
	The Netherlands	35	3.66	0.838	
Entrepreneurial commitment					
To be more committed to my entrepreneurial goals	Spain	66	3.26	1.244	-1.050
	The Netherlands	35	3.51	1.011	
To be more demanding about my entrepreneurial goals	Spain	66	3.29	1.237	-1.063
	The Netherlands	35	3.54	0.950	
To be more ambitious about my entrepreneurial goals	Spain	66	3.50	1.193	-1.276
	The Netherlands	35	3.77	0.910	
Business results					
To increase sales	Spain	60	3.18	1.347	1.221
	The Netherlands	32	2.84	1.110	
To create new market opportunities	Spain	60	3.57	1.240	0.999
	The Netherlands	32	3.31	0.998	
To generate profits	Spain	60	3.15	1.325	0.090
	The Netherlands	32	3.13	1.157	
Generation of innovation					
Is more innovative in terms of product or service	Spain	66	3.53	1.166	-0.419
	The Netherlands	35	3.63	1.031	
Can reach a wider market	Spain	66	3.79	1.170	0.805
	The Netherlands	35	3.60	1.006	
Is more feasible in its development	Spain	66	3.70	1.265	0.173
	The Netherlands	35	3.66	0.998	
Generation of innovation	Spain	66	3.79	1.117	-0.315
	The Netherlands	35	3.86	0.912	
New products/services	Spain	66	3.86	1.149	0.652
	The Netherlands	35	3.71	0.987	
Prior entrepreneurial experience					
Prior entrepreneurial experience	Spain	66	0.20	0.401	-0.966
	The Netherlands	35	0.29	0.458	
Experience as an employee in a company					
Experience as an employee in a company	Spain	66	0.74	0.441	2.531*
	The Netherlands	35	0.49	0.507	
Academic/scientific experience at a university/research centre					
Academic/scientific experience at a university/research centre	Spain	66	0.24	0.432	0.817
	The Netherlands	35	0.17	0.382	

(⁺) p < 0.10; (*) p < 0.05; (**) p < 0.01

4.4.2. Estimation procedure: PLS

The measurement model and the structural model were tested using PLS-SEM (Partial Least Squares-Structural Equation Modelling). This procedure was mainly chosen for four reasons:

- (1) The model posited requires SEM analysis due to the nature of the relations proposed therein.
- (2) PLS admits smaller samples than other SEM methods. Compared with covariance-based SEM, PLS-SEM has higher levels of statistical power with complex model structures or smaller sample sizes. Bearing in mind that the sample of incubatees is 101, use of this procedure would seem justified and appropriate²⁰.
- (3) It enables reflective and formative scales to be combined. Although in Study II, we consider all the reflective constructs, in the other two studies reflective and formative scales are combined.
- (4) It proves an appropriate method for explaining phenomena that are already known, as is the case with the research in question.

Although PLS-SEM is recommended for small sample sizes, the 10 times rule (Barclay, Higgins, and Thompson, 1995) offers a guideline for minimum sample size requirements. It indicates that the sample size should be equal to the larger of:

1. 10 times the largest number of formative indicators used to measure a single construct or
2. 10 times the largest number of structural paths directed at a particular construct in the structural model (Hair *et al.*, 2014; p. 20).

Following the second criterion (the number of formative indicators is small), in Table 4.24, we observe that the samples in each model are higher than 10 times the largest number of structural paths directed at a construct. The samples are therefore adequate according to the 10 times rule.

²⁰ PLS-SEM is the technique used for the three quantitative studies carried out. For Studies II and III.2, the study sample is incubatees, with a size of 101. For Study III.1, the sample is the managers, comprising 47 individuals. However, in this latter group, the unit of analysis is each incubation programme. The total number of cases is 93. The size of the two samples in the study is therefore small.

Cohen (1992) also provides sample size recommendations in PLS-SEM to warrant a statistical power of 80%. Table 4.24 shows the minimum sample size requirement necessary to detect minimum R^2 values of 0.10, 0.25, 0.50, and 0.75. For instance, in Model 1, since the maximum number of independent variables in the structural model is 7 (for the variable “exchange of knowledge”), we would need 166 observations to achieve a statistical power of 80% to detect R^2 values of at least 0.10 (with a 5% probability error). We observe that the sample sizes in the three models have statistical power to detect R^2 values of at least 0.25.

Table 4.24. Sample size requirements in PLS

Models	Sample size	Maximum number of arrows pointing at a construct	Sample size requirements				
			10 times rule	Cohen’s rule. Minimum R^2 of			
				0.10	0.25	0.50	0.75
		7					
Model 1	101	(“exchange of knowledge” is determined by 6 independent variables and 1 control variable)	70	166	80	51	41
		4					
Model 2	93	(the endogenous variables are determined by 2 independent variables and 2 control variables)	40	147	70	45	36
		10					
Model 3	101	(“business efficiency” is determined by 5 independent variables and 5 control variables)	100	189	91	59	48

The SmartPLS 3 version 3.2.1 statistical program was used. (Ringle *et al.*, 2015).

4.4.3. Validation of scales

Prior to analysing the data, the scales used must be evaluated. To do this, their convergent validity, reliability and discriminant validity are tested.

Convergent validity. In order to test the convergent validity of the reflective scales we performed several confirmatory factor analyses (CFA). Despite the small sample size, we used SEM estimation with AMOS software.

First, we performed a CFA for the independent latent variables: *shared values*, *complementary resources*, *supplementary resources*, *transferability*, *willingness to share knowledge*, and *promotion focus*. The results are shown in Table 4.25. Some lambda estimates or loading factors are low, the lowest being 0.407. Nevertheless, we obtained higher values or loading factors in the estimation with PLS as will be shown

later. As a result, we decided not to eliminate them. Moreover, the goodness of fit is adequate. Therefore, we accepted the convergent validity of the proposed scales.

Table 4.25. Results of CFA for the independent latent variables (Study II)

Latent variables	Indicators	Stand. Estimate
Shared values	His/her values and behavioural norms are congruent with mine	0.645
	His/her philosophy/approach to business is compatible with mine	0.807
	His/her goals and objectives are compatible with mine	0.827
Complementarity resources	Has different resources to mine that are very precious to me	0.644
	His/her resources are necessary to achieve my goals	0.627
	Has different and complementary resources to mine	0.799
	His/her resources, combined with mine, enable me to achieve more satisfactory results	0.854
Supplementary resources	Has similar resources to mine which, nevertheless, are very precious to me	0.900
	Has similar resources to mine. However, they are supplementary to mine	0.818
	His/her resources are similar to mine, but when combined, allow me to achieve more satisfactory results	0.833
Transferability	The knowledge (technical-scientific) held by me is easily transferable	0.724
	The knowledge (technical-scientific) held by him/her is easily transferable	0.762
Willingness to share knowledge	When I learn something new, I tell my colleagues	0.976
	I share the information I have with my colleagues when they ask me to	0.488
	I share my skills with my colleagues when they ask me to	0.407
Promotion focus	I feel like I have made progress toward being successful in my life	0.602
	I am always looking for better ways to do things	0.589
	No matter what the odds are, if I believe in something I will make it happen	0.741
Goodness of fit	X ² (119)=196.932 (p=0.000); GFI=0.839; NFI =0.805; CFI=0.909; RMSEA = 0.081	

Secondly, we performed a CFA for the variables *trust* and *commitment*. The results are shown in Table 4.26. All the lambda estimates are greater than 0.7, and the goodness of fit is adequate. Thus, the results support the convergent validity of the scales.

Table 4.26. Results of CFA for the variables *Trust* and *Commitment* (Study II)

Latent variables	Indicators	Stand. Estimate
Trust	He/she is honest and truthful	0.731
	The information he/she exchanges with me is reliable	0.762
	He/she honestly communicates any problem that may affect me	0.843
	He/she is willing to provide assistance and support when circumstances so require	0.787
	I believe that he/she acts in my best interest	0.709
	In general, he/she is a person who honours his/her commitments	0.859
	He/she is competent and effective	0.737
Commitment	I intend to strengthen our relationship over time	0.964
	I intend to continue our relationship for a long time	0.916
	I am committed to sharing ideas and knowledge with him/her	0.830
	He/she is willing to strengthen our relationship over time	0.813
	He/she is willing to continue our relationship for a long time	0.857
	He/she is committed to sharing ideas and knowledge with me	a
Goodness of fit	X ² (50)=74.410 (p=0.014); GFI=0.900; NFI =0.934; CFI=0.977; RMSEA = 0.070	

The indicator was eliminated because the measurement errors were excessively correlated with the measurement errors of other latent variables' indicators.

Third, in the case of the *exchange of knowledge* variable, as indicated, two dimensions were measured, communication and knowledge transfer. This is therefore a second order latent variable. In order to validate this scale, the second order model was estimated. The results are shown in Table 4.27. As can be seen, all the factor loadings are significant and the model adjustment is suitable, even though two of the measurement variables whose loading was too low had to be removed. Having estimated the model, the indicators of each dimension were reduced to a single indicator through factor analysis. Said indicators are those included as reflective measurements when estimating the model using PLS.

Table 4.27. CFA results for the variable *Exchange of knowledge* (Study II)

Latent variables	Indicators	Stand. Estimate
Exchange of knowledge	Communication	0.956
	Knowledge transfer	0.807
Communication	We ask for mutual advice and recommendations	0.838
	We share all types of information	0.891
	We provide any information that may be useful to the other party	0.788
	Each party informs the other about events that may affect them	0.798
	We work together frequently	0.643
	We frequently have contact	0.805
	Knowledge transfer	I acquire technical knowledge and a tremendous amount of know-how
I learn from his/her knowledge		0.903
I learn from his/her experience		0.595
I assimilate the knowledge that he/she gives me and it contributes to the development of my start-up		0.837
Has access to market knowledge		a
Acquires technical knowledge and a tremendous amount of know-how		0.695
Learns from my knowledge		0.799
Learns from my experience		a
Assimilates the knowledge that I give him/her and it contributes to the development of his/her start-up	0.843	
Goodness of fit	$X^2(59)=82.999$ ($p=0.021$); GFI=0.895; NFI =0.925; CFI=0.977; RMSEA = 0.064	

The indicators were eliminated because the measurement errors were excessively correlated with the measurement errors of other latent variables' indicators.

Finally, we performed a CFA for the three variables of relationship outcomes: *entrepreneurial commitment*, *generation of innovation*, and *business results*. The results are shown in Table 4.28. Once again, the results (standardised coefficients and goodness of fit) ensure the convergent validity of the measurement scales.

Table 4.28. Results of CFA for the variables of relationship outcomes (Study II)

Latent variables	Indicators	Stand. Estimate
Entrepreneurial commitment	To be more committed to my entrepreneurial goals	0.938
	To be more demanding about my entrepreneurial goals	0.894
	To be more ambitious about my entrepreneurial goals	0.915
Generation of innovation	Is more innovative in terms of product or service	0.929
	Can reach a wider market	a
	Is more feasible in its development	0.903
	Generation of innovation	0.845
Business results	New products/services	0.824
	To increase sales	0.941
	To create new market opportunities	0.880
	To generate profits	0.967
Goodness of fit	$X^2(31)=53.556$ ($p=0.007$); GFI=0.914; NFI =0.952; CFI=0.979; RMSEA = 0.085	

The indicator was eliminated because the measurement errors were excessively correlated with the measurement errors of other latent variables' indicators.

Reliability. Having tested the convergent validity of the scales, the overall model was estimated using PLS with a maximum number of 300 iterations. To calculate the significance of the factor loadings of the indicators in the measurement model, bootstrapping was applied to 1000 sub-samples.

Three indicators were used to measure the reliability of the scales: Cronbach's alpha (α), composite reliability (CR) and reliability of indicators. Cronbach's alpha measures a scale's internal consistency (Malhotra, 1997), and should take values of over 0.6. Composite reliability measures the internal consistency of the construct indicators (Hair *et al.*, 1999). Its values are acceptable when they are over 0.7. Finally, the reliability of the indicators refers to each indicator's loading over the latent variable (Hair *et al.*, 1999). An indicator is deemed reliable when it takes values above 0.6.

Table 4.29 shows the measurement variable loadings and the reliability values of the latent variables. The Cronbach alpha values can be seen to be high, with most being around 0.8 and 0.9, as is the case with composite reliability. Loadings are also significant and take values above 0.7 for all the indicators. Consequently, the reliability of all the measurement scales used is confirmed. It can also be seen that the factor loadings are above 0.7 for all the items, thus reaffirming the convergent validity of the measurement scales.

Table 4.29. Reliability of measurement scales and outer loadings (Study II)

	Weights	Loadings
<i>Empathy</i>		
I have little difficulty in "putting myself into other people's shoes"	1.000	
<i>Shared values</i> ($\alpha=.773$; $CR=.871$; $AVE=.693$)		
His/her values and behavioural norms are congruent with mine		0.814***
His/her philosophy/approach to business is compatible with mine		0.816***
His/her goals and objectives are compatible with mine		0.866***
<i>Complementary resources</i> ($\alpha=.866$; $CR=.907$; $AVE=.709$)		
Has different resources to mine that are very precious to me		0.844***
His/her resources are necessary to achieve my goals		0.846***
Has different and complementary resources to mine		0.839***
His/her resources, combined with mine, enable me to achieve more satisfactory results		0.840***
<i>Supplementary resources</i> ($\alpha=.887$; $CR=.929$; $AVE=.813$)		
Has similar resources to mine, but nevertheless they are very precious to me		0.923***
Has similar resources to mine, but supplementary to mine		0.866***
His/her resources are similar to mine, but when combined, allow me to achieve more satisfactory results		0.916***
<i>Transferability</i> ($\alpha=.711$; $CR=.871$; $AVE=.771$)		
The knowledge (technical-scientific) held by me is easily transferable		0.833***
The knowledge (technical-scientific) held by him/her is easily transferable		0.921***
<i>Willingness to share knowledge</i> ($\alpha=.793$; $CR=.875$; $AVE=.700$)		
When I learn something new, I tell my colleagues		0.809***
I share the information I have with my colleagues when they ask me to		0.867***
I share my skills with my colleagues when they ask me to		0.832***

Promotion focus ($\alpha=.660$; $CR=.831$; $AVE=.623$)	
I feel like I have made progress toward being successful in my life	0.724***
I am always looking for better ways to do things	0.871***
No matter what the odds are, if I believe in something I will make it happen	0.766***
Trust in the incubatee ($\alpha=.914$; $CR=.931$; $AVE=.660$)	
He/she is honest and truthful	0.834***
The information he/she exchanges with me is reliable	0.843***
He/she honestly communicates any problem that may affect me	0.820***
He/she is willing to provide assistance and support when circumstances so require	0.795***
I believe that he/she acts in my best interest	0.781***
In general, he/she is a person who honours his/her commitments	0.838***
He/she is competent and effective	0.774***
Commitment in the relationship ($\alpha=.946$; $CR=.959$; $AVE=.824$)	
I intend to strengthen our relationship over time	0.949***
I intend to continue our relationship for a long time	0.924***
I am committed to sharing ideas and knowledge with him/her	0.857***
He/she is willing to strengthen our relationship over time	0.886***
He/she is willing to continue our relationship for a long time	0.921***
Exchange of knowledge ($\alpha=.814$; $CR=.915$; $AVE=.843$)	
<i>Communication</i>	0.913***
We ask for mutual advice and recommendations	
We share all types of information	
We provide any information that may be useful to the other party	
Each party informs the other about events that may affect them	
We work together frequently	
We frequently have contact	
<i>Knowledge transfer</i>	0.924***
I acquire technical knowledge and a tremendous amount of know-how	
I learn from his/her knowledge	
I learn from his/her experience	
I assimilate the knowledge that he/she gives me and it contributes to the development of my start-up	
<i>Through me, the other entrepreneur:</i>	
Has access to market knowledge	
Acquires technical knowledge and a tremendous amount of know-how	
Learns from my knowledge	
Learns from my experience	
Assimilates the knowledge that I give him/her and contributes to the development of his/her start-up	
Entrepreneurial commitment ($\alpha=.940$; $CR=.961$; $AVE=.892$)	
To be more committed to my entrepreneurial goals	0.949***
To be more demanding about my entrepreneurial goals	0.939***
To be more ambitious about my entrepreneurial goals	0.945***
Generation of innovation ($\alpha=.936$; $CR=.954$; $AVE=.839$)	
Is more innovative in terms of product or service	0.927***
Is more feasible in its development	0.910***
<i>In the future, I think the relationship with this entrepreneur will stimulate:</i>	
Generation of innovation	0.923***
New products/services	0.904***
Business results ($\alpha=.946$; $CR=.965$; $AVE=.903$)	
To increase sales	0.954***
To create new market opportunities	0.934***
To generate profits	0.963***

(***) $p < 0.001$

Discriminant validity. In order to evaluate discriminant validity, we first followed the criterion of Fornell-Larcker. The average variance extracted (AVE) of each construct should be greater than the square of its correlations with the remaining constructs in the model. This ensures that each latent variable's variance is explained more by its own

indicators than by the indicators in the other variables (Fornell and Larcker, 1981). Table 4.30 shows the correlation matrix between latent constructs. The main diagonal includes the square root values of the AVE for each construct. Comparing each square root with the correlations in the corresponding row and column will indicate whether there is discriminant validity amongst the latent variables. This condition is met in all cases. Following Hair *et al.* (1999), a further indicator of discriminant validity is when the correlation between constructs is not too high, the extreme value being 0.9. As can be seen in Table 4.30, none of the correlations reaches that value. What is more, the highest correlation is 0.745 between *exchange of knowledge* and *generation of innovation*. Finally, Henseler *et al.* (2015) propose the heterotrait-monotrait (HTMT) ratio of correlations to evaluate discriminant validity. This ratio reflects the average of the correlations of indicators in constructs which measure different phenomena, compared to the average of the correlations of indicators within the same construct (Henseler *et al.*, 2015). In order to evaluate discriminant validity through HTMT, correlations should not exceed 0.85 (Clark and Watson, 1995; Kline, 2011), although other authors suggest a higher threshold of 0.90 (Gold *et al.*, 2001; Teo *et al.*, 2008). The values corresponding to the ratio of HTMT correlations for each pair of constructs are included above the principal diagonal of the correlation matrix. As can be seen, only the ratio between *exchange of knowledge* and *generation of innovation* is at the critical limit, with a value of 0.851. The remaining values virtually all take values which are well below.

Taking all of this into account, discriminant validity amongst all the various latent constructs considered in the research is shown to exist.

Common method variance bias. In order to examine whether common method variance (CMV) is a problem, we performed a Harman's one-factor test (Podsakoff *et al.*, 2003). Since there was no single factor accounting for the majority of the covariance among the measures, we concluded that the possible impact of common method bias is not significant in this research.

Table 4.30. Correlation matrix (Study II)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) Empathy	n.a.	0.139	0.066	0.038	0.050	0.153	0.023	0.187	0.094	0.044	0.116	0.139	0.168	0.183	0.156	0.016	0.019
(2) Shared values	-0.102	0.832	0.600	0.289	0.196	0.219	0.297	0.715	0.650	0.591	0.521	0.420	0.391	0.099	0.026	0.108	0.081
(3) Complementary resources	-0.006	0.520	0.842	0.389	0.519	0.162	0.358	0.628	0.642	0.659	0.587	0.596	0.648	0.149	0.067	0.099	0.055
(4) Supplementary resources	-0.036	0.256	0.375	0.902	0.276	0.131	0.416	0.496	0.410	0.542	0.295	0.357	0.185	0.300	0.055	0.346	0.064
(5) Transferability	0.141	0.166	0.152	0.042	0.878	0.245	0.234	0.162	0.354	0.388	0.272	0.391	0.313	0.155	0.112	0.139	0.149
(6) Willingness to share knowledge	0.029	0.152	0.428	0.219	0.204	0.837	0.324	0.318	0.282	0.582	0.426	0.393	0.486	0.048	0.125	0.118	0.087
(7) Promotion focus	-0.004	0.161	0.256	0.285	0.267	0.148	0.789	0.408	0.485	0.441	0.414	0.330	0.306	0.317	0.080	0.165	0.083
(8) Trust in the incubatee	-0.179	0.615	0.577	0.462	0.257	0.076	0.308	0.812	0.753	0.659	0.353	0.420	0.372	0.122	0.059	0.277	0.043
(9) Commitment in the relationship	0.093	0.577	0.600	0.387	0.233	0.306	0.372	0.701	0.908	0.796	0.675	0.655	0.535	0.107	0.133	0.160	0.044
(10) Exchange of knowledge	0.022	0.482	0.574	0.476	0.457	0.327	0.323	0.568	0.697	0.918	0.756	0.851	0.647	0.131	0.197	0.126	0.095
(11) Entrepreneurial commitment	0.113	0.451	0.549	0.280	0.358	0.249	0.313	0.331	0.640	0.662	0.944	0.705	0.608	0.120	0.202	0.098	0.066
(12) Generation of innovation	0.134	0.369	0.553	0.333	0.323	0.352	0.249	0.393	0.618	0.745	0.662	0.916	0.763	0.044	0.061	0.055	0.071
(13) Business results	0.164	0.347	0.599	0.177	0.399	0.281	0.268	0.352	0.510	0.570	0.573	0.720	0.950	0.087	0.061	0.082	0.067
(14) Country	-0.183	-0.027	0.074	0.285	-0.023	0.134	0.235	0.111	0.101	0.118	0.116	-0.001	-0.084	n.a.	0.101	0.257	0.082
(15) Entrepreneurial experience	-0.156	0.022	-0.055	0.001	0.116	-0.037	0.009	0.035	0.128	0.176	0.196	0.059	0.059	0.101	n.a.	0.048	0.115
(16) Experience as an employee	0.016	-0.061	-0.100	-0.330	-0.108	-0.072	-0.128	-0.263	-0.157	-0.111	-0.096	-0.049	0.002	-0.257	0.048	n.a.	0.170
(17) Academic experience	-0.019	-0.074	-0.032	0.017	-0.081	0.120	-0.024	0.003	0.031	-0.085	-0.037	0.069	-0.065	-0.082	-0.115	-0.170	n.a.

