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Getting Help From Innomediaries

What Can Innovators do to Increase Value in External Knowledge Searches?

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13.1 INTRODUCTION

This chapter aims to show what actions innovating companies can take to increase value when they make use of intermediated OI services in different phases of their external knowledge searching and hence improve their chances of ultimately establishing a successful tech-transfer agreement with a solution provider. Over the past decade more than 25 articles have been written on intermediated services indicating their increasing importance for both academia and practitioners. Some of these publications have been descriptive in nature highlighting important trends in the intermediated OI service industry and describing its main characteristics (see Fosfuri & Gambardella, 2001; Enkel, Gassmann, & Chesbrough, 2009). Other studies have focused on the value innovating companies can potentially derive from using intermediated services and have identified the factors (usually outside firms' sphere of influence) that affect the potential value accruing to innovating companies when interacting with innomediaries/solution providers (Dushnitsky & Klueter, 2011) and the motivations behind solution providers' involvement in markets for solutions (Boudreau & Lakhani, 2009; Che & Gale, 2003). Despite this growing body of literature on intermediated services relatively

little attention has been paid so far to what innovating companies themselves can do to increase the value they derive from working with innomediaris throughout all phases of external knowledge searches. Some companies are more successful at deriving value from their interactions with innomediaris than others. These differences can partly be linked to the actions innovators take internally to add to their value capturing potential. The objective of this chapter is to identify these internal actions and thus help innovating companies to increase the value they generate when using intermediated OI services.

We can distinguish between two types of innomediaris in the intermediated OI service industry:

1. Innomediaris that offer their intermediated services on the basis of interaction between their staff and the clients they serve and thus rely heavily on experienced personnel. Three subtypes are currently in existence:
 - Innomediaris that support innovating companies in their external knowledge searching and find technical solutions that are integrated in the products/services of their clients (e.g. Ninesigma, Innocentive, IXC)
 - Innomediaris that help innovating companies make use of their unused Intellectual Property (IP) (e.g. Yet2.com, Innovaro)
 - Staff-augmentation companies that provide staff to help clients solve OI problems (e.g. IXC, YourEncore)
2. Innomediaris that offer their services on the basis of interaction between innovating companies and technology and thus rely on software programs and search engines. We can distinguish the following three subtypes:
 - Platform providers that offer platforms where innovating companies can post their technological needs/offerings (e.g. Hypios, IdeaConnection)
 - Software companies that create platforms for ideation/searches (e.g. Inno360, Spigit)
 - Crowd sourcing companies that provide access to consumers (e.g. IdeaScale, Threadless)

In this chapter we study how innovating companies can increase value when interacting with the first type of innomediaris in their external knowledge searches. Innovating companies that make use of intermediated services in external knowledge searching are usually active in highly innovative fields of industry (e.g. automotives, chemicals, consumer packaged goods, food and beverages, pharmaceuticals and medical devices, communications and defense, energy and

utilities, electronics) and have a broad technology portfolio that is simultaneously covered by both internal sourcing and external knowledge searches (Cassiman & Veugelers, 2006). Examples of such companies include Philips, Siemens, Glaxo-Smithkline, Kraft, Jaguar Land Rover, Res Med Crown Packaging, PepsiCo, etc. Our exploratory research entails a set of 21 interviews conducted at Ninesigma clients, which were recorded, transcribed, and thematically analyzed resulting in quote sheets categorized by theme. Furthermore, we administered an online survey to 260 innovating companies working with Ninesigma using Survey Monkey. Fifty-two managers at innovating companies (i.e. a response rate of 20%) provided information on their interactions with Ninesigma.

When innovating companies engage in external knowledge searches whilst seeking the help of innomediaries they typically go through four phases: Orientation, exploration, selection, and engagement. In orientation innovating companies join forces with innomediaries to formulate their technological needs and translate these needs into Requests For Proposals (RFPs). In exploration innovating companies rely on innomediaries to retrieve interesting solution proposals that meet their needs. In the selection phase companies and innomediaries jointly determine the value of submitted proposals and decide which solution provider(s) (if any) to engage with. In engagement innomediaries help their clients to set up meetings with solution providers and sign agreements with these parties (non-disclosure agreements (NDAs) or tech-transfer agreements). While each phase can result in valuable outcomes for innovating companies the process of external knowledge searching is successfully completed once a beneficial agreement with a solution provider is set up. The quality of the intermediated services offered by innomediaries partly influences the likelihood of a signed agreement between their clients and solution providers. However, this represents only one side of the story. Some innovating companies are better equipped to make effective use of intermediated services in their external knowledge searches than others. These variations in success rates can partly be linked to the actions innovating companies take internally to add to their ability to benefit from their interactions with innomediaries. For each of the phases of external knowledge searching we identify a set of actions that innovating companies can take to increase the likelihood of successfully engaging with innomediaries and solution providers. Figure 13.1 visualizes the relations between the services offered by innomediaries in each of the phases of external knowledge searching, the value-adding actions by innovating companies, and the key success factors linked to each phase.