The main diagonal shows the square root of the AVE. Under the main diagonal are the Pearson correlations and above the main diagonal the heterotrait-monotrait (HTMT) ratio of correlations.
n.a. Not applicable.

4.4.4. Model estimation

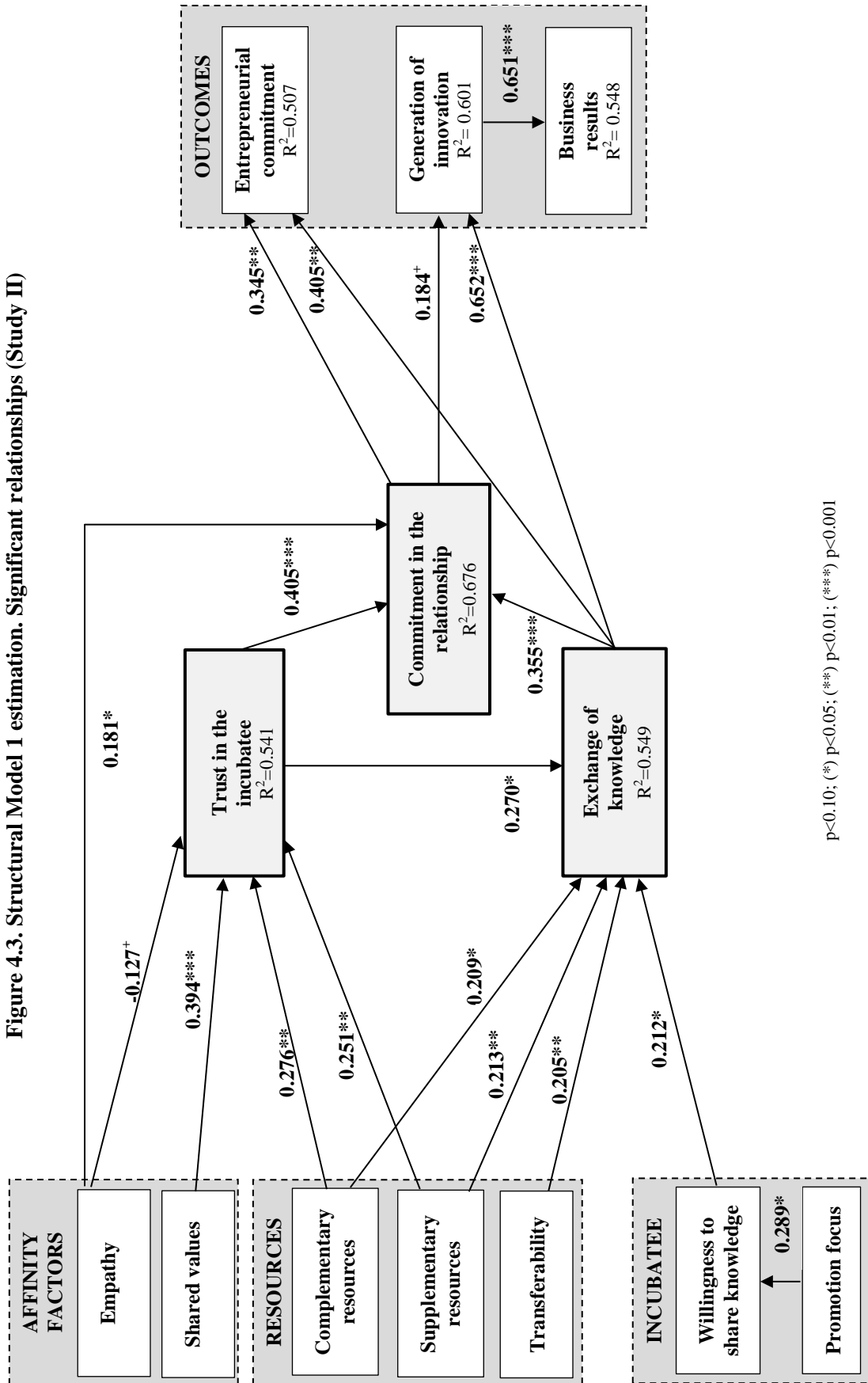
The results of estimating the overall structural **Model 1** are shown in Table 4.31. In order to facilitate interpretation, significant relationships of proposed hypotheses are displayed in Figure 4.3.

Table 4.31. Model 1 estimation (Study II)

Proposed hypotheses		Estimate
<i>H1</i>	Trust → Exchange of knowledge	0.270*
	Trust → Commitment	0.405***
<i>H2</i>	Exchange of knowledge → Commitment	0.355***
<i>H3a</i>	Empathy → Trust	-0.127 ⁺
<i>H3b</i>	Empathy → Commitment	0.181*
<i>H4a</i>	Shared values → Trust	0.394***
<i>H4b</i>	Shared values → Commitment	0.133
<i>H5a</i>	Complementary resources → Trust	0.276**
<i>H5b</i>	Complementary resources → Commitment	0.110
<i>H5c</i>	Complementary resources → Exchange of knowledge	0.209*
<i>H6a</i>	Supplementary resources → Trust	0.251**
<i>H6b</i>	Supplementary resources → Commitment	-0.050
<i>H6c</i>	Supplementary resources → Exchange of knowledge	0.213**
<i>H7</i>	Transferability → Exchange of knowledge	0.205**
<i>H8</i>	Willingness to share knowledge → Exchange of knowledge	0.212*
<i>H9a</i>	Promotion focus → Willingness to share knowledge	0.289*
<i>H9b</i>	Promotion focus → Exchange of knowledge	0.043
<i>H10a</i>	Commitment → Entrepreneurial commitment	0.345**
<i>H10b</i>	Exchange of knowledge → Entrepreneurial commitment	0.405**
<i>H11a</i>	Commitment → Generation of innovation	0.184 ⁺
<i>H11b</i>	Exchange of knowledge → Generation of innovation	0.652***
<i>H12a</i>	Commitment → Business results	0.119
<i>H12b</i>	Exchange of knowledge → Business results	0.004
<i>H12c</i>	Generation of innovation → Business results	0.651***
Control effects		
	Country ^a → Empathy	-0.183*
	Country → Shared values	-0.027
	Country → Complementary resources	0.074
	Country → Supplementary resources	0.285**
	Country → Transferability	0.134
	Country → Willingness to share knowledge	-0.091
	Country → Promotion focus	0.235*
	Country → Trust	0.006
	Country → Commitment	0.059
	Country → Exchange of knowledge	-0.021
	Country → Entrepreneurial commitment	0.027
	Country → Generation of innovation	-0.067
	Country → Business results	-0.104
	Entrepreneurial experience → Entrepreneurial commitment	0.078
	Entrepreneurial experience → Generation of innovation	-0.062
	Entrepreneurial experience → Business results	0.001
	Experience as an employee → Entrepreneurial commitment	0.005
	Experience as an employee → Generation of innovation	0.057
	Experience as an employee → Business results	0.006
	Scientific experience → Entrepreneurial commitment	-0.001
	Scientific experience → Generation of innovation	0.115
	Scientific experience → Business results	-0.120

(^a) 0=Spain; 1=The Netherlands; (°) p < 0.10; (*) p < 0.05; (**) p < 0.01; (***) p < 0.001

Figure 4.3. Structural Model 1 estimation. Significant relationships (Study II)



p<0.10; (*) p<0.05; (**) p<0.01; (***) p<0.001

Robustness test. Additionally, we conducted a path analysis using the AMOS v20.0 statistical program to check the robustness of our results and to offer a global goodness-of-fit measure. We previously reduced each variable to a measurement index, specifically the latent variable scores provided by PLS in order to use similar measures. The results of the estimated model are shown in Table 4.32 and confirm an acceptable goodness of fit: $\chi^2(38)=75.346$ ($p=0.000$); RMR= 0.072; RMSEA=0.099; GFI=0.902; CFI=0.938; NFI=0.889. We observe that the AMOS estimation basically coincides with the PLS estimation.

Table 4.32. Path analysis estimation with AMOS (Study II)

		Standardized Estimate	S.E.
H1	Trust → Exchange of knowledge	0.274**	0.088
	Trust → Commitment	0.408***	0.087
H2	Exchange of knowledge → Commitment	0.357***	0.078
H3a	Empathy → Trust	-0.106	0.062
H3b	Empathy → Commitment	0.172**	0.058
H4a	Shared values → Trust	0.386***	0.073
H4b	Shared values → Commitment	0.126	0.075
H5a	Complementary resources → Trust	0.319***	0.077
H5b	Complementary resources → Commitment	0.113	0.079
H5c	Complementary resources → Exchange of knowledge	0.213*	0.092
H6a	Supplementary resources → Trust	0.208**	0.067
H6b	Supplementary resources → Commitment	-0.039	0.067
H6c	Supplementary resources → Exchange of knowledge	0.211**	0.077
H7	Transferability → Exchange of knowledge	0.205**	0.075
H8	Willingness to share knowledge → Exchange of knowledge	0.217**	0.070
H9a	Promotion focus → Willingness to share knowledge	0.267**	0.096
H9b	Promotion focus → Exchange of knowledge	0.040	0.074
H10a	Commitment → Entrepreneurial commitment	0.476***	0.095
H10b	Exchange of knowledge → Entrepreneurial commitment	0.381***	0.090
H11a	Commitment → Generation of innovation	0.192*	0.089
H11b	Exchange of knowledge → Generation of innovation	0.609***	0.089
H12a	Commitment → Business results	0.082	0.093
H12b	Exchange of knowledge → Business results	0.076	0.111
H12c	Generation of innovation → Business results	0.607***	0.103

(*) $p < 0.05$; (**) $p < 0.01$; (***) $p < 0.001$

The AMOS modification indices propose additional paths in order to improve the goodness of fit: a direct effect from *business results* to *entrepreneurial commitment* and a direct effect from *complementary resources* to *business results*. We added these paths, and the goodness of fit improved significantly: $\chi^2(36)=54.586$ ($p=0.024$); RMR= 0.064; RMSEA=0.072; GFI=0.928; CFI=0.969; NFI=0.920. The results are shown in Table 4.33.

Table 4.33. Path analysis estimation with additional paths (Study II)

		Standardized Estimate	S.E.
<i>H1</i>	Trust → Exchange of knowledge	0.273**	0.087
	Trust → Commitment	0.408***	0.087
<i>H2</i>	Exchange of knowledge → Commitment	0.358***	0.078
<i>H3a</i>	Empathy → Trust	-0.115	0.063
<i>H3b</i>	Empathy → Commitment	0.172**	0.058
<i>H4a</i>	Shared values → Trust	0.398***	0.074
<i>H4b</i>	Shared values → Commitment	0.126	0.075
<i>H5a</i>	Complementary resources → Trust	0.287***	0.077
<i>H5b</i>	Complementary resources → Commitment	0.113	0.078
<i>H5c</i>	Complementary resources → Exchange of knowledge	0.214*	0.090
	Complementary resources → Business results	0.326***	0.082
<i>H6a</i>	Supplementary resources → Trust	0.229***	0.068
<i>H6b</i>	Supplementary resources → Commitment	-0.039	0.068
<i>H6c</i>	Supplementary resources → Exchange of knowledge	0.211**	0.078
<i>H7</i>	Transferability → Exchange of knowledge	0.205**	0.075
<i>H8</i>	Willingness to share knowledge → Exchange of knowledge	0.217**	0.070
<i>H9a</i>	Promotion focus → Willingness to share knowledge	0.267**	0.096
<i>H9b</i>	Promotion focus → Exchange of knowledge	0.040	0.074
<i>H10a</i>	Commitment → Entrepreneurial commitment	0.420***	0.093
<i>H10b</i>	Exchange of knowledge → Entrepreneurial commitment	0.283**	0.093
<i>H11a</i>	Commitment → Generation of innovation	0.191*	0.089
<i>H11b</i>	Exchange of knowledge → Generation of innovation	0.609***	0.089
<i>H12a</i>	Commitment → Business results	-0.030	0.094
<i>H12b</i>	Exchange of knowledge → Business results	0.020	0.107
<i>H12c</i>	Generation of innovation → Business results	0.549***	0.096
	Business results → Entrepreneurial commitment	0.226**	0.084

(*) $p < 0.05$; (**) $p < 0.01$; (***) $p < 0.001$. The new relationships introduced in the model are bold typed.

4.4.5. Hypotheses testing

Set out below are the results of testing the hypotheses formulated for this study.

Effect of the control variables.

The four control variables included in the model are *country*, *entrepreneurial experience*, *experience as an employee* and *scientific experience*.

The *country* in which the UBI is located was included so as to rule out its effect from the overall model. The location is linked to three variables that are determinant of the relations between incubatees. Specifically, lower levels of *empathy* and higher levels of *promotion focus* and *supplementarity of resources* in relations were in evidence in the Netherlands. These results might be due to cultural aspects such as greater encouragement of individualism, proactive initiative, dynamism and a clear business vision.

UBI tenant experience in the business world, either through prior *entrepreneurial experience* or *experience as a salaried worker in enterprise*, has no significant impact on the results to emerge from the relations studied in the present research.

Finally, *scientific experience* affects *generation of innovation*, albeit with a significance below 95%. This result is hardly surprising bearing in mind that *scientific experience* assumes that individuals have had access to, and possibly even created and applied, knowledge and innovation.

Analysis of direct effects

Trust between the parties in the dyad has a positive impact on *exchange of knowledge* and on *commitment* to the relation. Hypothesis H1 can thus be accepted, and the link between trust and commitment is once again borne out.

Hypothesis H2 conjectured a direct and significant relationship between *exchange of knowledge* and *commitment* amongst incubatees, and the results to emerge would appear to provide empirical support for this belief.

Empathy, perceived as a general trait of an individual, positively encourages *commitment* in the relation. As a result, hypothesis H3b is confirmed. By contrast, no support is in evidence to back up H3a, which hypothesised a positive relation between *empathy* and *trust*. What is more, results show a negative and significant relation between the two variables at a 90% significance level. Something which already emerged from the qualitative analysis carried out in Study I might provide us with a possible explanation for such an unexpected outcome. As became apparent from said study, empathy towards other incubatees sparked a certain generosity in the relationship, which on some occasions led to opportunistic behaviour by one of the partners and, as a result, subsequent mistrust.

Hypothesis H4a is supported, such that we are able to state that the perception of *shared values* between incubatees positively impacts on the *trust* between them. Contrastingly, no empirical support was obtained for the hypothesis which also conjectured a positive relation between *shared values* and *commitment* (H4b).

As regards *complementarity of resources* as a determinant variable in the relations generated in UBIs, its positive effect can be accepted on *trust* and *exchange of knowledge* (hypothesis H5a and H5c, respectively). However, no empirical support was found for hypothesis H5b, which conjectured that *complementarity of resources* might

also affect *commitment* between the two parties. The same is true for the other variable related to resources included in the model: *supplementarity*. Its direct and positive link on *trust* (H6a) and *exchange of knowledge* (H6c) is supported, although the results to emerge suggest that hypothesis H6b, which posits a positive link with *commitment*, should be rejected.

Transferability of knowledge encourages exchange of said resource, which was conjectured in hypothesis H7, such that this may be accepted.

The individual trait *willingness to share knowledge* proves determinant for the *exchange of knowledge*. The greater an individual's willingness to share knowledge, the more said knowledge will flow and the greater will be the exchange thereof. This may be inferred from the results obtained and leads us to accept hypothesis H8.

Hypothesis H9a, stating that the *promotion focus* is an antecedent which stimulates *willingness to share knowledge*, is confirmed. By contrast, hypothesis H9b refers to a direct and positive relation between incubatees' *promotion focus* and *exchange of knowledge*. In this case, the hypothesis has failed to obtain empirical support.

Entrepreneurial commitment is one result to emerge from the relations between incubatees. A relation based on *commitment* and in which *exchange of knowledge* flows will encourage academics to increase their level of commitment and confirm their decision to become entrepreneurs. Both aspects were formulated in hypotheses H10a and H10b, which are supported.

Hypotheses H11a and H11b posit that *commitment* and *exchange of knowledge* between incubatees results in *generation of innovation*. Both hypotheses are supported empirically.

Finally, the results obtained bear out the support for hypothesis H12c, which establishes a relation between *generation of innovation* and *business performance*. Contrastingly, results suggest that H12a and H12b, which conjectured that *exchange of knowledge* and *commitment* impact on performance, should be rejected.

A summary of all the results of the hypotheses is shown in Table 4.34.

Table 4.34. Results of hypothesis testing (Study II)

Proposed hypotheses		Conclusion	
<i>H1</i>	Trust → Exchange of knowledge	Supported	✓
	Trust → Commitment	Supported	✓
<i>H2</i>	Exchange of knowledge → Commitment	Supported	✓
<i>H3a</i>	Empathy → Trust	Not supported	✗
<i>H3b</i>	Empathy → Commitment	Supported	✓
<i>H4a</i>	Shared values → Trust	Supported	✓
<i>H4b</i>	Shared values → Commitment	Not supported	✗
<i>H5a</i>	Complementary resources → Trust	Supported	✓
<i>H5b</i>	Complementary resources → Commitment	Not supported	✗
<i>H5c</i>	Complementary resources → Exchange of knowledge	Supported	✓
<i>H6a</i>	Supplementary resources → Trust	Supported	✓
<i>H6b</i>	Supplementary resources → Commitment	Not supported	✗
<i>H6c</i>	Supplementary resources → Exchange of knowledge	Supported	✓
<i>H7</i>	Transferability → Exchange of knowledge	Supported	✓
<i>H8</i>	Willingness to share knowledge → Exchange of knowledge	Supported	✓
<i>H9a</i>	Promotion focus → Willingness to share knowledge	Supported	✓
<i>H9b</i>	Promotion focus → Exchange of knowledge	Not supported	✗
<i>H10a</i>	Commitment → Entrepreneurial commitment	Supported	✓
<i>H10b</i>	Exchange of knowledge → Entrepreneurial commitment	Supported	✓
<i>H11a</i>	Commitment → Generation of innovation	Supported	✓
<i>H11b</i>	Exchange of knowledge → Generation of innovation	Supported	✓
<i>H12a</i>	Commitment → Business results	Not supported	✗
<i>H12b</i>	Exchange of knowledge → Business results	Not supported	✗
<i>H12c</i>	Generation of innovation → Business results	Supported	✓

(†) $p < 0.10$; (*) $p < 0.05$; (**) $p < 0.01$; (***) $p < 0.001$

Analysis of indirect and total effects

Rejecting the direct effects of shared values (H4b), complementarity of resources (H5b) and supplementarity of resources (H6b) on commitment leads us to speculate as to the possibility of indirect effects through trust and exchange of knowledge. Moreover, by rejecting the direct effect of commitment (H12a) and the exchange of knowledge (H12b) on performance, we wonder whether such effects might be indirect.

Table 4.35 reflects the indirect and total effects for all the variables included in the model.

Table 4.35. Indirect and total effects (Study II)

	Indirect effect	Total effect
Determinants of dyadic relationship		
Empathy → Trust	-	-0.127 ⁺
Shared values → Trust	-	0.394***
Complementary resources → Trust	-	0.276**
Supplementary resources → Trust	-	0.251**
Empathy → Commitment	-0.063	0.117 ⁺
Shared values → Commitment	0.197***	0.331***
Complementary resources → Commitment	0.212**	0.323**
Supplementary resources → Commitment	0.202***	0.146*
Transferability → Commitment	0.073**	0.073**
Willingness to share knowledge → Commitment	0.075 ⁺	0.075 ⁺
Promotion focus → Commitment	0.037	0.037
Empathy → Exchange of knowledge	-0.034	-0.034
Shared values → Exchange of knowledge	0.106 ⁺	0.106 ⁺
Complementary resources → Exchange of knowledge	0.074	0.283**
Supplementary resources → Exchange of knowledge	0.068	0.281***
Transferability → Exchange of knowledge	-	0.205**
Willingness to share knowledge → Exchange of knowledge	-	0.212*
Promotion focus → Exchange of knowledge	0.061	0.105
Promotion focus → Willingness to share knowledge	-	0.289*
Characterization of the dyadic relationship		
Trust → Commitment	0.096	0.501***
Trust → Exchange of knowledge	-	0.270*
Exchange of knowledge → Commitment	-	0.355***
Outcomes of the dyadic relationship		
Empathy → Entrepreneurial commitment	0.027	0.027
Shared values → Entrepreneurial commitment	0.157*	0.157*
Complementary resources → Entrepreneurial commitment	0.226**	0.226**
Supplementary resources → Entrepreneurial commitment	0.164**	0.164**
Transferability → Entrepreneurial commitment	0.108*	0.108*
Willingness to share knowledge → Entrepreneurial commitment	0.112*	0.112*
Promotion focus → Entrepreneurial commitment	0.055	0.055
Trust → Entrepreneurial commitment	0.282**	0.282**
Commitment → Entrepreneurial commitment	-	0.345**
Exchange of knowledge → Entrepreneurial commitment	0.123	0.528***
Empathy → Generation of innovation	-0.001	-0.001
Shared values → Generation of innovation	0.130*	0.130*
Complementary resources → Generation of innovation	0.244**	0.244**
Supplementary resources → Generation of innovation	0.210***	0.210***
Transferability → Generation of innovation	0.147**	0.147**
Willingness to share knowledge → Generation of innovation	0.152*	0.152*
Promotion focus → Generation of innovation	0.075	0.075
Trust → Generation of innovation	0.268**	0.268**
Commitment → Generation of innovation	-	0.184 ⁺
Exchange of knowledge → Generation of innovation	0.065	0.717***
Empathy → Business results	0.013	0.013
Shared values → Business results	0.125*	0.125*
Complementary resources → Business results	0.199**	0.199**
Supplementary resources → Business results	0.155***	0.155***
Transferability → Business results	0.105*	0.105*
Willingness to share knowledge → Business results	0.109*	0.109*
Promotion focus → Business results	0.054	0.054
Trust → Business results	0.235**	0.235**
Commitment → Business results	0.119 ⁺	0.239 ⁺
Exchange of knowledge → Business results	0.509***	0.514***
Generation of innovation → Business results	-	0.651***

(⁺) 0=Spain; 1=The Netherlands (⁺) p < 0.10; (*) p < 0.05; (**) p < 0.01; (***) p < 0.001

As regards the determinants of the dyadic relationships, specifically vis-à-vis commitment, results show that the indirect effects of shared values, complementarity, supplementarity and transferability of resources on commitment are significant. When incubatees share values, as a result of finding themselves at the same starting point in their business, they tend to commit long-term, through increased trust. In turn, complementarity and/or supplementarity in the resources they possess can boost their commitment to maintain a long-term relationship through increased trust and exchange of knowledge. In other words, trust and exchange of knowledge act as mediators between complementarity and supplementarity of resources and relational commitment between incubatees. Likewise, transferability of knowledge and the willingness to share it, which is fostered in those who display a promotion focus, also boost commitment in the relationships they maintain, through exchange of knowledge.

With regard to the results of relationships, it is worth highlighting the significant indirect effects of the antecedents of the relationship on results, through the following: shared values amongst incubatees, the characteristics of the resources (complementarity, supplementarity and transferability), and willingness to share knowledge, foster the three proposed results: boosting incubatees' entrepreneurial commitment, generating innovation in their business and, as a result, obtaining business performance. As regards business performance, generating innovation is the variable which acts as a mediator between features of the relationship (trust, exchange of knowledge and commitment) and performance. Dyadic relationships between university incubatees lead to better performance in that they generate innovations in the area of emerging businesses.

4.5. Study III. The role of the manager in building relationships and social capital in UBIs

After an empirical analysis of the dyadic relationships between incubatees, the figure of the manager is introduced and highlighted in Study III of the present doctoral thesis. Specifically, this study is split into two parts, posited so as to test Models 2 and 3, and in order to evaluate hypotheses H13 to H26, all of this being set out in Chapter 3.

The first, Study III.1, focuses on relating the manager's professional profile and the services that can be provided in a UBI. Study III.2 then explores the role played by the manager in creating and fostering social capital in the incubator.

4.5.1. Study III.1. Relationship between the professional profile of the manager and the services offered by UBIs

Study III.1 seeks to gauge to what extent the manager's professional profile might shape the kind of services provided to UBI tenants (**H13, H14 and H15**), reflected in **Model 2**, presented in Chapter 3. In an effort to achieve the proposed objective, an explanation is given of the sequence of analysis carried out, which is similar to that followed in Study II: measuring the variables used in the study, validating the measurement scales used, estimating the structural model, and evaluating the hypotheses.

4.5.1.1. Descriptive statistics of the measurement variables

Data for this Study, III.1, were collected through questionnaires sent to managers. As explained before, managers may be in charge of several incubation programmes: pre-incubation, incubation, and post-incubation. Consequently, they were requested to answer questions dealing with each of the programmes they ran in their incubator in order to evaluate the services offered. Thus, the incubation programme is the unit of analysis in our research. Specifically, 93 valid questionnaires were obtained, 32 pre-incubation, 41 incubation, and 20 post-incubation.

As regards the variables and the indicators used to measure the various concepts, we started with the manager's experience. *Scientific experience* and *business experience* take mean values of around 2 ("up to 3 years") and 3 ("between 3 and 5 years").

As for the services provided in each incubation programme²¹, mean values range from 4.81 (for advising on strategic decisions) to 5.08 (access to incubator networks). Not all incubators offer the three programmes and, within each programme, do not provide the same services, although it could be said that they do give a significant boost to each of the services they offer.

The UBIs in the sample have been working for an average of 7.29 years, with the dispersion being 6.09. The time the manager has been head of the incubator is around 3 years, and the dispersion is not high, as it stands at 1.65.

See Table 4.36 for further details.

Table 4.36. Descriptive statistics of the variables (Study III.1)

	Mean	S.D.	Min.	Max.
<i>Business experience of the manager</i>				
Years of entrepreneurial experience	2.56	1.59	1	5
Years of experience in the business world	3.13	1.59	1	5
<i>Scientific experience of the manager</i>				
Years of experience in the scientific world	2.76	1.60	1	5
<i>Personal assistance. Indicate to what extent you offer/support the following services...</i>				
Coaching or mentoring	4.34	1.65	1	6
<i>Business assistance. Indicate to what extent you offer/support the following services...</i>				
Assistance in planning financing and in obtaining financing	4.92	1.12	1	6
Assistance in strategic decisions (internationalization, commercialization, implementation of products and services, etc.)	4.81	1.10	1	6
Sparing and assistance in preparing a business plan	4.99	1.17	1	6
Business and entrepreneurship training (workshops, sessions, etc.)	4.82	1.27	1	6
<i>Networking. Indicate to what extent you offer/support the following services...</i>				
Access to networks outside the incubator (business, associations, freelance, etc.)	5.08	1.11	1	6
Meetings and events between incubatees in order to foster contacts and relationships between them	4.83	1.43	1	6
<i>Age of the incubator</i>				
Years of the incubator	7.29	6.09	0	31
<i>Age of the manager in the incubator</i>				
Years as manager of the incubator	2.96	1.65	0	18

In order to ascertain whether there are any differences in the sizes of the variables between countries, a means *t* test for independent samples was carried out. As can be seen in Table 4.37, differences were only apparent in two indicators: years of experience as an entrepreneur and years of experience in the world of science. Dutch

²¹As regards the services offered in the incubation programmes, all were measured on six-position Likert scales, with 1 being the absence of the service and 6 reflecting that significant support was lent to the service.

managers have greater experience in both areas, most noticeably with regard to their experience as entrepreneurs (the mean for Dutch managers being 3.65 years compared to 2.32 for Spanish managers). With the exception of these two variables, and in light of the findings to emerge, the samples of managers can be assumed to be fairly homogenous.

Table 4.37. Means test (Study III.1)

	Country	N	Mean	S.D.	t
<i>Business experience of the manager</i>					
Years of entrepreneurial experience	Spain	76	2.32	1.525	-3.280**
	The Netherlands	17	3.65	1.455	
Years of experience in the business world	Spain	76	3.07	1.603	-0.810
	The Netherlands	17	3.41	1.543	
<i>Scientific experience of the manager</i>					
Years of experience in the scientific world	Spain	76	2.63	1.632	-1.895 ⁺
	The Netherlands	17	3.35	1.367	
<i>Personal assistance. Indicate to what extent you offer/support the following services...</i>					
Coaching or mentoring	Spain	76	4.24	1.680	-1.324
	The Netherlands	17	4.82	1.510	
<i>Business assistance. Indicate to what extent you offer/support the following services...</i>					
Assistance in planning financing and in obtaining financing	Spain	76	5.01	1.071	1.616
	The Netherlands	17	4.53	1.305	
Assistance in strategic decisions (internationalization, commercialization, implementation of products and services, etc.)	Spain	76	4.78	1.135	-0.753
	The Netherlands	17	5.00	0.968	
Sparring and assistance in preparing a business plan	Spain	76	4.95	1.188	-0.725
	The Netherlands	17	5.18	1.131	
Business and entrepreneurship training (workshops, sessions, etc.)	Spain	76	4.87	1.309	0.751
	The Netherlands	17	4.62	1.111	
<i>Networking. Indicate to what extent you offer/support the following services...</i>					
Access to networks outside the incubator (business, associations, freelance, etc.)	Spain	76	5.07	1.181	-0.172
	The Netherlands	17	5.12	0.781	
Meetings and events between incubatees in order to foster contacts and relationships between them	Spain	76	4.82	1.521	-0.172
	The Netherlands	17	4.88	0.993	
<i>Age of the incubator</i>					
Years of the incubator	Spain	76	7.18	5.288	-0.353
	The Netherlands	17	7.76	9.073	
<i>Age of the manager in the incubator</i>					
Years as manager of the incubator	Spain	76	3.30	3.152	0.677
	The Netherlands	17	2.74	2.721	

(⁺) p < 0.10; (**) p < 0.01

4.5.1.2. Validation of scales

The parameters of the measurement model indicators were estimated using PLS with a maximum of 300 iterations. In order to calculate the significance of the loadings and factor weight of the items, a bootstrapping procedure was applied to 1000 sub-samples.

Of the five constructs included in the model, three are formative compared to two which are reflective (*business experience* and *networking*). Prior to validating the scales, one

aspect should be clarified: although the scale measuring the network was formative in nature, a high correlation between the two items (0.647) was found when the model was estimated, and consequently a problem of multicollinearity arose. To solve this problem, for the purposes of the current research this scale was treated as reflective.

First, the formative scales were validated. According to Diamantopoulos and Winklhofer (2001), a formative measure is essentially a multiple regression where the construct is the dependent variable and the indicators are the predictors. In these cases, the correlation between indicators causes problems of multicollinearity and instability of the coefficients. Moreover, PLS may pose problems when multicollinearity is in evidence. Checks thus need to be carried out to determine whether it is present and in order to avoid problems in the results of the analysis (Henseler *et al.*, 2009). Table 4.38 shows the variance inflation factor (VIF) values, which are seen to be well below the critical level of 5. In light of these values, multicollinearity is not a problem in the formative scales used.

In addition, Table 4.38 shows that the weights of the items of the formative variables do not display high values. As Hair *et al.* (2014) point out, this does not indicate poor quality in the measurement model. In addition to the relative contribution, these authors feel that it is also necessary to take into consideration the absolute contribution each formative indicator makes to its construct, in other words the information an indicator provides when bearing in mind other indicators. The absolute contribution is given by the outer loading. When an indicator does not display a significant weight but its outer loading is above 0.5, as happens in the case in hand, the indicator might be deemed important at an absolute level, although not at a relative level.

As regards the reflective scales, their reliability as well as convergent and discriminant validity were evaluated. To measure their reliability, three indicators were used: Cronbach's alpha (α), composite reliability (CR) and reliability of the indicators (Table 4.38). Cronbach's alpha takes values above 0.6 (0.775 and 0.786), composite reliability above 0.7 (0.896 and 0.903) and the loadings for each indicator take values which are significantly above 0.6. Reliability and convergent validity of the scales is thus ensured.

Table 4.38. Reliability of measurement scales and outer weights and loadings (Study III.1)

	Weights	Loadings	VIF
Business experience of the manager ($\alpha=.775$; $CR=.896$; $AVE=.811$)			
Years of entrepreneurial experience		0.939***	
Years of experience in the business world		0.861***	
Scientific experience of the manager			
Years of experience in the scientific world	1.000		1.000
Personal assistance			
Coaching or mentoring	1.000		1.000
Business assistance			
Assistance in planning financing and in obtaining financing	0.391	0.729***	1.262
Assistance in strategic decisions (internationalization, commercialization, implementation of products and services, etc.)	0.130	0.716***	1.779
Sparring and assistance in preparing a business plan	0.418 ⁺	0.779***	1.577
Business and entrepreneurship training (workshops, sessions, etc.)	0.389 ⁺	0.762***	1.406
Networking ($\alpha=.786$; $CR=.903$; $AVE=.823$)			
Access to networks outside the incubator (business, associations, freelance, etc.)		0.917***	
Meetings and events between incubatees in order to foster contacts and relationships between them		0.897***	

(⁺) $p < 0.10$; (***) $p < 0.001$

Following the Fornell-Larcker criterion, discriminant validity was assessed by the square root of the AVE being greater than the correlation with the other constructs. In the correlation matrix of latent constructs (Table 4.39), it can be observed that this condition is met for the reflective constructs (business experience and networking). In addition, the heterotrait-monotrait (HTMT) ratio of correlations for each pair of constructs (Henseler *et al.*, 2015) was calculated. These values are shown above the main diagonal of the correlation matrix. The highest value is 0.458, below the critical value of 0.85. Therefore, the discriminant validity of the reflective scales was accepted.

Table 4.39. Correlation matrix (Study III.1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Business experience of the manager	0.900	0.303	0.458	n.a.	0.299	0.257	0.161	0.039
(2) Scientific experience of the manager	0.284	n.a.	0.366	n.a.	0.074	0.175	0.093	0.408
(3) Personal assistance	0.416	0.366	n.a.	n.a.	0.415	0.137	0.288	0.117
(4) Business assistance	0.451	0.281	0.587	n.a.	n.a.	n.a.	n.a.	n.a.
(5) Networking	0.245	0.026	0.366	0.363	0.907	0.022	0.035	0.077
(6) Country	0.251	0.175	0.137	-0.054	0.020	n.a.	0.037	0.071
(7) Age of the incubator	-0.145	-0.093	-0.288	-0.280	0.032	0.037	n.a.	0.315
(8) Age of the manager in the incubator	0.031	0.408	0.117	0.149	0.070	-0.071	0.315	n.a.

The main diagonal shows the square root of the AVE. Under the main diagonal are the Pearson correlations and above the main diagonal the heterotrait-monotrait (HTMT) ratio of correlations.
n.a. Not applicable.

Although collecting information through questionnaires is felt to be a factor that might lead to common method bias, in this case the risk is heightened due to the fact that in

certain cases the same manager was the informant for several incubation programmes. Therefore, ruling out common method variance proves particularly necessary in this case. We performed a Harman's one-factor test (Podsakoff *et al.*, 2003). Exploratory factor analysis with all the indicators gave two factors with an eigenvalue of over 1 (total variance explained=64.3%), with a first factor explaining 25.8% of variance. Therefore, there is no single factor accounting for the majority of the covariance among the measures, and the impact of common method bias is not critical.

4.5.1.3. Model estimation

The results of the structural model estimation for hypotheses 13 and 14 are shown in Table 4.40. In order to facilitate interpretation, significant relationships of proposed hypotheses are displayed in Figure 4.4.

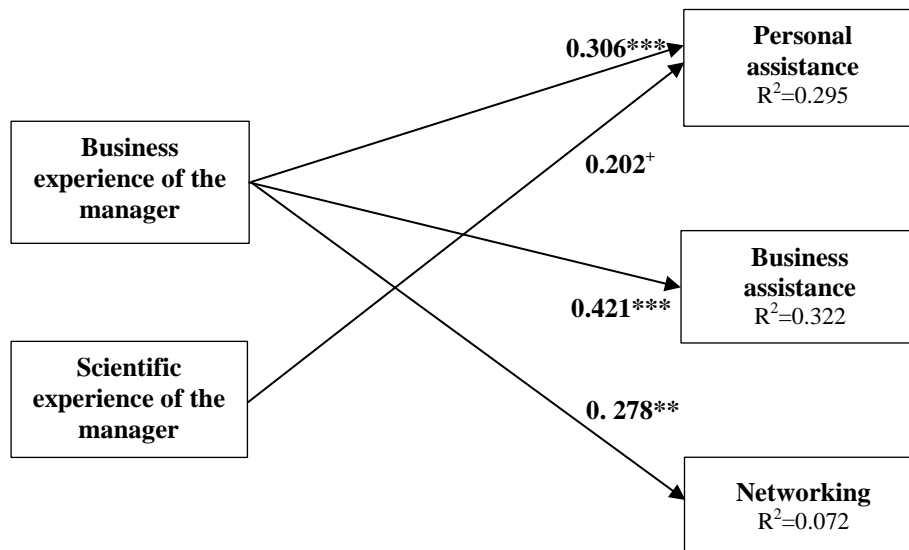
Table 4.40. Estimation of H13 and H14 (Study III.1)

Proposed hypotheses	Estimate
<i>H13a</i> Business experience → Personal assistance	0.306***
<i>H13b</i> Business experience → Business assistance	0.421***
<i>H13c</i> Business experience → Networking	0.278**
<i>H13a</i> Scientific experience → Personal assistance	0.202 ⁺
<i>H13b</i> Scientific experience → Business assistance	0.096
<i>H13c</i> Scientific experience → Networking	-0.074
Control variables	
Country ^a → Scientific experience	0.175
Country → Business experience	0.251*
Country → Personal assistance	0.043
Country → Business assistance	-0.155
Country → Networking	-0.033
Age of the incubator → Personal assistance	-0.262*
Age of the incubator → Business assistance	-0.256*
Age of the incubator → Networking	0.042
Years in the incubator → Personal assistance	0.111
Years in the incubator → Business assistance	0.166
Years in the incubator → Networking	0.076

^(a) 0=Spain; 1=The Netherlands

⁽⁺⁾ p < 0.10; (*) p < 0.05; (**) p < 0.01; (***) p < 0.001

Figure 4.4. Structural Model 2 estimation. Significant effects (Study III.1)



([†]) p<0.10; (**) p<0.01; (***) p<0.001

Additionally, path analysis²² was conducted using the AMOS v20.0 statistical program, to check the robustness of our results and to offer a global goodness-of-fit measure. Previously, each variable was reduced to a measurement index, specifically the latent variable scores provided by PLS in order to use similar measures. The goodness of fit or the estimated model is adequate: $\chi^2(2)=3.467$ (p=0.177); RMR= 0.042; RMSEA=0.089; GFI=0.985; CFI=0.984; NFI=0.965.

Table 4.41. Results of the estimated model using AMOS (Study III.1)

	Standardized Estimate	S.E.
Business experience → Personal assistance	0.359***	0.094
Business experience → Business assistance	0.450***	0.093
Business experience → Networking	0.246*	0.101
Scientific experience → Personal assistance	0.216**	0.081

(*) p < 0.05; (**) p < 0.01; (***) p < 0.001

In order to test hypothesis H15, managers were classified according to their entrepreneurial experience (only experience as entrepreneurs was considered, not general experience) and their academic experience. Table 4.42 shows the contingent table with the distribution of the manager's experience²³.

²² The small sample size should be remembered, making this procedure non-appropriate for studies such as the present one. The caution with which results should therefore be interpreted must also be taken into account.

²³ As pointed out previously, managers may be counted more than once if they run several incubation programmes.

Table 4.42. Incubator managers' entrepreneurial and scientific experience (Study III.1)

		Years of scientific experience					Total
		No experience	Up to 3 years	4 to 5 years	6 to 10 years	Over 10 years	
Years of entrepreneurial experience	No experience	19	4	5	6	5	39
	Up to 3 years	4	4	0	3	0	11
	4 to 5 years	4	3	0	1	5	13
	6 to 10 years	4	2	0	2	4	12
	More than 10 years	2	1	2	8	5	18
Total		33	14	7	20	19	93



Following this distribution, managers were classified into four categories: (1) Managers without experience (19 cases): those who do not have experience in any field do not belong to any logic; (2) managers with dominant commercial logic (17 cases): those without scientific experience and with entrepreneurial experience, and those with little scientific experience (up to three years) and significant entrepreneurial experience (more than six years); (3) managers with dominant academic logic (23 cases): those without entrepreneurial experience and with some scientific experience, and those with scant entrepreneurial experience (less than three years) and significant scientific experience (more than six years); (4) managers with hybrid logic (27 cases): those with more than four years' experience in both fields, the scientific and the entrepreneurial world. In order to make the differences between the dominant logic clearer, seven cases were excluded from this classification, namely those who have little experience in both fields.

Once managers had been classified, an ANOVA was performed to evaluate the influence of manager profile on the services offered by the incubator: *personal assistance*, *business assistance* and *networking*. ANOVA results are shown in Table 4.43, and Table 4.44 shows the results of Tukey's test to compare the four groups.

Table 4.43. ANOVA results (Study III.1)

Dependent variables	Previous experience of the manager	N	Mean	S.D.	F	Sig.
Personal assistance	No experience	19	3.05	1.682	8.437	0.000
	Entrepreneurial experience	17	4.12	1.495		
	Scientific experience	23	4.26	1.738		
	Experience in both fields	27	5.22	0.847		
Business assistance	No experience	19	4.20	0.925	9.037	0.000
	Entrepreneurial experience	17	5.04	0.801		
	Scientific experience	23	4.69	0.856		
	Experience in both fields	27	5.39	0.616		
Networking	No experience	19	4.95	1.066	3.712	0.015
	Entrepreneurial experience	17	5.26	0.903		
	Scientific experience	23	4.28	1.615		
	Experience in both fields	27	5.26	0.777		

Table 4.44. Results of Tukey's test (Study III.1)

Dependent variable	Compared categories	Sig.
Personal assistance	No experience – Entrepreneurial experience	0.131
	No experience – Scientific experience	0.042
	No experience – Experience in both fields	0.000
	Entrepreneurial experience – Scientific experience	0.990
	Entrepreneurial experience – Experience in both fields	0.073
	Scientific experience – Experience in both fields	0.097
Business assistance	No experience – Entrepreneurial experience	0.011
	No experience – Scientific experience	0.206
	No experience – Experience in both fields	0.000
	Entrepreneurial experience – Scientific experience	0.507
	Entrepreneurial experience – Experience in both fields	0.490
	Scientific experience – Experience in both fields	0.013
Networking	No experience – Entrepreneurial experience	0.838
	No experience – Scientific experience	0.244
	No experience – Experience in both fields	0.798
	Entrepreneurial experience – Scientific experience	0.042
	Entrepreneurial experience – Experience in both fields	1.000
	Scientific experience – Experience in both fields	0.017

4.5.1.4. Hypotheses testing

Firstly, examining the influence which control variables - *country*, *years in the incubator* and *years as manager in the incubator* – might have on the remaining variables proves important at this point.

The *country* in which the incubator is located has a direct and significant impact on the professional profile of the manager who is running it. Specifically, and as was seen in the descriptive statistics, managers located in the Netherlands have greater *business* and *scientific experience*. This might be due to the high mobility in the labour market, from one field to another, in the Netherlands, coupled with the country's low unemployment rates, which are in stark contrast to those of Spain.

Years in the incubator impacts on the services provided. The longer a UBI has been in operation, the fewer the services provided in terms of advising, both at a business and personal level. This might be due to the actual evolution of the incubator itself. The services, and how useful these prove for incubatees, may change over the various generations as do the actual incubators themselves.

The *years the manager* has been in charge of the UBI is seen to have no significant effect on any of the variables considered.

As for the proposed hypotheses, the analysis indicates, first, that the manager's business experience has a positive influence on the three services offered, personal assistance, business assistance, and networking. Thus, hypotheses H13a, H13b and H13c are accepted. In contrast, the manager's scientific experience has only a positive and a significant influence on personal assistance in UBIs (H14a is accepted), but hypotheses H14b and H14c are rejected. In other words, there is no significant relationship between the manager's scientific experience and the offer of business assistance and networking in the incubator.

Second, there are significant differences vis-à-vis fostering personal assistance depending on manager experience. Personal assistance is greater when managers have scientific, entrepreneurial, or global experience than when they have no experience. Since no differences were found between scientific and entrepreneurial experience, hypothesis H15a cannot be accepted.

Third, there are also significant differences concerning the fostering of business assistance. In this case, the business assistance given to incubatees is greater when managers have experience in both fields than when they have no experience or only scientific experience. In addition, more business assistance is provided when managers have entrepreneurial experience than when they lack experience. Since business

experience has a greater influence on business assistance than just scientific experience, hypothesis H15b is accepted.

Finally, the manager's entrepreneurial experience exerts a greater influence on networking than scientific experience does. Further, global experience, both scientific and in business, has a greater influence on networking than scientific experience, so, H15c is accepted.

Table 4.45 shows the results.

Table 4.45. Results of hypothesis testing (Study III.1)

Proposed hypotheses	Conclusion
<i>H13a</i> Business experience → Personal assistance	Supported ✓
<i>H13b</i> Business experience → Business assistance	Supported ✓
<i>H13c</i> Business experience → Networking	Supported ✓
<i>H14a</i> Scientific experience → Personal assistance	Supported ✓
<i>H14b</i> Scientific experience → Business assistance	Not supported ✗
<i>H14c</i> Scientific experience → Networking	Not supported ✗
<i>H15a</i> (Business experience>Scientific experience) → Personal assistance	Supported ✓
<i>H15b</i> (Business experience>Scientific experience) → Business assistance	Supported ✓
<i>H15c</i> (Business experience>Scientific experience) → Networking	Supported ✓

([^]) p < 0.10; (**) p < 0.01; (***) p < 0.001

4.5.2. Study III.2. The role of the incubator manager in building incubatees' social capital

The last study of this doctoral dissertation, **Study III.2**, aims to provide insights into the influence of incubators' internal social capital in developing incubatees' individual social capital and the efficiency of their businesses, as well as the role of the incubator manager in building incubator and incubatee social capital (**Model 3**, and hypotheses **H16 to H26**).

In order to achieve the above mentioned objective, we develop the same research process followed in studies II and III.1.

4.5.2.1. Descriptive statistics of the measurement variables

Data for this study were collected through questionnaires sent to incubatees.

Incubatees' bonding social capital was measured as the number of incubatees with whom the incubatee maintains frequent and close contacts. The mean of *incubatees' bonding social capital* is 5.99, very similar to its standard deviation, 5.905.

The remaining items were measured with five-point Likert scales, with the mean values being between 2.78 (*there is a tradition of creating spin-offs*) and 3.93 (*use an*

understandable communication pattern). Regarding the standard deviation of scores ranges between 0.754 (*behave in a consistent and honest manner*) and 0.254 (*there is a tradition of creating spin-offs*).

Table 4.46 shows descriptive statistics of the variables.

Table 4.46. Descriptive statistics of the variables (Study III.2)

	Mean	S.D.	Min.	Max.
<i>Bridging social capital. Since I joined incubation, I have managed...</i>				
To develop social skills for the business world	3.69	1.007	1	5
To increase my network of business contacts	3.81	1.046	1	5
<i>Bonding social capital</i>				
Number of incubatees with whom you are in frequent contact	5.99	5.905	1	5
<i>Relational social capital (trust). The entrepreneurs who are in incubation, in the same incubator as me ...</i>				
Would not take advantage of others even if the opportunity arose	3.26	0.913	1	5
Always keep their promises	3.41	0.764	2	5
Behave in a consistent and honest manner	3.65	0.754	2	5
Are truthful when dealing with one another	3.74	0.820	2	5
<i>Relational social capital (identity)</i>				
There is a sense of group belonging within us, the incubatees	3.36	1.016	1	5
I have the feeling of group togetherness or closeness	3.27	1.038	1	5
<i>Relational social capital (reciprocity)</i>				
When I ask for help, I feel that other incubatees will provide it	3.43	0.973	1	5
Even if an incubatee I have helped cannot help me in the future, others will be able to	3.34	0.930	1	5
<i>Cognitive social capital. The entrepreneurs who are in incubation, in the same incubator as me ...</i>				
Use a similar language and jargon to me	3.72	0.896	1	5
Use an understandable communication pattern	3.93	0.840	2	5
Share similar interests to mine	3.71	0.876	1	5
Are people whose interests I can identify with	3.65	0.984	1	5
<i>Manager's relational orientation. The incubator manager...</i>				
I think he/she encourages contacts between entrepreneurs	3.81	1.093	1	5
Tries to establish links between entrepreneurs who are able to collaborate	3.63	1.155	1	5
Facilitates networking between all entrepreneurs	3.77	1.085	1	5
Facilitates contacts outside the incubator	3.60	1.192	1	5
<i>Business efficiency. Since I joined incubation, I have managed ...</i>				
To be more efficient in the planning and strategy for my business	3.56	0.984	1	5
To be more efficient in managing my business	3.53	0.965	1	5
To be more efficient in implementing specific activities for my business	3.60	0.970	1	5
<i>Proactivity of the university.</i>				
There is a tradition of creating spin-offs	2.78	1.254	1	5
There is specific regulation for creating spin-offs at my university/research centre	2.95	1.186	1	5
There is a positive attitude within my university/research centre towards entrepreneurship	3.78	1.035	1	5

Once again, in order to test the homogeneity of the incubatee samples (Spanish and Dutch) included in the present research, a comparison of averages was conducted through a *t* test for independent samples. After carrying out the analysis, differences were found in 8 of the 30 indicators. Dutch incubatees gave higher scores than their Spanish counterparts to all the items in which differences were apparent. Specifically,

these were items related to *relational social capital* in its dimensions of *trust* and *identity*, *cognitive social capital*, *coach*, and *proactivity of the university* (Table 4.47).

Table 4.47. Means test (Study III.2)

	Country	N	Mean	S.D.	t
<i>Bridging social capital</i>					
To develop social skills for the business world	Spain	66	3.76	1.053	0.883
	The Netherlands	35	3.57	0.917	
To increase my network of business contacts	Spain	66	3.71	1.106	-1.321
	The Netherlands	35	4.00	0.907	
<i>Bonding social capital</i>					
Number of incubatees with whom you are in frequent contact	Spain	66	5.74	6.712	-0.577
	The Netherlands	35	6.46	4.010	
<i>Relational social capital (trust)</i>					
Would not take advantage of others even if the opportunity arose	Spain	66	3.14	0.959	-1.853 ⁺
	The Netherlands	35	3.49	0.781	
Always keep their promises	Spain	66	3.42	0.842	0.365
	The Netherlands	35	3.37	0.598	
Behave in a consistent and honest manner	Spain	66	3.65	0.832	-0.039
	The Netherlands	35	3.66	0.591	
Are truthful when dealing with one another	Spain	66	3.73	0.904	-0.283
	The Netherlands	35	3.77	0.646	
<i>Relational social capital (identity)</i>					
There is a sense of group belonging within us, the incubatees	Spain	66	3.20	1.099	-2.460*
	The Netherlands	35	3.66	0.765	
I have the feeling of group togetherness or closeness	Spain	66	3.14	1.108	-1.759 ⁺
	The Netherlands	35	3.51	0.853	
<i>Relational social capital (reciprocity)</i>					
When I ask for help, I feel that other incubatees will provide it	Spain	66	3.41	1.007	-0.235
	The Netherlands	35	3.46	0.919	
Even if an incubatee I have helped cannot help me in the future, others will be able to	Spain	66	3.38	1.034	0.740
	The Netherlands	32	3.25	0.672	
<i>Cognitive social capital</i>					
Use a similar language and jargon to me	Spain	66	3.61	0.926	-1.819 ⁺
	The Netherlands	35	3.94	0.802	
Use an understandable communication pattern	Spain	66	3.82	0.875	-1.872 ⁺
	The Netherlands	35	4.14	0.733	
Share similar interests to mine	Spain	66	3.65	0.984	-1.107
	The Netherlands	35	3.83	0.618	
Are people whose interests I can identify with	Spain	66	3.68	1.010	0.396
	The Netherlands	35	3.60	0.946	
<i>Manager's relational orientation</i>					
I think he/she encourages contacts between entrepreneurs	Spain	66	3.77	1.107	0.006
	The Netherlands	35	3.77	1.060	
Tries to establish links between entrepreneurs who are able to collaborate	Spain	66	3.55	1.243	-1.139
	The Netherlands	35	3.80	0.964	
Facilitates networking between all entrepreneurs	Spain	66	3.71	1.134	-1.313
	The Netherlands	35	4.00	1.000	
Facilitates contacts outside the incubator	Spain	66	3.50	1.280	-1.302
	The Netherlands	35	3.80	0.994	
<i>Business efficiency</i>					
To be more efficient in the planning and strategy for my business	Spain	66	3.58	1.009	0.159
	The Netherlands	35	3.54	0.950	
To be more efficient in managing my business	Spain	66	3.53	0.964	-0.062
	The Netherlands	35	3.54	0.980	
To be more efficient in implementing specific activities	Spain	66	3.61	0.959	0.030

for my business	The Netherlands	35	3.60	1.006	
Partners					
Business partners	Spain	66	0.76	0.432	1.310
	The Netherlands	35	0.63	0.490	
Time in incubation					
Months in incubation	Spain	66	18.30	18.794	1.454
	The Netherlands	35	13.14	12.786	
Entrepreneurial experience					
Prior entrepreneurial experience	Spain	66	0.20	0.401	-1.007
	The Netherlands	35	0.29	0.458	
Scientific experience					
Scientific experience at a university/research centre	Spain	66	0.24	0.432	0.817
	The Netherlands	35	0.17	0.490	
Coach					
Coach assigned in incubation	Spain	66	0.36	0.485	-2.025*
	The Netherlands	35	0.57	0.502	
Proactivity of the university					
There is a tradition of creating spin-offs	Spain	66	2.58	1.278	-2.321*
	The Netherlands	35	3.17	1.124	
There is specific regulation for creating spin-offs at my university/research centre	Spain	66	2.98	1.295	0.435
	The Netherlands	35	2.89	0.963	
There is a positive attitude within my university/research centre towards entrepreneurship	Spain	66	3.62	1.134	-2.475*
	The Netherlands	35	4.09	0.742	

(†) $p < 0.10$; (*) $p < 0.05$

4.5.2.2. Validation of scales

The model was estimated using the SmartPLS 3.0 program (Ringle *et al.*, 2005). To calculate the significance of the parameters, we used bootstrap re-sampling by substitution with replacement (1000 subsamples), as done in the previous two studies.

As for the reliability and convergent validity of the reflective scales, average variance extracted (AVE) and composite reliability values are acceptable (exceed 0.70), and the loadings are significant and above 0.8, except for the control variable *proactivity of the university*, where reliability values and loadings are lower. For the only formative scale (*bridging social capital*), we calculated the variance inflation factor (VIF) so as to discard multicollinearity. The factor weight of one item is not significant, although the absolute contribution is (the outer loading is above 0.5). We therefore maintained it as a component of *bridging social capital*.

All the information is contained in Table 4.48.

Table 4.48. Reliability, weights and loadings of the measurement scales (Study III.2)

	Weights	Loadings	VIF
<i>Bridging social capital</i>			
To develop social skills for the business world	0.722**	0.974***	2.223
To increase my network of business contacts	0.339	0.875***	2.223
<i>Bonding social capital</i>			
Number of incubatees with whom you are in frequent contact	1.000		1.000
<i>Relational social capital (trust)</i> ($\alpha=.907$; $CR=.935$; $AVE=.783$)			
Would not take advantage of others even if the opportunity arose		0.835***	
Always keep their promises		0.894***	
Behave in a consistent and honest manner		0.905***	
Are truthful when dealing with one another		0.904***	
<i>Relational social capital (identity)</i> ($\alpha=.917$; $CR=.960$; $AVE=.924$)			
There is a sense of group belonging within us, the incubatees		0.958***	
I have the feeling of group togetherness or closeness		0.964***	
<i>Relational social capital (reciprocity)</i> ($\alpha=.909$; $CR=.961$; $AVE=.925$)			
When I ask for help, I feel that other incubatees will provide it		0.955***	
Even if an incubatee I have helped cannot help me in the future, others will be able to		0.968***	
<i>Cognitive social capital</i> ($\alpha=.887$; $CR=.922$; $AVE=.747$)			
Use a similar language and jargon to me		0.876***	
Use an understandable communication pattern		0.860***	
Share similar interests to mine		0.876***	
Are people whose interests I can identify with		0.845***	
<i>Manager's relational orientation</i> ($\alpha=.953$; $CR=.966$; $AVE=.876$)			
I think he/she encourages contacts between entrepreneurs		0.937***	
Tries to establish links between entrepreneurs who are able to collaborate		0.943***	
Facilitates networking between all entrepreneurs		0.948***	
Facilitates contacts outside the incubator		0.915***	
<i>Business efficiency</i> ($\alpha=.934$; $CR=.958$; $AVE=.884$)			
To be more efficient in the planning and strategy for my business		0.940***	
To be more efficient in managing my business		0.956***	
To be more efficient in implementing specific activities for my business		0.924***	
<i>Proactivity of the university</i> ($\alpha=.580$; $CR=.782$; $AVE=.550$)			
There is a tradition of creating spin-offs		0.867***	
There is specific regulation for creating spin-offs at my university/research centre		0.734***	
There is a positive attitude within my university/research centre towards entrepreneurship		0.599**	

(**) p < 0.01; (***) p < 0.001

Following the Fornell-Larcker criterion, discriminant validity was assessed by the square root of the AVE being greater than the correlation with the other constructs. In the correlation matrix of latent constructs (Table 4.49) we observe that this condition is met in all cases. In addition, another indicator of discriminant validity, according to Hair *et al.* (1999), is that the correlation between constructs is not excessively high, and is below the critical value 0.9. Moreover, Table 4.49 shows all the values are below 0.6. Finally, we calculated the heterotrait-monotrait (HTMT) ratio of correlations for each

pair of constructs (Henseler *et al.*, 2015). These values are shown above the main diagonal of the correlation matrix. The highest value is 0.715, below the critical value of 0.85.

In order to examine if common method variance (CMV) is a problem, first, we performed a Harman's one-factor test (Podsakoff *et al.*, 2003). Exploratory factor analysis with all the indicators gave five factors with an eigenvalue of over 1 (total variance explained=79.7%), with a first factor explaining only 18.4% of variance. Since there is no single factor accounting for the majority of the covariance among the measures, the possible impact of common method bias is not critical in this research.

Table 4.49. Correlation matrix (Study III.2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Bridging social capital	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(2) Bonding social capital	0.189	n.a.	0.172	0.406	0.264	0.335	0.193	0.185	0.160	0.026	0.004	0.050	0.009	0.118	0.262
(3) Relational social capital (trust)	0.333	0.163	0.885	0.444	0.661	0.569	0.451	0.330	0.073	0.098	0.059	0.094	0.102	0.115	0.487
(4) Relational social capital (identity)	0.554	0.387	0.409	0.961	0.571	0.654	0.490	0.360	0.212	0.034	0.083	0.033	0.169	0.080	0.631
(5) Relational social capital (reciprocity)	0.319	0.249	0.599	0.522	0.962	0.457	0.397	0.276	0.048	0.217	0.017	0.113	0.010	0.060	0.435
(6) Cognitive social capital	0.560	0.314	0.514	0.591	0.412	0.864	0.392	0.254	0.154	0.051	0.119	0.069	0.055	0.088	0.715
(7) Manager's relational orientation	0.475	0.189	0.422	0.458	0.370	0.361	0.936	0.439	0.096	0.112	0.327	0.019	0.050	0.277	0.667
(8) Business efficiency	0.526	0.178	0.306	0.336	0.255	0.233	0.416	0.940	0.009	0.113	0.047	0.097	0.037	0.159	0.397
(9) Country	-0.019	0.160	0.052	0.202	-0.020	0.119	0.093	-0.005	n.a.	0.136	0.145	0.101	0.082	0.199	0.286
(10) Partners	0.053	-0.026	-0.093	-0.032	-0.206	-0.047	-0.109	-0.106	-0.136	n.a.	0.160	0.073	0.123	0.028	0.154
(11) Time in incubation	-0.097	0.004	-0.056	-0.079	-0.010	-0.111	-0.321	-0.046	-0.145	0.160	n.a.	0.174	0.406	0.249	0.326
(12) Entrepreneurial experience	-0.049	0.050	0.089	0.032	0.107	-0.050	-0.011	0.094	0.101	-0.073	-0.174	n.a.	0.115	0.001	0.037
(13) Scientific experience	0.058	-0.009	0.098	0.162	0.007	0.051	0.034	-0.003	-0.082	0.123	0.406	-0.115	n.a.	0.125	0.082
(14) Coach	0.157	0.118	-0.110	0.078	-0.058	0.061	0.269	0.154	0.199	0.028	-0.249	-0.001	-0.125	n.a.	0.388
(15) Proactivity of the university	0.408	0.187	0.341	0.454	0.309	0.508	0.491	0.299	0.185	0.115	-0.147	-0.024	0.014	0.306	0.742

The main diagonal shows the square root of the AVE. Under the main diagonal are the Pearson correlations and above the main diagonal the heterotrait-monotrait (HTMT) ratio of correlations.
n.a. Not applicable.

4.5.2.3. Model estimation

The results of the structural **Model 3** estimation are shown in Table 4.50. In order to facilitate interpretation, significant relationships of proposed hypotheses are displayed in Figure 4.5.

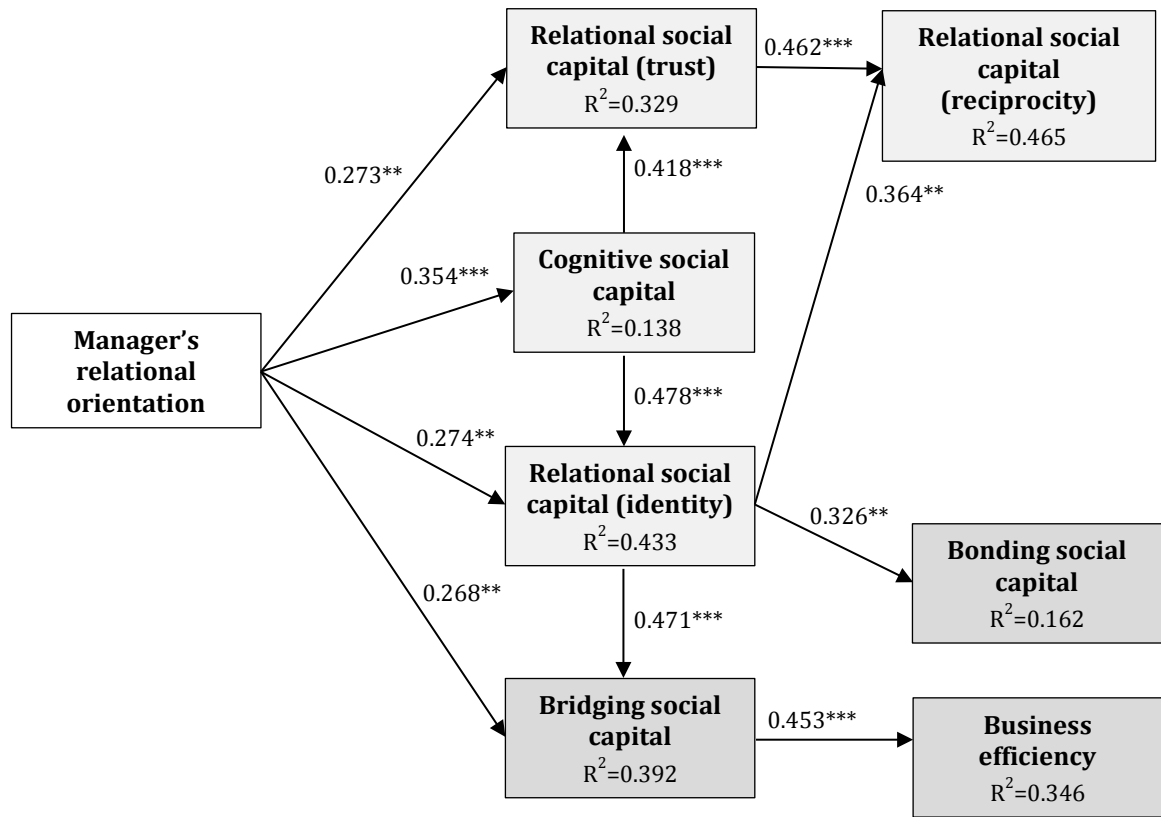
Table 4.50. Model 3 estimation (Study III.2)

Proposed hypotheses	Estimate
<i>H16</i> Bonding social capital → Bridging social capital	-0.016
<i>H17a</i> Bonding social capital → Business efficiency	0.053
<i>H17b</i> Bridging social capital → Business efficiency	0.453***
<i>H18a</i> Relational social capital (trust) → Relational social capital (reciprocity)	0.462***
<i>H18b</i> Relational social capital (identity) → Relational social capital (reciprocity)	0.364**
<i>H19a</i> Relational social capital (trust) → Bonding social capital	-0.041
<i>H19b</i> Relational social capital (identity) → Bonding social capital	0.326**
<i>H19c</i> Relational social capital (reciprocity) → Bonding social capital	0.102
<i>H20a</i> Relational social capital (trust) → Bridging social capital	0.081
<i>H20b</i> Relational social capital (identity) → Bridging social capital	0.471***
<i>H20c</i> Relational social capital (reciprocity) → Bridging social capital	-0.073
<i>H21a</i> Relational social capital (trust) → Business efficiency	0.152
<i>H21b</i> Relational social capital (identity) → Business efficiency	0.012
<i>H21c</i> Relational social capital (reciprocity) → Business efficiency	-0.064
<i>H22a</i> Cognitive social capital → Relational social capital (trust)	0.418***
<i>H22b</i> Cognitive social capital → Relational social capital (identity)	0.478***
<i>H22c</i> Cognitive social capital → Relational social capital (reciprocity)	-0.040
<i>H23</i> Manager's relational orientation → Cognitive social capital	0.354***
<i>H24a</i> Manager's relational orientation → Relational social capital (trust)	0.273**
<i>H24b</i> Manager's relational orientation → Relational social capital (identity)	0.274**
<i>H24c</i> Manager's relational orientation → Relational social capital (reciprocity)	0.034
<i>H25</i> Manager's relational orientation → Bonding social capital	0.009
<i>H26</i> Manager's relational orientation → Bridging social capital	0.268**
Control effects	
Country ^a → Bridging social capital	-0.142
Country → Bonding social capital	0.097
Country → Relational social capital (trust)	-0.024
Country → Relational social capital (identity)	0.120
Country → Relational social capital (reciprocity)	-0.116
Country → Cognitive social capital	0.086
Country → Relational orientation	0.093
Country → Business efficiency	-0.075
Partners → Business efficiency	-0.151
Time in incubation → Business efficiency	0.098
Entrepreneurial experience → Business efficiency	0.117
Scientific experience → Business efficiency	-0.048
Coach → Business efficiency	0.100
Proactivity of the university → Business efficiency	0.086

(^a) 0=Spain; 1=The Netherlands

(**) p < 0.01; (***) p < 0.001

Figure 4.5. Structural Model 3 estimation. Significant relationships (Study III.2)



(**) $p < 0.01$; (***) $p < 0.001$

- Incubator manager
- Incubator's social capital
- Incubatee's social capital

Additionally, we conducted a path analysis using the AMOS v20.0 statistical program to check the robustness of our results and to offer a global goodness-of-fit measure. We previously reduced each variable to a measurement index, specifically the latent variable scores provided by PLS in order to use similar measures. The goodness of fit for the estimated model is adequate: $\chi^2(4)=9.087$ ($p=0.059$); $RMR=0.033$; $RMSEA=0.113$; $GFI=0.978$; $CFI=0.980$; $NFI=0.968$. We observe that the AMOS estimation basically concurs with the PLS estimation.

Table 4.51. Results of estimated model using AMOS (Study III.2)

	Standardized Estimate	S.E.
Bonding social capital → Bridging social capital	-0.068	0.081
Bonding social capital → Business efficiency	0.069	0.091
Bridging social capital → Business efficiency	0.472***	0.102
Relational social capital (trust) → Relational social capital (reciprocity)	0.470***	0.090
Relational social capital (identity) → Relational social capital (reciprocity)	0.343***	0.097
Relational social capital (trust) → Bonding social capital	-0.036	0.118
Relational social capital (identity) → Bonding social capital	0.354**	0.113
Relational social capital (reciprocity) → Bonding social capital	0.081	0.124
Relational social capital (trust) → Bridging social capital	-0.049	0.103
Relational social capital (identity) → Bridging social capital	0.284**	0.108
Relational social capital (reciprocity) → Bridging social capital	-0.025	0.101
Relational social capital (trust) → Business efficiency	0.136	0.105
Relational social capital (identity) → Business efficiency	-0.013	0.117
Relational social capital (reciprocity) → Business efficiency	0.013	0.113
Cognitive social capital → Relational social capital (trust)	0.416***	0.088
Cognitive social capital → Relational social capital (identity)	0.490***	0.082
Cognitive social capital → Relational social capital (reciprocity)	-0.041	0.100
Manager's relational orientation → Cognitive social capital	0.361***	0.093
Manager's relational orientation → Relational social capital (trust)	0.271**	0.088
Manager's relational orientation → Relational social capital (identity)	0.281***	0.082
Manager's relational orientation → Relational social capital (reciprocity)	0.032	0.087
Manager's relational orientation → Bonding social capital	0.011	0.109
Manager's relational orientation → Bridging social capital	0.386***	0.101

(**) p < 0.01; (***) p < 0.001

4.5.2.4. Hypotheses testing

Analysis of direct effects

Results in Table 4.52 show there is no empirical support for hypothesis H16, which proposed the potential influence of the number of an entrepreneur's incubator contacts (*bonding social capital*) on an increased number of incubatees' business networks and their relational skills in the business world (*bridging social capital*). Nor is there any evidence to support the idea that contacts inside the incubator help improve *business efficiency* (H17a is rejected), although *bridging social capital* does have a positive impact on *business efficiency*, thereby allowing us to accept hypothesis H17b.

Hypothesis H18 is also accepted. *Trust* among incubatees positively affects the development of *identity* (H18a) and *reciprocity* (H18b) among incubatees. Moreover, as conjectured in hypothesis H19b, the feeling of *identity* among incubator members fosters the number of close contacts which incubatees can establish (*bonding social capital*). On the other hand, we find no empirical support for H19a and H19c. That is, there is no direct influence of *trust* and *reciprocity* on *bonding social capital*.

Similarly, we find support for H20b. A sense of *identity* among incubator members positively affects incubatee development of contacts outside the incubator (*bridging social capital*), although we reject the effect of *trust* (H20a) and reciprocity (H20c) on *bridging social capital*. Nor do the results support the influence of *relational social capital* on incubatee *business efficiency* (H21).

As regards *cognitive social capital*, results confirm its positive effect on *trust* and *identity* among members (H22a and H22b are accepted), although the effect on *reciprocity* is rejected (H22c).

Finally, the *manager's relational orientation* has a positive influence on *cognitive social capital* (H23), as well as on *trust* (H24a) and *identity* (H24b), although the influence on *reciprocity* (H24c) is not significant. Likewise, the *manager's relational orientation* has a positive influence on the incubatees' creation of *bridging social capital* (H25), although the effect on *bonding social capital* (H26) is not supported.

As for the control variables, we discard both the influence of the *country* on all the proposed variables, and the influence of the other control variables (*time in the incubator, previous experience, partners, proactivity of the university*) on business efficiency.

Table 4.52. Results of hypothesis testing (Study III.2)

Proposed hypotheses	Conclusion
<i>H16</i> Bonding social capital → Bridging social capital	Not supported ✘
<i>H17a</i> Bonding social capital → Business efficiency	Not supported ✘
<i>H17b</i> Bridging social capital → Business efficiency	Supported ✓
<i>H18a</i> Relational social capital (trust) → Relational social capital (reciprocity)	Supported ✓
<i>H18b</i> Relational social capital (identity) → Relational social capital (reciprocity)	Supported ✓
<i>H19a</i> Relational social capital (trust) → Bonding social capital	Not supported ✘
<i>H19b</i> Relational social capital (identity) → Bonding social capital	Supported ✓
<i>H19c</i> Relational social capital (reciprocity) → Bonding social capital	Not supported ✘
<i>H20a</i> Relational social capital (trust) → Bridging social capital	Not supported ✘
<i>H20b</i> Relational social capital (identity) → Bridging social capital	Supported ✓
<i>H20c</i> Relational social capital (reciprocity) → Bridging social capital	Not supported ✘
<i>H21a</i> Relational social capital (trust) → Business efficiency	Not supported ✘
<i>H21b</i> Relational social capital (identity) → Business efficiency	Not supported ✘
<i>H21c</i> Relational social capital (reciprocity) → Business efficiency	Not supported ✘
<i>H22a</i> Cognitive social capital → Relational social capital (trust)	Supported ✓
<i>H22b</i> Cognitive social capital → Relational social capital (identity)	Supported ✓
<i>H22c</i> Cognitive social capital → Relational social capital (reciprocity)	Not supported ✘
<i>H23</i> Manager's relational orientation → Cognitive social capital	Supported ✓
<i>H24a</i> Manager's relational orientation → Relational social capital (trust)	Supported ✓
<i>H24b</i> Manager's relational orientation → Relational social capital (identity)	Supported ✓
<i>H24c</i> Manager's relational orientation → Relational social capital (reciprocity)	Not supported ✘
<i>H25</i> Manager's relational orientation → Bonding social capital	Not supported ✘
<i>H26</i> Manager's relational orientation → Bridging social capital	Supported ✓

Analysis of indirect and total effects

In order to offer further information concerning the determinants of social capital in the incubator, we calculated the indirect and total effects (Table 4.53).

Table 4.53. Indirect and total effects (Study III.2)

	Indirect effect	Total effect
Determinants of relational social capital		
Manager's relational orientation → Relational social capital (trust)	0.148***	0.421***
Manager's relational orientation → Relational social capital (identity)	0.169***	0.443***
Manager's relational orientation → Relational social capital (reciprocity)	0.342***	0.376***
Cognitive social capital → Relational social capital (trust)	-	0.418***
Cognitive social capital → Relational social capital (identity)	-	0.478***
Cognitive social capital → Relational social capital (reciprocity)	0.367***	0.328**
Determinants of bonding social capital		
Manager's relational orientation → Bonding social capital	0.166*	0.175
Cognitive social capital → Bonding social capital	0.172*	0.172*
Relational social capital (trust) → Bonding social capital	0.047	0.006
Relational social capital (identity) → Bonding social capital	0.037	0.363***
Relational social capital (reciprocity) → Bonding social capital	-	0.102
Determinants of bridging social capital		
Manager's relational orientation → Bridging social capital	0.213**	0.481***
Cognitive social capital → Bridging social capital	0.232**	0.232**
Relational social capital (trust) → Bridging social capital	-0.034	0.047
Relational social capital (identity) → Bridging social capital	-0.033	0.439***
Relational social capital (reciprocity) → Bridging social capital	-0.002	-0.075
Bonding social capital → Bridging social capital	-	-0.016
Determinants of business efficiency		
Manager's relational orientation → Business efficiency	0.272***	0.272***
Cognitive social capital → Business efficiency	0.162**	0.162**
Relational social capital (trust) → Business efficiency	-0.008	0.144
Relational social capital (identity) → Business efficiency	0.195*	0.207
Relational social capital (reciprocity) → Business efficiency	-0.029	-0.093
Bonding social capital → Business efficiency	-0.007	0.046
Bridging social capital → Business efficiency	-	0.453***

(*) p < 0.05; (**) p < 0.01; (***) p < 0.001

In addition to the direct effects, *managers' relational orientation* indirectly influences *relational social capital* through *cognitive social capital*, as a mediating variable. Managers' relational orientation also influences incubatees' *bonding* and *bridging social capital* through *cognitive* and *relational social capital*. Finally, managers' relational orientation has a positive effect on *business efficiency* through the incubator's cognitive and relational social capital.

As a final conclusion of the indirect effects, we can state that the incubator's social capital mediates the effect of the manager's relational orientation on the building of incubatees' bonding and bridging social capital and on business efficiency.

Regarding the total effects, the results indicate that relational social capital in incubators derives from the manager's effort to foster relationships and networking between incubatees and from the existence of cognitive social capital, that is, common interests and communication codes among incubatees.

Incubatees' bonding social capital, i.e., their number of contacts in the incubator, depends on the existence of a feeling of identity and cohesion between incubatees, and, also, on the existence of cognitive social capital. Incubatees' bridging social capital, i.e., the external relationships they develop while in the incubator, also depends on the manager's relational orientation, the feeling of identity between incubatees, and cognitive social capital. Finally, the entrepreneur's business efficiency improves when bridging social capital increases, and, indirectly, through the manager's relational orientation and the incubator's cognitive social capital.

Capítulo 5. Conclusions, limitations and further research

5.1. Discussion

The fifth and final chapter of this doctoral dissertation details the main conclusions to emerge from the three studies conducted, outlining the managerial implications for the incubation process and specifying certain limitations and future research lines.

In this section, we explain the conclusions to be drawn from the research. Firstly, the findings from the qualitative study and Model 1, which relate to dyadic relationships between incubatees, are presented. Secondly, the subsequent conclusions of Model 2 and Model 3, which deal with the manager's role in generating relationships and social capital within UBIs, are set out.

5.1.1. Dyadic relationships between incubatees

Business incubators are areas created to support firms taking their first steps, and are designed to promote entrepreneurial initiatives. Research into incubators has focused mainly on exploring their success factors (Rubens *et al.*, 2011), their development (McAdam and McAdam, 2008; Bruneel *et al.*, 2012; Schwartz, 2012) or different kinds of incubator (Cooper, 1985; Schwartz and Hornych, 2012). However, few studies have concerned themselves with describing or assessing the relationships established between entrepreneurs working in such incubators (McAdam and Marlow, 2008; Ahmad and Ingle, 2011), despite the enormous interest in relationships among entrepreneurs expressed in relationship marketing literature and in network marketing literature, and the particular features that characterize relationships in business incubators.

In order to address this gap, this thesis contributes to the business-to-business marketing literature examining dyadic relationships in a business incubator, considered to be one particular instance of initiating and managing business relationships. Indeed, these particular relationships evidence clear idiosyncrasies vis-à-vis other business relationship contexts such as the proximity and expectation of frequent entrepreneur interaction, entrepreneurs' inexperience in the business world, and the lack of experience in building business relations. Specifically, the **qualitative study** and **Model 1** seek to identify the key differentiating variables involved in dyadic relationships between entrepreneurs housed in the same incubator, as well as the characteristics and specific outcomes to emerge from this type of relation. To achieve this, we draw on the theoretical foundations of the relationship marketing approach, transaction cost theory,

resource-based view, and knowledge-based view. We then explain the main conclusions obtained.

From common location to frequency of contact and linking-persons

One prominent initial aspect to emerge from the qualitative study is frequency of contact as a basis for getting to know others, as well as establishing and maintaining relations. A business incubator provides a setting which encourages and fosters frequent contacts amongst entrepreneurs located in the same place. Proximity should be seen as a connecting yet not relational variable, and is one which allows for contacts between incubator tenants. Although proximity is a key factor in fostering contacts, it might not prove to be sufficient. Third person intervention becomes an important driver in initiating transactions and in potential relationships.

From affinity to trust, friendship and solidarity

Since we are dealing with small businesses in which the firm is identified with the entrepreneur, the personal side of the relationship is of particular interest. It is in such contexts that contracts of a psychological nature emerge, perceived as the belief that there is a mutual obligation between the two parts (Rousseau and Tijoriwala, 1998). As evidenced in the qualitative study of relationships between incubator tenants, aspects such as friendship, solidarity, personal attention, or a client-based approach prove essential towards initiating and consolidating relations.

Moreover, the findings of the quantitative study support the notion that trust and commitment, the key elements in relationships between entrepreneurs, increase as a result of affinity between firms.

Shared values have been seen as a requirement for creating a relationship. The literature addressing the area of relationships between firms stresses that the latter engage therein when they identify other firms they are compatible with (Morgan and Hunt, 1999). As regards entrepreneurs located in incubators, they share a similar situation, although the question concerns what specific features shape these common values. Some authors highlight educational qualifications as one of the relevant factors considered by entrepreneurs (Lee and Tsang, 2001). Entrepreneurs located in academic incubators share the common values of the academic world. Such values include the same working philosophy, and a desire to promote and disseminate science through mutual

cooperation. As has emerged through our study, interaction, trust and commitment between firms are greater when companies resemble one another, such as when they share the same field of business or markets or have similar clients (McAdam and McAdam, 2006; Schwartz and Hornych, 2008). These values are innate to entrepreneurs and help to forge a link as well as sympathy between them. The dyadic relationships are thus based on mutual understanding, because both parties are scientists and “speak the same language”.

Another affinity variable to consider is empathy, namely the ability to identify with the needs of others and pinpoint problematic situations (Mayer and Greenberg, 1964). However, empathy can also have negative effects on important aspects of relationships such as trust. Taking the context of our specific research, we might imagine two entrepreneurs who have a relationship, born within the incubator. “Incubatee x” requires the professional services of “incubatee y”, for instance, for a staff selection process. “Incubatee y” performs the service professionally, and bills “incubatee x”. Nevertheless, “incubatee x”, motivated by the empathy between them, confuses a professional service with a personal favour, and does not pay. In this case, empathy is a factor that can lead to misunderstandings between the personal and professional fields. Further, it can have negative effects on the level of confidence between them.

From complementarity, supplementarity and transferability of resources to relationship building

Contrary to other business-to-business contexts in which specific investments become the main source of dependence and, consequently, the main reason for establishing long-term relationships, in the case of novice entrepreneurs, relationships are not designed as a means of protecting investments with other partners, but as a way to foster them. In fact, one initial variable which stands out as being key to relationships between entrepreneurs in the business incubator is the existence of complementary resources. Trust and exchange of knowledge may emerge between entrepreneurs who seek to obtain complementary benefits by integrating their functional specialization. Since entrepreneurs located in business incubators have hardly any previous experience and are eager to build a network of relationships, finding partners who can offer complementary resources allows them to acquire the skills and capabilities they lack to promote their business.

In the market, when two entrepreneurs perceive complementarity (similarity) between their resources they tend to see each other as competitors. However, our research shows that in the specific context of academic incubators, entrepreneurs with similar resources are not perceived as rivals. Hence, the perception of supplementary resources between tenants leads to trust, exchange of knowledge and, ultimately, to relationship building. The reason for this can be found in the academic entrepreneur that focuses more on science more than on economic profit, contrary to what might be expected from a market entrepreneur. Moreover, relationships between firms possessing supplementary resources allow the right size required to generate innovations to be achieved.

Academic incubatees' new ventures are knowledge-intensive and innovative. A priori, these characteristics make transferability of their knowledge difficult. Nevertheless, since they both master and know how to transfer it, academic tenants perceive their own knowledge to be easily transferable and assume that their peers' knowledge is too (maybe because they also belong to the scientific community). Thus, knowledge transferability between incubatees fosters communication and the exchange of knowledge of the dyadic relationship.

An individual's willingness to share knowledge has been considered as a determinant variable in the exchange of knowledge in different contexts. In the current research, we see that it is also true in the field of incubators. As regards incubatee profile, those with a promotion focus are more proactive towards exchanging knowledge as a means to obtain the resource on which to build their businesses. However, although the willingness to share knowledge is influenced by the incubatee's promotion focus, this particular incubatee attribute has no direct or indirect effect on the actual exchange of knowledge.

A dyadic relationship in a protected environment as the initial drive for business success

The dyadic relationships between academic entrepreneurs in UBIs are based on exchange of knowledge, commitment, and trust. According to the findings, commitment to the relationship between entrepreneurs, that is, the intention to extend the relationship to the long term, is determined by the existence of trust and knowledge exchange. In fact, affinity factors (empathy and shared values) and the type of resources

(complementary, supplementary and transferable) only have an indirect effect on commitment, through trust and exchange of knowledge.

As regards the dyad outcomes, we propose two expected results of relationships which promote the possibilities of success for the business in question: entrepreneurial commitment and the generation of innovation. Findings indicate that commitment in the relationship and exchange of knowledge reinforce both the entrepreneurs' commitment to their own businesses and the generation of innovation.

However, the relationship has no direct effect on business results. Trust, commitment and exchange of knowledge have an indirect positive effect on business results only through the generation of innovation. In addition, affinity, resources and the willingness that characterized the parties involved in the relationship indirectly drive the entrepreneurs towards positive outcomes (entrepreneurial commitment, generation of innovation, and business results) through the mediation of relationships characterized by trust, commitment and exchange of knowledge. In addition, estimation of the model using a path analysis has provided two additional significant effects, not included a priori in the proposed model: first, a direct effect of the complementary resources on business results, pointing to the tremendous relevance of complementary resources in building profitable relationships, and second, a direct effect of business results on entrepreneurial commitment, suggesting that entrepreneurs become more confident in their business capabilities and willing to continue with their business projects when they obtain positive results from the relationships developed in the incubator.

The dark side of relationships

Several authors have expressed scepticism vis-à-vis the benefits of long-term relationships and have warned of relationships becoming inefficient over time (Grayson and Ambler, 1999; Selnes and Sallis, 2003). Excessive care in maintaining a pleasant relationship can lead to counterproductive behaviour, such as systematically avoiding negative information so as not to disturb the "friendship" between the two firms, failing to monitor partners' activities, and a loss of creativity. Although we do not explore this issue in depth in the present thesis, in the qualitative study of relationships between incubator tenants we do also observe the dark side of relationships. Entrepreneurs may abuse the partner's willingness to collaborate and behave opportunistically. They may use the relationships as a learning experience in order to, eventually, become a

competitor. Finally, since they are inexperienced partners, they are forced to trust in each other's potential capabilities. Partners might therefore conceal their inability to fulfil the assigned tasks.

5.1.2. The manager's role in generating relationships and social capital within UBIs

The manager's role is a key driver in the incubation process (Fry, 1987; Autio and Klofsten, 1998; Sherman, 1999; Lalkaka, 2002; Rice, 2002; Hackett and Dilts, 2004a; Hannon, 2005). However, managers have been given little consideration in the literature, and only with regard to very specific aspects (Theodorakopoulos *et al.*, 2014). There are many unanswered questions regarding what role managers can play as a driving force in services offered by incubators as well as in building and fostering networks of relationships within incubators. The answers to these dilemmas are found through the conclusions of Models 2 and 3 proposed in this dissertation, and which are explained below.

On the one hand, the reality of incubators shows that, even if they aspire to similar objectives, they do not always operate in the same way. The potential benefits of UBIs are therefore not always achieved.

In the current research, we consider three types of services which basically describe how incubators function, as mentioned in chapter 3:

- (1) *Personal assistance*, thanks to a coach who can respond to each entrepreneur's specific knowledge requirements.
- (2) *Business assistance*, concerning various management functions such as marketing, human resources, finance, etc.
- (3) *Networking activities*, favouring the development of social skills and the introduction of incubatees into professional networks.

In this regard, **Model 2** investigates the role of UBI managers as drivers of the training and advice given to academic incubatees. On the basis of the institutional logics approach, it is proposed that, even if all UBI managers are concerned with training incubatees in business competences and skills, the manager's dominant logic (academic versus commercial) will influence the effectiveness of the services offered. Results

indicate that commercial logic proves superior to academic logic when training incubatees and instilling this commercial logic in them. Moreover, incubators managed by managers who combine the two logics (a hybrid logic as a consequence of their scientific and entrepreneurial experience) will provide a better offer of services. In particular, the manager's scientific experience does not favour comprehensive business training for incubatees. The scientific experience of academic logic is linked to personal assistance and coaching but does not foster other services required by academic entrepreneurs such as business assistance for developing skills related to information and operations in the business world, or networking competences. By contrast, managers displaying greater business experience know how the business world works, and are more aware of the weaknesses of academic incubatees. As a result, the manager's business experience or commercial logic is related with business assistance, personal assistance and networking, that is, networks of relationships which help entrepreneurs to obtain resources which prove valuable to the incubation process and to developing their businesses.

Finally, from these results, it can be concluded that the ability of managers with business experience and a dominant commercial logic to offer business support services coupled with the effort they make is greater than the effort made or indeed the ability of managers with scientific experience who display a dominant academic logic. In addition, even if they have only basic entrepreneurial experience, managers with a hybrid logic, in other words with experience in both fields, appear to be more skilled at optimizing the work inside the incubator as an environment to guide incubatees in their business activity.

Incubators can also be considered as ideal places for new entrepreneurs to build a network of relationships that proves valuable to help develop their business projects. In the specific case of university incubators, most incubatees have few business contacts (other entrepreneurs, managers, clients, suppliers, etc.) due to their lack of expertise in the business domain. Entrepreneurs who emerge from a university environment are primarily science oriented, yet have embarked on a business venture which will require them to immerse themselves in the world of trade. They therefore need to involve themselves in external networks they are unfamiliar with and which work differently to others they are accustomed to or participate in (for instance, academic networks)

(Redondo *et al.*, 2014). In order to build business networks, relationships between incubatees must be fostered, that is, the existence of collective internal social capital. However, since incubatees are in the incubator for a limited period of time, they need a driver to develop social capital. This task can be performed by the incubator manager, as a promoter of relationships between incubatees and relationships with external agents.

Literature exploring incubators and social capital has focused on how relationships in the incubator function (Lyons, 2002; Hughes *et al.*, 2007), comparing incubatees' and non-incubatees' social capital (Honig and Karlsson, 2010), or the role of the manager as a coach (Studdard, 2006; Scillitoe and Chakrabarti, 2010; Ahmad, 2014) as well as support in building ties between incubatees and external agents (Bøllingtoft and Ulhøi, 2005; Tötterman and Sten, 2005). Ebbers (2014) also underlines the relevance of the manager vis-à-vis fostering networks between incubatees. However, despite studies which highlight how incubators contribute to developing social capital, there are no studies empirically examining the cause-effect relationships between the work of the manager and the development of social capital, or the influence of collective social capital on individual social capital and the success of incubatees' businesses.

In this context, **Model 3** posits that university incubators can be considered as places where the relational climate among incubatees allows beneficial links to be forged between incubatees and other external networks, all of which proves advantageous for entrepreneurs' business efficiency. Reinforcing this idea, we conjecture that the relational orientation of UBI managers and their endeavour to foster contacts between entrepreneurs and other agents encourages the creation of social capital, both at a collective level (incubator social capital) and at an individual level (incubatee social capital). More specifically, we explain in detail the interrelations between the different dimensions of incubatee and incubator social capital, and their influence on business efficiency, as follows.

First, results confirm the key role played by the manager as a driver of cognitive social capital, that is, the ability to share a common language, objectives and culture. In UBIs, all the individuals share a link with the university and common objectives inherent to their condition as novel entrepreneurs. However, each individual has their own interests and objectives. The manager's relational orientation promotes these common objectives

and culture and affects the success of the incubator as well as the creation of relational social capital (trust and identity). When incubatees share objectives, concerns and a common language, they understand each other and an environment of trust is built up, as is the incubatees' sense of belonging to a group, as members of the same organization.

Second, the manager's relational orientation has a positive influence on relational social capital (through trust among incubatees, and the feeling of identity). Managers contribute directly to building trust between incubatees and to engendering a feeling of identity with the other tenants, and indirectly, by promoting incubatees' common aims and culture. Managers establish networks and social interactions based on trust among incubator members (Tötterman and Sten, 2005). Moreover, an atmosphere of shared objectives and culture favours the tenants' feeling of being part of a community. Reciprocity between incubatees also appears when there is an atmosphere of trust and identity between tenants.

Third, the incubator's cognitive and relational social capital (identity) helps shape incubatees' social capital. When individuals identify with other incubatees, a feeling of identity emerges which gives academic incubatees the self-confidence to face the challenge of business, prevents incubatees from engaging in opportunistic behaviour and allows social abilities, interactions and relationships to be built. These interactions occur at two levels: at an internal level, with other incubatees, and at an external level, with other external business agents (such as other external entrepreneurs, potential clients or suppliers, financial institutions or consultants). Internal relationships can be considered the incubatee's bonding social capital, and external relationships the bridging social capital.

Finally, university incubatees form part of academic networks, but have had scarcely any contact with the business world. When incubator managers foster the number of business contacts and incubatees' networking abilities, they are influencing the incubatees' bridging social capital. Although some authors consider that the manager's task is not necessary to build relationships because incubatees naturally and instinctively collaborate with one another (Bøllingtoft, 2012), the current study demonstrates that the incubator manager does act as a structural hole (Burt, 1992) linking incubatees with other external agents so as to favour their businesses. Likewise,

and in line with Granovetter's social network theory, weak ties or bridging social capital are more relevant for innovation and for developing new businesses than are strong ties or closure in the incubator. Further, it is this bridging social capital that has a significant influence on the efficiency of incubatees' businesses in terms of business planning, implementation and management.

5.2. Managerial implications

After detailing the general conclusions of the study, in this section we focus on specific managerial implications.

Proximity: a connecting but not a relational variable

Proximity is the variable which allows for contacts between incubator occupants, in addition to influencing frequency of contacts and encouraging networking. However, it is not the key factor in engendering and establishing business incubator relationships among firms. Further, proximity is not a determinant factor when it comes to consolidating relations, since once firms have established cooperation with each other, one of them leaving the incubator does not prove a hurdle to the relationship between them. Relationships built during incubation can be long-term and may well indeed survive.

The incubator as a business experience accelerator: an experimental environment for relationships

One managerial implication is that incubators can be seen as an experience accelerator. Sharing facilities in the incubator with other entrepreneurs is expressed in terms of contacts and experiences with dynamic and evolving businesses, and reflects the business world outside the incubator, condensed into a short space of time, since the incubator houses a wide range of firms under one roof. This makes the incubator an area which integrates and accelerates relationships between businesses. However, merely being involved in incubation cannot be expected to achieve such an effect. "The accelerator" must be pressed through proactive contacts and activities between entrepreneurs.

Formal relational action programmes can be designed to foster and promote cooperation, taking advantage of the setting provided by the incubator, cultivating

trustworthiness, empathy, and solidarity between entrepreneurs so as to encourage mutual support. Therefore, our research proposes that incubators can act as a testing ground for entrepreneurs' first experiences in building and dissolving relationships.

As regards generating social capital, managers should be aware that one of the main skills to be developed by incubatees must be the social ability to build a network of relationships both inside and outside the incubator. The incubator can be perceived as an experimental environment where incubatees acquire social skills, exercise these abilities by building relationships with other incubatees, and establish links with other entrepreneurs who can provide them with access to external networks. Not only that, but these are the first steps towards building networks of relationships.

Selecting incubatees: complementary and supplementary resources

A further managerial implication to emerge from this research deals with the university incubator decision concerning the right mix of incubatees sharing the incubator. The recommendation is a balance between incubatees with complementary resources and incubatees with supplementary resources. Diversity, in other words the coexistence of incubatees with complementary resources (different academic backgrounds or different abilities in business areas such as engineering, design, production, marketing, etc.) allows them to share skills and to improve their capabilities before venturing out into the market. However, communalities, namely the coexistence of incubatees with supplementary resources (similar academic backgrounds or similar abilities in business areas), are also recommended for leveraging business potential. Entrepreneurs can join forces to obtain results in specific research areas and, therefore, increase the scope of their business projects.

Managers' business experience: key to providing incubatees with what they need

Business and entrepreneurial experience is key to instilling business logic in incubatees and to providing them with the training and assistance they need. In the case of university and scientific managers, it is essential for them to understand the incubatee need to develop complementary capabilities and skills, capabilities that are not inherent to the world of science, but that prove vital to success in the business world. Prominent among these capabilities and skills are: access to social networks, collaboration with

other agents in the industry, access to funding and fundraising, and the ability to know how the market operates and to recruit human resources with have market knowledge.

The manager's role: to bridge the social gap between incubatees

It is also the manager's task to evaluate incubatees' profiles and diversity in order to foster the kind of links that might prove most profitable for them. In university incubators, where incubatees come from an academic background and lack experience, incubatees find more opportunities for their businesses in the relationships outside the incubator. However, in other contexts where diversity among entrepreneurs is greater, the value of relationships inside the incubator should not be underestimated.

Finally, managers should stimulate the feeling and sense of identity among incubator members, since these relational ties are the source of future internal and external relationships. By offering activities for incubator members, designing spaces and rooms for interaction, meetings for sharing experiences, or proposing shared objectives, the feeling of community and collective social capital can be built.

5.3. Limitations and further research

To conclude this chapter, some limitations and future lines of research should be mentioned.

Firstly, **Study I** is exploratory and focuses on one kind of incubator, the BIC. This means that the entrepreneurs are located in incubators which provide basic services (location, administrative services, equipment, etc.). Further qualitative research should explore other types of incubators that offer a wider range of services (advice, learning experiences, networking), in order to identify the effect of incubator support in relationship building and entrepreneur access to social capital. Secondly, the cases analysed belong to the same country, Spain. It would have been interesting to compare entrepreneurs of different nationalities and from different backgrounds. Finally, analysing only the entrepreneurs' point of view, without considering the perspectives of other agents, such as the incubator manager, is a further limitation.

As regards **Studies II and III**, the first limitation is that the results cannot easily be generalised since they focus on UBIs. Future studies might analyse the case of incubators with other characteristics, such as a greater diversity of incubatee profile,

greater previous business experience, or incubators devoted to a common industry (culture, high-technology, etc.). Moreover, the sample size (incubatees and managers) is small, although it is justified by the small number of UBIs in Spain and the Netherlands, despite which the study does represent a large percentage of cases.

In relation to each model, we have found certain specific limitations.

Regarding **Model 1**, we have only considered the point of view of one part of the dyad. Thus, it would be interesting to collect data from both sides in order to obtain an overall view of the relationship, and to compare different perceptions. Moreover, we cannot forget that each relationship must be seen and analysed not as an exogenous phenomenon, but within the context in which it emerges. Future studies might also consider contextual factors and other relationships that influence the dyad.

In addition, it may be worth contrasting the model in other types of incubator so as to analyse whether the exchange of knowledge occurs in any incubation context between knowledge-intensive companies. Should this be the case, the main question would be whether resources (particularly, supplementary resources) prove determinant to the exchange, and whether the results are manifested in the same terms. With further reference to the exchange of knowledge, only factors that encourage it, namely trust and commitment have been studied. However, it would be interesting to explore which factors or occurrences lead to relationship failure. In particular, cases in which attempts have been made to exchange knowledge and which have ultimately failed to succeed also merit inquiry, as do cases in which exchange was achieved, but whose consequences may have proved negative for one of the parties involved. Therefore, the influence of failed experiences on how entrepreneurs build new relationships (the use of contracts or the preference for short-term relationships) should be investigated. Additionally, it may be of interest to study “critical moments” in order to gauge the triggering factors which lead to the breakdown of the relationship.

Model 1 may also be completed by including moderating effects. Firstly, the effect of the proposed antecedents of the relationship (affinity factors, characteristics of the resources, and incubatee characteristics) on its particular features (trust, commitment, and exchange of knowledge) may be conditioned by institutional context factors such as financial aid. Requirements concerning financial support (for instance, requirements about business size), might spark the effect of other antecedents (affinity, resources) in

the likelihood of building relationships Secondly, the effect of the relationship's characteristic on its ultimate performance (particularly, on business results) may also be conditioned by economic context factors such as the sector's growth rate, the evolution of competition, and so on.

Model 2 considers the incubation project as the unit of analysis. Since some universities may have as many as up to three incubation programmes running in the same incubator (pre-incubation, incubation, and post-incubation programmes), in some cases the incubator manager is the informant for three different projects.

In addition, together with years of experience, measuring the dominant logic may be completed with scales that reflect the manager's entrepreneurial or academic profile.

Finally, a longitudinal study should be undertaken in order to investigate how an academic logic might evolve to business logic in academic incubatees, exploring their evolution in terms of objectives and expectations, from the beginning of the incubation process to some years after they leave the incubator, and taking into account their academic profile and industry characteristics.

Model 3 is focused on the managers' relational orientation as the driver of both incubator and incubatee social capital. Future research should consider the manager's perspective objectively, in other words evaluating the kind of activities and initiatives undertaken by managers to foster the development of social capital inside the incubator. Furthermore, the development of social capital in the model has been set out as a voluntary act, driven by manager initiative. The environmental or institutional requirements and their influence on building relationships between incubatees have not been considered. It would be advisable to consider the view of other agents that influence the incubator's activities and results (sponsors, university, and local government).

Again, we propose conducting longitudinal studies in order to analyse how networks inside the incubator are developed and maintained, and, particularly, how these relationships evolve once incubatees leave the incubator.

As a final challenge for further studies, it would be possible to study incubators as social capital accelerators, comparing entrepreneurs in incubators with other contexts. Creating a control group of non-incubated entrepreneurs would allow the outcomes of

incubated with non-incubated entrepreneurs to be compared, for example vis-à-vis the time required for entrepreneurs to build social capital, and the characteristics (cognitive, relational, structural) of social capital in each context.

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Anexo I: Cuestionario para incubados (versión en español)

CUESTIONARIO INCUBACIÓN

Incubadora:	País:											
Nº de meses que lleva en incubación:												
Estatus: <input type="checkbox"/> Profesor Tipo: <input type="checkbox"/> Asociado <input type="checkbox"/> Ayudante <input type="checkbox"/> Ayudante doctor <input type="checkbox"/> Contratado doctor <input type="checkbox"/> Titular <input type="checkbox"/> Catedrático <input type="checkbox"/> Investigador <input type="checkbox"/> Becario <input type="checkbox"/> Estudiante <input type="checkbox"/> Otro: _____												
Área de conocimiento: <input type="checkbox"/> Ciencias <input type="checkbox"/> Ciencias de la salud <input type="checkbox"/> Ciencias sociales y jurídicas <input type="checkbox"/> Ingeniería y arquitectura <input type="checkbox"/> Arte y humanidades												
¿Ha estado en pre-incubación? <input type="checkbox"/> No <input type="checkbox"/> Sí ¿En qué grado mantiene contacto con emprendedores que conoció en pre-incubación?												
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th align="center" colspan="3">Prácticamente ningún contacto</th> <th align="center" colspan="3">Contacto muy frecuente</th> </tr> <tr> <th align="center">1</th> <th align="center">2</th> <th align="center">3</th> <th align="center">4</th> <th align="center">5</th> </tr> </table>	Prácticamente ningún contacto			Contacto muy frecuente			1	2	3	4	5
Prácticamente ningún contacto			Contacto muy frecuente									
1	2	3	4	5								
¿Está abierto a tener socio/s? <input type="checkbox"/> Sí, ¿con qué background? <input type="checkbox"/> Académico <input type="checkbox"/> Empresa/negocios <input type="checkbox"/> Indiferente <input type="checkbox"/> No <input type="checkbox"/> No lo tengo claro aún												
¿Tiene socio/s? <input type="checkbox"/> Sí ¿Cuántos? ____ ¿Lo/s conoció en pre-incubación? <input type="checkbox"/> Sí <input type="checkbox"/> No <input type="checkbox"/> No												

Elija UNA relación, interacción o contacto profesional que haya mantenido o mantenga con OTRO EMPRENDEDOR EN EL PROCESO DE INCUBACIÓN y responda a las siguientes preguntas.

Este emprendedor:	Totalmente en desacuerdo			Totalmente de acuerdo		
	1	2	3	4	5	
Tiene recursos diferentes a los míos que son muy valiosos para mi	1	2	3	4	5	
Tiene recursos que son diferentes y complementarios a los míos	1	2	3	4	5	
Sus recursos son necesarios para conseguir mis objetivos	1	2	3	4	5	
Sus recursos, al combinarse con los míos, me permiten alcanzar resultados más satisfactorios	1	2	3	4	5	
Tiene recursos similares a los míos pero que son muy valiosos para mi	1	2	3	4	5	
Tiene recursos que son similares, pero suplementarios a los míos	1	2	3	4	5	
Sus recursos son similares a los míos y la combinación de ambos me permite alcanzar resultados más satisfactorios	1	2	3	4	5	
Sus valores y normas de conducta son congruentes con los míos	1	2	3	4	5	
Su filosofía/enfoque para los negocios es compatible con la mía	1	2	3	4	5	
Sus metas y objetivos son compatibles con los míos	1	2	3	4	5	
Es honesto y sincero	1	2	3	4	5	
La información que intercambia conmigo es fiable	1	2	3	4	5	
Me comunica con sinceridad cualquier problema que pueda afectarme	1	2	3	4	5	
Está dispuesto a ofrecer asistencia y ayuda cuando las circunstancias lo requieren	1	2	3	4	5	
Creo que actúa en mi mejor interés	1	2	3	4	5	
En general, es una persona que mantiene sus compromisos	1	2	3	4	5	
Es competente y eficaz	1	2	3	4	5	
Está comprometido en compartir ideas y conocimiento conmigo	1	2	3	4	5	
Tiene la voluntad de que nuestra relación se fortalezca con el tiempo	1	2	3	4	5	
Tiene la voluntad de que nuestra relación continúe durante mucho tiempo	1	2	3	4	5	
Evalúe las siguientes afirmaciones:	Totalmente en desacuerdo			Totalmente de acuerdo		
	1	2	3	4	5	
Tengo intención de que nuestra relación se fortalezca con el tiempo	1	2	3	4	5	
Tengo intención de que nuestra relación continúe durante mucho tiempo	1	2	3	4	5	
Estoy comprometido en compartir ideas y conocimiento con él	1	2	3	4	5	

La colaboración con este emprendedor es un medio efectivo de aprendizaje	1	2	3	4	5
Colaborar con este emprendedor es una sabia decisión	1	2	3	4	5
En relación a mis conocimientos o formación aplicados al negocio que he puesto en marcha ...					
El conocimiento (técnico-científico) que tengo es fácil de transferir	1	2	3	4	5
La asociación entre causas y efectos, entradas y salidas, y las acciones y los resultados relacionados con el conocimiento que tengo es claro	1	2	3	4	5
Mi conocimiento es más explícito que tácito	1	2	3	4	5
Tengo procedimientos y rutinas para restringir el intercambio de información pertinente sobre mi conocimiento	1	2	3	4	5
Soy muy protector con mi conocimiento	1	2	3	4	5
Evalúe las siguientes afirmaciones sobre este emprendedor:					
El conocimiento (técnico-científico) que tiene es fácil de transferir	1	2	3	4	5
La asociación entre causas y efectos, entradas y salidas, y las acciones y los resultados relacionados con el conocimiento que tiene es claro	1	2	3	4	5
Su conocimiento es más explícito que tácito	1	2	3	4	5
Tiene procedimientos y rutinas para restringir el intercambio de información pertinente sobre su conocimiento	1	2	3	4	5
Es muy protector con su conocimiento	1	2	3	4	5
En nuestra relación...					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Nos solicitamos consejos y recomendaciones	1	2	3	4	5
Compartimos todo tipo de información	1	2	3	4	5
Nos proporcionamos cualquier información que pueda ser útil a la otra parte	1	2	3	4	5
Cada parte informa a la otra de los acontecimientos que le puedan afectar	1	2	3	4	5
Trabajamos juntos con frecuencia	1	2	3	4	5
Con frecuencia estamos en contacto	1	2	3	4	5
La relación con este emprendedor me ha permitido...					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Estar más comprometido con mis metas empresariales	1	2	3	4	5
Ser más exigente con mis objetivos empresariales	1	2	3	4	5
Ser más ambicioso con mis objetivos empresariales	1	2	3	4	5
La relación con este emprendedor me ha permitido que mi negocio					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Sea más innovador en cuanto a productos o servicios	1	2	3	4	5
Pueda llegar a un mercado más amplio	1	2	3	4	5
Sea más factible en su desarrollo	1	2	3	4	5
En el futuro, creo que la relación con este emprendedor favorecerá...					
	Totalmente en desacuerdo			Totalmente de acuerdo	
La generación de innovación	1	2	3	4	5
Nuevos productos/servicios	1	2	3	4	5
Por medio de este emprendedor...					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Tengo acceso a conocimientos sobre el mercado	1	2	3	4	5

Obtengo conocimientos técnicos y un importante volumen de saber hacer	1	2	3	4	5
Aprendo de su conocimiento	1	2	3	4	5
Aprendo de su experiencia	1	2	3	4	5
Asimilo el conocimiento que me facilita, el cual contribuye al desarrollo de mi start-up	1	2	3	4	5

A través de mí, el otro emprendedor...	Totalmente en desacuerdo			Totalmente de acuerdo	
Tiene acceso a conocimientos sobre el mercado	1	2	3	4	5
Obtiene conocimientos técnicos y un importante volumen de saber hacer	1	2	3	4	5
Aprende de mi conocimiento	1	2	3	4	5
Aprende de mi experiencia	1	2	3	4	5
Asimila el conocimiento que le facilito, el cual contribuye al desarrollo de su start-up	1	2	3	4	5
Valore el grado en el cual la relación ha influido en los siguientes aspectos:					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Incremento en las ventas	1	2	3	4	5
Generación de nuevas oportunidades de mercado	1	2	3	4	5
Generación de beneficios	1	2	3	4	5

En la incubadora, ¿tiene un COACH asignado? Sí, ¿de qué tipo? Único para mí Común para un grupo, ¿de cuántos?__
 No

En caso afirmativo, considere la relación o interacción profesional que mantenga con el COACH y responda a las siguientes preguntas:	Totalmente en desacuerdo			Totalmente de acuerdo	
Nos tratamos de manera frecuente	1	2	3	4	5
Es honesto y sincero	1	2	3	4	5
La información que intercambia conmigo es fiable	1	2	3	4	5
Me ayuda compartiendo su conocimiento y experiencia	1	2	3	4	5
Me incentiva a hacer contactos con otros emprendedores	1	2	3	4	5
Creo que actúa en mi mejor interés	1	2	3	4	5
Si necesito ayuda, hará lo posible por ayudarme	1	2	3	4	5
En general, es una persona que mantiene sus compromisos	1	2	3	4	5
Es competente y eficaz en la prestación de asesoramiento	1	2	3	4	5
Ejerce su función de coach muy bien	1	2	3	4	5
Me anima a transferir conocimiento	1	2	3	4	5
Tiene experiencia en el mundo de los negocios	1	2	3	4	5
Tiene experiencia en el mundo de la ciencia	1	2	3	4	5

Piense en el MANAGER de la incubadora y valore su grado de acuerdo o desacuerdo con cada de una de las siguientes afirmaciones:

	Totalmente en desacuerdo			Totalmente de acuerdo	
Considero que favorece los contactos entre los emprendedores	1	2	3	4	5
Trata de establecer lazos entre emprendedores que pueden llegar a colaborar	1	2	3	4	5
Facilita el networking entre todos los emprendedores	1	2	3	4	5
Facilita contactos fuera de la incubadora	1	2	3	4	5

En el tiempo que llevo en incubación he conseguido:	Totalmente en desacuerdo			Totalmente de acuerdo	
	1	2	3	4	5
Ser más eficiente en la planificación y en la estrategia de mi negocio	1	2	3	4	5
Ser más eficiente en la gestión de mi negocio	1	2	3	4	5
Ser más eficiente en la implementación de las actividades propias de mi negocio	1	2	3	4	5
Desarrollar habilidades sociales para el mundo de los negocios	1	2	3	4	5
Incrementar mi red de contactos de negocios	1	2	3	4	5

Los emprendedores que están aquí en incubación:	Totalmente en desacuerdo			Totalmente de acuerdo	
	1	2	3	4	5
Usan un lenguaje y una jerga similar a la mía	1	2	3	4	5
Usan un patrón de comunicación comprensible	1	2	3	4	5
Comparten intereses similares a los míos	1	2	3	4	5
Son personas con cuyos intereses me puedo identificar	1	2	3	4	5
No podrían aprovecharse de los demás, incluso cuando se presenta la oportunidad	1	2	3	4	5
Siempre cumplen sus promesas	1	2	3	4	5
Se comportan de una manera consistente y honesta	1	2	3	4	5
Son leales en el trato con los demás	1	2	3	4	5

Enfoque sobre su perfil

La siguiente serie de preguntas se refieren a eventos específicos de su vida.	Nunca o pocas veces			Muy frecuentemente	
	1	2	3	4	5
Comparado con las demás personas, ¿no le es posible obtener lo que quiere en su vida?	1	2	3	4	5
Al crecer, ¿alguna vez “cruzó la línea” haciendo cosas que sus padres no toleraban?	1	2	3	4	5
¿Frecuentemente sacó de sus casillas a sus padres cuando crecía?	1	2	3	4	5
¿Con qué frecuencia obedecía las reglas establecidas por sus padres?	1	2	3	4	5
Al crecer, ¿alguna vez actuó de una manera que sus padres consideraban cuestionable?	1	2	3	4	5
¿A menudo hace bien las diferentes cosas que intenta?	1	2	3	4	5
No ser suficientemente cuidadoso me ha metido en problemas	1	2	3	4	5
Cuando se trata de lograr cosas que son importantes para mí, encuentro que no desempeño tan bien como idealmente quisiera hacerlo	1	2	3	4	5
Siento que progreso hacia el éxito en mi vida	1	2	3	4	5
He encontrado muy pocos hobbies o actividades que capturen mi interés o me motiven a poner empeño en ellos	1	2	3	4	5

Evalúe las siguientes afirmaciones:	Totalmente en desacuerdo			Totalmente de acuerdo	
	1	2	3	4	5
Tengo pocas dificultades en “ponerme en la piel de otros”	1	2	3	4	5
Normalmente tengo bastante mal humor con la gente que me molesta con preguntas tontas	1	2	3	4	5
Con frecuencia me comprometo más de lo que puedo conseguir	1	2	3	4	5
Tiendo a ser cínico y escéptico de las intenciones de los demás	1	2	3	4	5
Creo que la mayoría de la gente se aprovecha de ti si se les deja	1	2	3	4	5
Cuando aprendo algo nuevo, se lo cuento a mis compañeros	1	2	3	4	5
Comparto la información que tengo con mis compañeros cuando ellos me lo piden	1	2	3	4	5
Comparto mis habilidades/destrezas con mis compañeros cuando ellos me lo piden	1	2	3	4	5
Disfruto tomando mis propias decisiones	1	2	3	4	5
Prefiero que alguien se haga cargo del papel de líder cuando estoy involucrado en un proyecto	1	2	3	4	5
Cuando veo un problema, prefiero hacer algo al respecto en lugar de sentarme y dejar que continúe	1	2	3	4	5

Cuando se trata de órdenes, prefiero darlas que recibirlas	1	2	3	4	5
Siempre estoy en busca de mejores formas de hacer las cosas	1	2	3	4	5
No importan las probabilidades, si creo en algo haré que suceda	1	2	3	4	5
No hay nada más emocionante que ver que mis ideas se convierten en realidad	1	2	3	4	5
Evalúe las siguientes afirmaciones:					
	Totalmente en desacuerdo			Totalmente de acuerdo	
Entre nosotros, los incubados, existe un sentido de pertenencia hacia el grupo	1	2	3	4	5
Tengo un sentimiento de unión o cercanía con el grupo	1	2	3	4	5
Cuando pido ayuda, siento que los demás incubados me la proporcionarán	1	2	3	4	5
Incluso si un incubado al que he ayudado no me puede ayudar en el futuro, otros lo harán	1	2	3	4	5
	Muy bajo			Muy alto	
Grado de diversidad (formación, procedencia, especialidad) entre los incubados	1	2	3	4	5
Indique el número de incubados con los que mantiene un contacto frecuente: _____					

Perfil de la universidad/centro de investigación de origen

Valore los siguientes aspectos sobre su universidad/centro de investigación de origen.	Totalmente en desacuerdo			Totalmente de acuerdo	
Existe una tradición de generación de spin-offs	1	2	3	4	5
Existe un alto nivel de burocracia en mi universidad/centro de investigación	1	2	3	4	5
Existe una baja orientación al riesgo en el entorno de investigación	1	2	3	4	5
Existe una normativa específica para la creación de spin-offs en mi universidad/centro de investigación	1	2	3	4	5
Es difícil el desarrollo de otras actividades emprendedoras (congresos, cursos, edición de revistas, etc.)	1	2	3	4	5
Existe una actitud positiva dentro de mi universidad/centro de investigación hacia la creación de empresas	1	2	3	4	5

Identificación del emprendedor

¿Tiene experiencia emprendedora previa? <input type="checkbox"/> Sí, ¿cuántos años? ____ ¿en qué sector? _____ <input type="checkbox"/> No
¿Ha sido trabajador por cuenta ajena, fuera del ámbito académico? <input type="checkbox"/> Sí, ¿cuántos años? ____ ¿en qué sector? _____ <input type="checkbox"/> No
¿Está trabajando en una Universidad/centro de investigación? <input type="checkbox"/> Sí ¿desde hace cuántos años? ____ <input type="checkbox"/> No
¿Ha creado anteriormente algún grupo de investigación? <input type="checkbox"/> Sí <input type="checkbox"/> No
¿Forma parte de un grupo de investigación? <input type="checkbox"/> Sí ¿Cuántas personas forman parte de ese grupo (excluyéndole a usted)? ____ <input type="checkbox"/> No
Nivel de estudios completado: <input type="checkbox"/> Doctor <input type="checkbox"/> Master <input type="checkbox"/> Licenciado <input type="checkbox"/> Diplomado <input type="checkbox"/> Grado
En la actualidad, ¿está realizando estudios?: <input type="checkbox"/> Sí ¿Cuáles? <input type="checkbox"/> Doctorado <input type="checkbox"/> Master <input type="checkbox"/> Grado <input type="checkbox"/> No
Edad: <input type="checkbox"/> Menos de 25 <input type="checkbox"/> Entre 25 y 35 <input type="checkbox"/> Entre 36 y 45 <input type="checkbox"/> Entre 46 y 55 <input type="checkbox"/> Entre 56 y 65
Sexo: <input type="checkbox"/> Hombre <input type="checkbox"/> Mujer

Anexo II: Cuestionario para incubados (versión en inglés)

INCUBATION QUESTIONNAIRE

Incubator:	Country:												
Number of months in incubation:													
Status: <input type="checkbox"/> Professor Type: <input type="checkbox"/> Assistant <input type="checkbox"/> Associate <input type="checkbox"/> Full <input type="checkbox"/> Other _____ <input type="checkbox"/> Researcher <input type="checkbox"/> Student <input type="checkbox"/> Other: _____													
Area of knowledge: <input type="checkbox"/> Sciences <input type="checkbox"/> Health sciences <input type="checkbox"/> Social sciences <input type="checkbox"/> Engineering & architecture <input type="checkbox"/> Arts & humanities													
Have you been in pre-incubation? <input type="checkbox"/> No <input type="checkbox"/> Yes, How often are you in contact with the entrepreneurs you met in pre-incubation?													
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th align="center" colspan="3">Barely any contact</th> <th align="center" colspan="3">Regular contact</th> </tr> <tr> <th align="center">1</th> <th align="center">2</th> <th align="center">3</th> <th align="center">4</th> <th align="center">5</th> <th align="center">5</th> </tr> </table>	Barely any contact			Regular contact			1	2	3	4	5	5
Barely any contact			Regular contact										
1	2	3	4	5	5								
Are you open to having partner/s? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> I am not sure yet													
If yes, in which background? <input type="checkbox"/> Academic <input type="checkbox"/> Business <input type="checkbox"/> Not important													
Have you got any partner? <input type="checkbox"/> Yes, how many? ____ Did you meet them/him/her in pre-incubation? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No													

Consider ONE professional relationship, interaction or contact that you have or have had with ANOTHER ENTREPRENEUR IN THE INCUBATION PROCESS and answer the following questions.

This entrepreneur:	Strongly disagree			Strongly agree		
Has different resources to mine that are very precious to me	1	2	3	4	5	
Has different and complementary resources to mine	1	2	3	4	5	
His/her resources are necessary to achieve my goals	1	2	3	4	5	
His/her resources, combined with mine, enable me to achieve more satisfactory results	1	2	3	4	5	
Has similar resources to mine, but nevertheless they are very precious to me	1	2	3	4	5	
Has similar resources to mine, but supplementary to mine	1	2	3	4	5	
His/her resources are similar to mine, but when combined, its allowed me to achieve more satisfactory results	1	2	3	4	5	
His/her values and conduct norms are congruent with mine	1	2	3	4	5	
His/her philosophy/approach to business is compatible with mine	1	2	3	4	5	
His/her goals and objectives are compatible with mine	1	2	3	4	5	
He/she honest and truthful	1	2	3	4	5	
The information he/she exchanges with me is reliable	1	2	3	4	5	
He/she honestly communicate any problem that may affect me	1	2	3	4	5	
He/she is willing to provide assistance and support when circumstances required	1	2	3	4	5	
I believe that he/she acts in my best interest	1	2	3	4	5	
In general, he/she is a person who keeps his/her commitments	1	2	3	4	5	
He/she is competent and effective	1	2	3	4	5	
He/she is committed to sharing ideas and knowledge with me	1	2	3	4	5	
He/she is willing to strengthen our relationship over time	1	2	3	4	5	
He/she is willing to continue our relationship for a long time	1	2	3	4	5	
Evaluate the following statements:	Strongly disagree			Strongly agree		
I intend to strengthen our relationship over time	1	2	3	4	5	
I intend to continue our relationship for a long time	1	2	3	4	5	
I am committed to sharing ideas and knowledge with him/her	1	2	3	4	5	
The collaboration with this entrepreneur is an effective medium of learning	1	2	3	4	5	
Collaborating with this entrepreneur is a wise decision	1	2	3	4	5	

Regarding my knowledge or training applied to business that I have started:	Strongly disagree				Strongly agree
The knowledge (technical-scientific) held by me is easily transferable	1	2	3	4	5
The association between causes and effects, inputs and outputs, and actions and outcomes related to the knowledge held by me is clear	1	2	3	4	5
My knowledge is more explicit than tacit	1	2	3	4	5
I have procedures and routines to restrict the sharing of relevant information concerning my knowledge	1	2	3	4	5
I am very protective of my knowledge	1	2	3	4	5
Evaluate the following statements about this entrepreneur:	Strongly disagree				Strongly agree
The knowledge (technical-scientific) held by him/her is easily transferable	1	2	3	4	5
The association between causes and effects, inputs and outputs, and actions and outcomes related to the knowledge held by him/her is clear	1	2	3	4	5
His/her knowledge is more explicit than tacit	1	2	3	4	5
He/she has procedures and routines to restrict the sharing of relevant information concerning my knowledge	1	2	3	4	5
He/she is very protective of his/her knowledge	1	2	3	4	5
In our relationship:	Strongly disagree				Strongly agree
We ask for mutual advice and recommendations	1	2	3	4	5
We share all types of information	1	2	3	4	5
We provide any information that may be useful to the other party	1	2	3	4	5
Each party informs the other about events that may affect them	1	2	3	4	5
We work together frequently	1	2	3	4	5
We frequently have contact	1	2	3	4	5
The relationship with this entrepreneur has allowed me:	Strongly disagree				Strongly agree
To be more committed to my entrepreneurial goals	1	2	3	4	5
To be more demanding about my entrepreneurial goals	1	2	3	4	5
To be more ambitious about my entrepreneurial goals	1	2	3	4	5
The relationship with this entrepreneur has allowed me that my business:	Strongly disagree				Strongly agree
Is more innovative in terms of product or service	1	2	3	4	5
Can reach a wider market	1	2	3	4	5
Is more feasible in its development	1	2	3	4	5
In the future, I think the relationship with this entrepreneur will stimulate:	Strongly disagree				Strongly agree
Generation of innovation	1	2	3	4	5
New products/services	1	2	3	4	5
Through this entrepreneur:	Strongly disagree				Strongly agree
I have access to market knowledge	1	2	3	4	5
I get technical knowledge and a tremendous amount of know-how	1	2	3	4	5
I learn from his/her knowledge	1	2	3	4	5
I learn from his/her experience	1	2	3	4	5
I assimilate the knowledge that he/she gives me and contributes to the development of my start-up	1	2	3	4	5

Through me, the other entrepreneur:	Strongly disagree					Strongly agree				
Has access to market knowledge	1	2	3	4	5	1	2	3	4	5
Gets technical knowledge and a tremendous amount of know-how	1	2	3	4	5	1	2	3	4	5
Learns from my knowledge	1	2	3	4	5	1	2	3	4	5
Learns from my experience	1	2	3	4	5	1	2	3	4	5
Assimilates the knowledge that I give him/her and contributes to the development of his/her start-up	1	2	3	4	5	1	2	3	4	5
The relationship with this entrepreneur has allowed me:										
To increase sales	1	2	3	4	5	1	2	3	4	5
To create new market opportunities	1	2	3	4	5	1	2	3	4	5
To generate profits	1	2	3	4	5	1	2	3	4	5

In the incubator, is there a COACH assigned to you? Yes, unique to me
 Yes, he/she is a group coach; how many people are in the group?
 No

If yes, consider the relationship or professional interaction you have with THE COACH and answer the following questions:	Strongly disagree					Strongly agree				
We deal with each other frequently	1	2	3	4	5	1	2	3	4	5
He/she is honest and truthful	1	2	3	4	5	1	2	3	4	5
The information he/she exchanges me is reliable	1	2	3	4	5	1	2	3	4	5
He/she helps me by sharing his/her knowledge and experience	1	2	3	4	5	1	2	3	4	5
He/she encourages me to make contacts with other entrepreneurs	1	2	3	4	5	1	2	3	4	5
I believe that he/she acts in my best interest	1	2	3	4	5	1	2	3	4	5
If I required help, he/she would do his/her best to help me	1	2	3	4	5	1	2	3	4	5
In general, he/she is a person who keeps his/her commitments	1	2	3	4	5	1	2	3	4	5
He/she is competent and effective in providing advice	1	2	3	4	5	1	2	3	4	5
He/she performs his/her role of coaching very well	1	2	3	4	5	1	2	3	4	5
He/she encourages me to transfer knowledge	1	2	3	4	5	1	2	3	4	5
He/she has experience in the business world	1	2	3	4	5	1	2	3	4	5
He/she has experience in the science world	1	2	3	4	5	1	2	3	4	5

Think of the INCUBATOR MANAGER and assess your level of agreement or disagreement with each of the following statements:

	Strongly disagree					Strongly agree				
I think he/she encourages contacts between entrepreneurs	1	2	3	4	5	1	2	3	4	5
Tries to establish links between entrepreneurs who can get to collaborate	1	2	3	4	5	1	2	3	4	5
Facilitates networking between all entrepreneurs	1	2	3	4	5	1	2	3	4	5
Facilitates contacts outside the incubator	1	2	3	4	5	1	2	3	4	5

Since I joined incubation, I have achieved:	Strongly disagree					Strongly agree				
To be more efficient in the planning and strategy for my business	1	2	3	4	5	1	2	3	4	5
To be more efficient in managing my business	1	2	3	4	5	1	2	3	4	5
To be more efficient in implementing the specific activities for my business	1	2	3	4	5	1	2	3	4	5
To develop social skills for the business world	1	2	3	4	5	1	2	3	4	5
To increase my network of business contacts	1	2	3	4	5	1	2	3	4	5
The entrepreneurs who are in incubation, in the same incubator as me:										
Use a similar language and jargon to me	1	2	3	4	5	1	2	3	4	5
Use an understandable communication pattern	1	2	3	4	5	1	2	3	4	5
Share similar interests to mine	1	2	3	4	5	1	2	3	4	5
Are people whose interests I can identify with	1	2	3	4	5	1	2	3	4	5

Would not take advantage of others even when the opportunity arises	1	2	3	4	5
Always keep their promises	1	2	3	4	5
Behave in a consistent and honest manner	1	2	3	4	5
Are truthful in dealing with one another	1	2	3	4	5

Profile approach

The following questions regard specific events in your life.	Never or seldom					Very often
Compared to most people, are you unable to get what you want out of life?	1	2	3	4	5	
Growing up, would you ever "cross the line" by doing things that your parents would not tolerate?	1	2	3	4	5	
Did you often get on your parents' nerves when you were growing up?	1	2	3	4	5	
How often did you obey rules that were established by your parents?	1	2	3	4	5	
Growing up, did you ever act in ways that your parents thought were objectionable?	1	2	3	4	5	
Do you often do well at different things that you try?	1	2	3	4	5	
Not being careful enough has gotten me into troubles at times	1	2	3	4	5	
When it comes to achieving things that are important to me, I find that I don't perform as well as I ideally would like to do	1	2	3	4	5	
I feel like I have made progress toward being successful in my life	1	2	3	4	5	
I have found very few hobbies or activities in my life that capture my interest or motivate me to put effort into them	1	2	3	4	5	

Evaluate the following statements:	Strongly disagree				Strongly agree
I have little difficulty in "putting myself into other people's shoes"	1	2	3	4	5
I am usually rather short-tempered with people who bother me with foolish questions	1	2	3	4	5
I frequently undertake more than I can accomplish	1	2	3	4	5
I tend to be cynical and sceptical of others' intentions	1	2	3	4	5
I believe that most people take advantage of you if you let them	1	2	3	4	5
When I learn something new, I tell my colleagues	1	2	3	4	5
I share the information I have with my colleagues when they ask me to	1	2	3	4	5
I share my skills with my colleagues when they ask me to	1	2	3	4	5
I enjoy making my own decisions	1	2	3	4	5
I would rather someone else took over the leadership role when I am involved in a project	1	2	3	4	5
When I see a problem I prefer to do something about it rather than sit by and let it continue	1	2	3	4	5
When it comes to orders, I would rather give them than receive them	1	2	3	4	5
I am always looking for better ways to do things	1	2	3	4	5
No matter what the odds are, if I believe in something I will make it happen	1	2	3	4	5
Nothing is more exciting than seeing my ideas turn into reality	1	2	3	4	5

Evaluate the following statements:	Strongly disagree				Strongly agree
There is a sense of group belonging within us, the incubatees	1	2	3	4	5
I have the feeling of group togetherness or closeness	1	2	3	4	5
When I ask for help, I feel that other incubatees will provide it	1	2	3	4	5
Even if an incubatee I have helped cannot help me in the future, others will be able to	1	2	3	4	5
	Very low				Very high
Level of diversity (education, background, speciality) between the incubatees	1	2	3	4	5
Indicate the number of incubatees with whom your are in frequent contact: _____					

University/research centre of origin profile

Rate the following aspects of your university/research centre of origin:	Strongly disagree				Strongly agree
	1	2	3	4	5
There is a tradition of creating spin-offs	1	2	3	4	5
There is a high level of bureaucracy at my university/research centre	1	2	3	4	5
There is a low risk orientation in the research environment	1	2	3	4	5
There is a specific regulations for the creation of spin-offs at my university/research centre	1	2	3	4	5
It is difficult to develop other entrepreneurial activities (conferences, courses, journal publishing, etc.)	1	2	3	4	5
There is a positive attitude within my university/research centre towards entrepreneurship	1	2	3	4	5

Entrepreneur details

Have you got prior entrepreneurial experience?: Yes, how many years? ____ In which sector of activity? _____
 No

Have you been employed in a company? Yes, how many years? ____ In which sector of activity? _____
 No

Are you working at a university/research centre? Yes, How many years ago?
 No

Have you previously created a research group? Yes No

Are you a member of a research group? Yes No

If yes, How many people are part of that group (excluding you)?

Level of studies completed: PhD Master Bachelor

At present, are you studying?: Yes, What? P hD Master Bachelor
 No

Age: < 25 25 - 35 36 – 45 46 – 55 > 55

Gender: Male Female

Anexo III: Cuestionario para mánagers (versión en español)

Incubadora:	País:																																																																		
¿Prestan servicios de pre-incubación? <input type="checkbox"/> Sí <input type="checkbox"/> No En caso afirmativo, por favor, responda a las siguientes preguntas.																																																																			
Pre-incubación																																																																			
¿Ponen a disposición de los pre-incubados algún tipo de espacio físico para que trabajen en su idea/plan de negocio? <input type="checkbox"/> Sí <input type="checkbox"/> No																																																																			
Periodo máximo de pre-incubación (meses):	Periodo medio que suelen estar en pre-incubación (meses):																																																																		
Precio por mes:	Ese precio incluye: <input type="checkbox"/> uso del espacio <input type="checkbox"/> servicios <input type="checkbox"/> otros:_____																																																																		
Capacidad máxima (número de proyectos):																																																																			
Nivel de ocupación (número actual de proyectos): Nivel de ocupación (número actual de personas que están en pre-incubación):																																																																			
¿Qué porcentaje de proyectos suele pasar, por término medio, de pre-incubación a incubación?																																																																			
De los siguientes servicios, para aquellos que presten en pre-incubación, indique el grado de intensidad en el que los impulsan.	<table border="1"> <thead> <tr> <th>No prestamos este servicio</th> <th colspan="3">Intensidad Muy baja</th> <th colspan="2">Intensidad Muy alta</th> </tr> </thead> <tbody> <tr> <td>Análisis y asesoramiento en el desarrollo de la idea de negocio</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Asesoramiento en el desarrollo del plan de negocio</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Guía práctica en aspectos como contacto con organismos, trámites para la puesta en marcha de un negocio, etc.</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Formación general en emprendimiento y negocios</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Formación en otros temas concretos (gestión, ventas, recursos humanos, transferencia de tecnología, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Coaching o mentoring</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Asesoramiento financiero (información o apoyo en la cumplimentación para obtener apoyo financiero)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Acceso a redes que tiene la incubadora (con empresas, asociaciones, profesionales como consultores, abogados, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Reuniones y eventos entre los pre-incubados para fomentar contactos y relaciones entre ellos</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Servicios relacionados con la universidad (acceso a mentores académicos, programas de transferencia de tecnología y formación, acceso a instalaciones, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </tbody> </table>	No prestamos este servicio	Intensidad Muy baja			Intensidad Muy alta		Análisis y asesoramiento en el desarrollo de la idea de negocio	1	2	3	4	5	Asesoramiento en el desarrollo del plan de negocio	1	2	3	4	5	Guía práctica en aspectos como contacto con organismos, trámites para la puesta en marcha de un negocio, etc.	1	2	3	4	5	Formación general en emprendimiento y negocios	1	2	3	4	5	Formación en otros temas concretos (gestión, ventas, recursos humanos, transferencia de tecnología, etc.)	1	2	3	4	5	Coaching o mentoring	1	2	3	4	5	Asesoramiento financiero (información o apoyo en la cumplimentación para obtener apoyo financiero)	1	2	3	4	5	Acceso a redes que tiene la incubadora (con empresas, asociaciones, profesionales como consultores, abogados, etc.)	1	2	3	4	5	Reuniones y eventos entre los pre-incubados para fomentar contactos y relaciones entre ellos	1	2	3	4	5	Servicios relacionados con la universidad (acceso a mentores académicos, programas de transferencia de tecnología y formación, acceso a instalaciones, etc.)	1	2	3	4	5
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De manera general, ¿cómo diría que es el nivel de participación de los pre-incubados en las distintas actividades que organizan? Muy bajo 1 2 3 4 5 Muy alto																																																																			

¿Prestan servicios de incubación? <input type="checkbox"/> Sí <input type="checkbox"/> No En caso afirmativo, por favor, responda a las siguientes preguntas.																																					
Incubación																																					
¿Ponen a disposición de los incubados espacios físicos (oficinas, laboratorios, etc.) para poder desarrollar su actividad? <input type="checkbox"/> Sí <input type="checkbox"/> No																																					
Periodo máximo de incubación (meses):	Periodo medio que suelen estar en incubación (meses):																																				
Precio por mes:	Ese precio incluye: <input type="checkbox"/> Uso del espacio <input type="checkbox"/> servicios <input type="checkbox"/> otros:_____																																				
Capacidad máxima (número de empresas):																																					
Nivel de ocupación (número actual de empresas):	Nivel de ocupación (número actual de socios de esas empresas):																																				
¿Qué porcentaje de empresas, por término medio, suele graduarse (empresas que salen de incubación, pudiendo mantener su estructura y seguir con su actividad fuera)?																																					
Por favor, de los siguientes servicios, para aquellos que presten en incubación, indique el grado de intensidad en el que los impulsan.	<table border="1"> <thead> <tr> <th>No prestamos este servicio</th> <th colspan="3">Intensidad Muy baja</th> <th colspan="2">Intensidad Muy alta</th> </tr> </thead> <tbody> <tr> <td>Asesoramiento en el desarrollo del plan de negocios</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Asistencia en la implementación de productos y/o servicios</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Formación (talleres, jornadas, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Coaching o mentoring</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>Asesoramiento financiero (información o apoyo en la cumplimentación para obtener apoyo financiero, tramitación de ayudas, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> </tbody> </table>	No prestamos este servicio	Intensidad Muy baja			Intensidad Muy alta		Asesoramiento en el desarrollo del plan de negocios	1	2	3	4	5	Asistencia en la implementación de productos y/o servicios	1	2	3	4	5	Formación (talleres, jornadas, etc.)	1	2	3	4	5	Coaching o mentoring	1	2	3	4	5	Asesoramiento financiero (información o apoyo en la cumplimentación para obtener apoyo financiero, tramitación de ayudas, etc.)	1	2	3	4	5
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Asesoramiento y apoyo en la captación de financiación, presentación de proyectos de I+D+i a convocatorias nacionales, europeas, etc.	1	2	3	4	5
Acceso a redes que tiene la incubadora (con empresas, asociaciones, agentes profesionales como consultores, abogados, etc.)	1	2	3	4	5
Reuniones y eventos entre los incubados para fomentar contactos y relaciones entre ellos	1	2	3	4	5
Servicios relacionados con la universidad (acceso a mentores académicos, a estudiantes, egresados, programas de transferencia de tecnología y formación, acceso a instalaciones, etc.)	1	2	3	4	5
De manera general, ¿cómo diría que es el nivel de participación de los incubados en las distintas actividades que organizan? Muy bajo 1 2 3 4 5 Muy alto					

¿Prestan servicios de post-incubación? Sí No
En caso afirmativo, por favor, responda a las siguientes preguntas.

Post - incubación

Periodo máximo de post-incubación (meses): _____ Periodo medio que suelen estar en post-incubación (meses): _____

Precio por mes: Ese precio incluye: servicios otros: _____

Número de empresas que el programa de post-incubación puede admitir: _____

Nivel de participación (número actual de empresas): _____ Nivel de participación (número actual de socios de esas empresas): _____

De los siguientes servicios, para aquellos que presten en post-incubación, indique el grado de intensidad en el que los impulsan.	No prestamos este servicio	Intensidad Muy baja			Intensidad Muy alta	
		1	2	3	4	5
Disposición de infraestructuras tales como salas de conferencias, de reuniones, laboratorios, etc.		1	2	3	4	5
Apoyo a la internacionalización		1	2	3	4	5
Asesoramiento en la comercialización		1	2	3	4	5
Apoyo en el desarrollo del negocio		1	2	3	4	5
Formación (talleres, jornadas, etc.)		1	2	3	4	5
Coaching o mentoring		1	2	3	4	5
Asesoramiento financiero (información o apoyo en la cumplimentación para obtener apoyo financiero)		1	2	3	4	5
Asesoramiento y apoyo en la captación de financiación, presentación de proyectos de I+D+i a convocatorias nacionales, europeas, etc.		1	2	3	4	5
Acceso a redes que tiene la incubadora (con empresas, asociaciones, agentes profesionales como consultores, abogados, etc.)		1	2	3	4	5
Reuniones y eventos entre los incubados para fomentar contactos y relaciones entre ellos		1	2	3	4	5
Servicios relacionados con la universidad (acceso a mentores académicos, a estudiantes, egresados, programas de transferencia de tecnología y formación, acceso a instalaciones, etc.)		1	2	3	4	5
De manera general, ¿cómo diría que es el nivel de participación de los post-incubados en las distintas actividades que organizan? Muy bajo 1 2 3 4 5 Muy alto						

Identificación del manager de la incubadora

¿En qué año empezó a funcionar la incubadora?

Indique el número y el tipo de organismos que forman parte de la incubadora:

¿La incubadora se autofinancia? Sí, ¿en qué porcentaje? _____
 No

¿Cuánto tiempo lleva como responsable de la incubadora?: _____ ¿Tiene dedicación exclusiva a ello? Sí No

¿Tiene experiencia emprendedora?: Sí, ¿cuántos años? ____ ¿en qué sector? _____
 No

¿Tiene experiencia en el mundo de los negocios? Sí, ¿cuántos años? ____ ¿en qué sector? _____
 No

¿Tiene experiencia en el mundo de la ciencia? Sí, ¿cuántos años? ____ ¿en qué área de conocimiento? Ciencias Ciencias de la salud Ciencias sociales y jurídicas Ingeniería y arquitectura Arte y humanidades
 No

Nivel de estudios completado: Doctor Master Licenciado Diplomado Grado

Área de conocimiento: Ciencias Ciencias de la salud Ciencias sociales y jurídicas Ingeniería y arquitectura Arte y humanidades

Edad: Menos de 25 Entre 25 y 35 Entre 36 y 45 Entre 46 y 55 Entre 56 y 65

Sexo: Hombre Mujer

Anexo IV: Cuestionario para mánagers (versión en inglés)

INCUBATOR MANAGER QUESTIONNAIRE

Incubator:	Country:
Have you got pre-incubation program/services? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please, answer the following questions.	

Pre-incubation						
Is there space available for pre-incubatees in order to work on their business idea/plan? <input type="checkbox"/> Yes <input type="checkbox"/> No						
Maximum pre-incubation period (months):			Average pre-incubation period (months):			
Cost per month:	This cost includes: <input type="checkbox"/> use of the space <input type="checkbox"/> main services <input type="checkbox"/> another:_____					
Maximum occupancy (number of projects) per pre-incubation:						
Occupancy (number of present projects):			Occupancy (number of present pre-incubatees):			
Average percentage of projects that move from pre-incubation to incubation phase:						
Which of the following services (and to which extent) do you offer/support in the pre-incubation phase?	We do not offer/support this service	Not much				A lot
Sparring and assistance in developing a business idea		1	2	3	4	5
Sparring and assistance in preparing a business plan		1	2	3	4	5
Practical tips and tricks about how to start up a business		1	2	3	4	5
Business and entrepreneurship training		1	2	3	4	5
Specialized training program (management, sales, human resources, technology transfer, etc.)		1	2	3	4	5
Coaching or mentoring		1	2	3	4	5
Assistance in planning financing		1	2	3	4	5
Access to incubator networks (business, associations, freelance, etc.)		1	2	3	4	5
Meetings and events between pre-incubatees in order to foster contacts and relationships between them		1	2	3	4	5
University support (academic mentors, training program, transfer technology program, use of spaces, etc.)		1	2	3	4	5
In general, what is the level of participation of pre-incubatees in different activities you organize? Very low 1 2 3 4 5 Very high						

Have you got incubation program/services? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please, answer the following questions.

Incubation						
Is there space available (offices, labs, etc.) for incubatees in order to develop their business activities? <input type="checkbox"/> Yes <input type="checkbox"/> No						
Maximum incubation period (months):			Average incubation period (months):			
Cost per month:	This cost includes: <input type="checkbox"/> use of the space <input type="checkbox"/> main services <input type="checkbox"/> another:_____					
Maximum occupancy (number of start-ups):						
Occupancy (number of present start-ups):			Occupancy (number of present incubatees):			
Rate of graduated companies (%):						
Which of the following services (and to which extent) do you offer/support in the incubation phase?	We do not offer/support this service	Not much				A lot
Sparring and assistance in developing company's business plan		1	2	3	4	5
Sparring and assistance in implementation of product/service development		1	2	3	4	5
Training (workshops, seminars, etc.)		1	2	3	4	5
Coaching or mentoring		1	2	3	4	5
Assistance in planning and organization of necessary financing		1	2	3	4	5

Assistance in obtaining financing and in applying R&D&I projects for national and European calls, etc.		1	2	3	4	5
Access to incubator networks (business, associations, freelance, etc.)		1	2	3	4	5

Meetings and events between incubatees in order to foster contacts and relationships between them		1	2	3	4	5
University support (academic mentors, student interns, technology transfer program, training program, use of spaces, etc.)		1	2	3	4	5
In general, what is the level of participation of incubatees in different activities you organize? Very low 1 2 3 4 5 Very high						

Have you got post-incubation program/services? Yes No
If yes, please, answer the following questions.

Post – incubation

Maximum post-incubation period (months):	Average post-incubation period (months):																																																																																											
Cost per month:	This cost includes: <input type="checkbox"/> main services <input type="checkbox"/> others: _____																																																																																											
Maximum number of firms that can participate in post-incubation:																																																																																												
Number of present firms in post-incubation:	Number of partners of those firms:																																																																																											
Which of the following services (and to which extent) do you offer/support in the post- incubation phase?	<table border="1"> <thead> <tr> <th>We do not offer/support this service</th> <th colspan="5">Not much</th> <th>A lot</th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th></th> </tr> </thead> <tbody> <tr> <td>Access to facilities (conference rooms, meeting rooms, labs, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Contacts and first steps in internationalization</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Assistance in commercialization</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Assistance in developing company's business strategy</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Training (workshops, seminars, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Coaching or mentoring</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Assistance in planning financing</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Assistance in obtaining financing and in applying R&D&I projects for national and European calls, etc.</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Access to incubator networks (business, associations, freelance, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>Meetings and events between post-incubatees in order to foster contacts and relationships between them</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> <tr> <td>University support (academic mentors, student interns, technology transfer program, training program, access to facilities, etc.)</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td></td> </tr> </tbody> </table>	We do not offer/support this service	Not much					A lot		1	2	3	4	5		Access to facilities (conference rooms, meeting rooms, labs, etc.)	1	2	3	4	5		Contacts and first steps in internationalization	1	2	3	4	5		Assistance in commercialization	1	2	3	4	5		Assistance in developing company's business strategy	1	2	3	4	5		Training (workshops, seminars, etc.)	1	2	3	4	5		Coaching or mentoring	1	2	3	4	5		Assistance in planning financing	1	2	3	4	5		Assistance in obtaining financing and in applying R&D&I projects for national and European calls, etc.	1	2	3	4	5		Access to incubator networks (business, associations, freelance, etc.)	1	2	3	4	5		Meetings and events between post-incubatees in order to foster contacts and relationships between them	1	2	3	4	5		University support (academic mentors, student interns, technology transfer program, training program, access to facilities, etc.)	1	2	3	4	5	
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In general, what is the level of participation of post-incubatees in different activities you organize? Very low 1 2 3 4 5 Very high																																																																																												

Incubator manager details

In which year was the incubator founded?
Indicate the number and the type of organizations that support and are involved in the incubator:
Is the incubator self-financed? <input type="checkbox"/> Yes, What is the percentage of this self-financing? _____ <input type="checkbox"/> No
For how long have you been the manager of the incubator?: _____ Is it your only job? <input type="checkbox"/> Yes <input type="checkbox"/> No
Have you got entrepreneurial experience? <input type="checkbox"/> Yes, how many years? ____ In which sector of activity? _____ <input type="checkbox"/> No
Have you got experience in the business world? <input type="checkbox"/> Yes, how many years? ____ In which sector of activity? _____ <input type="checkbox"/> No
Have you got experience in the science world? <input type="checkbox"/> Yes, how many years? ____ In which area of knowledge? <input type="checkbox"/> Sciences <input type="checkbox"/> Health sciences <input type="checkbox"/> Social sciences <input type="checkbox"/> Engineering & architecture <input type="checkbox"/> Arts & humanities <input type="checkbox"/> No
Level of studies completed: <input type="checkbox"/> PhD <input type="checkbox"/> Master <input type="checkbox"/> Bachelor <input type="checkbox"/> Other _____
Area of knowledge: <input type="checkbox"/> Sciences <input type="checkbox"/> Health sciences <input type="checkbox"/> Social sciences <input type="checkbox"/> Engineering & architecture <input type="checkbox"/> Arts & humanities
Age: <input type="checkbox"/> < 25 <input type="checkbox"/> 25 - 35 <input type="checkbox"/> 36 – 45 <input type="checkbox"/> 46 – 55 <input type="checkbox"/> > 55
Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female