On the basis of Figure 13.1 the chapter is structured as follows. In the next section we first outline the context of the chapter. We start off by providing an overview of the important literature that has come into existence to date and that focuses on relevant aspects of innomediaries. The second part of this first section deals with the most important trends we currently observe in

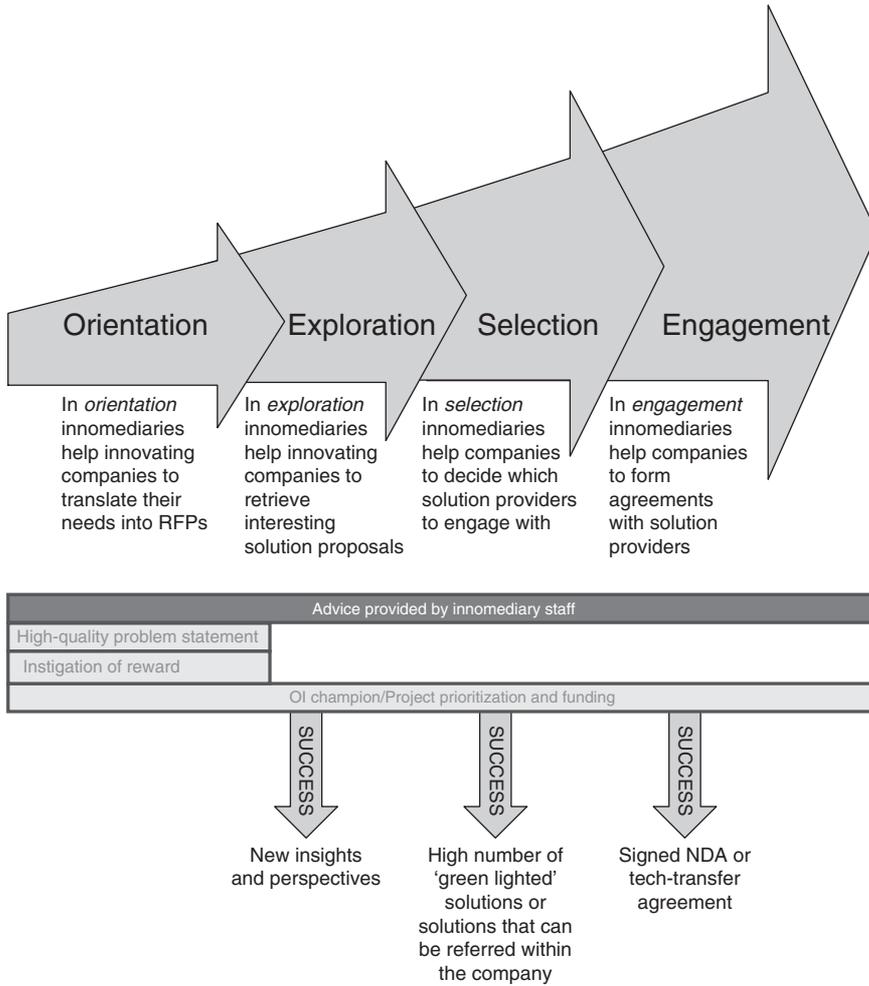


Figure 13.1 Potential value added by innomediaries in different stages of external knowledge searches, value-adding actions by innovating companies, and key success factors related to each phase

the intermediated OI service industry. Next, we describe the services offered by innomediaries in each of the phases of external knowledge searching and we explain how Ninesigma clients define success in relation to the help they receive from the innomediarie in all phases. In the following, we pinpoint the actions that innovating companies can take for themselves to stimulate value creation in their relations with innomediaries. Finally, we draw conclusions from our exploratory analysis and identify the main venues for future OI research on innomediaries.

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13.2 BACKGROUND ON INNOMEDIARIES

13.2.1 Theory Development

The increasing importance of the role of innomediaries in helping innovating companies to stimulate their external knowledge searches is witnessed by the growth of academic study in this field. Over 25 publications have arisen in recent years that shed light on innomediaries. Several studies have been published that describe trends occurring in the intermediated OI service industry (Arora et al., 2001a; Arora & Gambardella, 2010; Athreye & Cantwell, 2007; Dushnitsky & Klueter, 2011). In 2001 Arora et al. were among the first to describe the market for solutions as an effective medium for technology transfer where innovating companies can establish contact with solution providers that offer them resolutions to their internal technical problems. In recent years an increasing number of innovating companies have searched for external knowledge through innomediaries adding significantly to the growth of this marketplace. Specifically, in the mid-1990s the size of the global market for solutions was estimated to comprise around 55–60 billion US dollars in royalty and licensing revenues while this figure grew to around 90–100 billion US dollars in the year 2000 (Arora et al., 2001a; Athreye & Cantwell, 2007). Other studies focus on the characteristics and dynamics of the intermediated OI service industry (Enkel et al., 2009; Huston & Sakkab, 2006). Specifically, depending on the number of innovating companies (one or multiple) involved in external knowledge searches markets for solutions have been classified as being either internal to the firm or external (Huston & Sakkab, 2006). As an increasing number of innovating companies have begun to search for knowledge outside their boundaries several innomediaries have come into existence that facilitate the match between innovating companies and solution providers and offer intermediated OI services to firms through their staff. Enkel et al. (2009) point out that innomediaries promote external knowledge searches by creating effective bridges between innovating companies and solution providers.

Other authors have described the role played by innomediaries in helping companies to search for external knowledge (Arora & Fosfuri, 2003; Nambisan & Sawhney, 2007; Tapscott & Williams, 2006). Innomediaries help their clients to formulate effective problem statements in RFPs thus enhancing the likelihood of obtaining high-quality solutions from solution providers (Sieg, Wallin, & von Krogh, 2010). Others focus on the factors affecting the value that innovating companies can potentially derive from interacting with innomediaries and solution providers, such as the not-invented-here syndrome (NIH), a low level of absorptive capacity, a lack of complementary knowledge/assets, and tacit knowledge components (Arora & Gambardella, 2010; Bresnahan & Trajtenberg, 1995; Ceccagnoli, Graham, Higgins, & Lee, 2010; Dushnitsky & Klueter, 2011; Gans & Stern, 2010). The NIH syndrome refers

to the unwillingness in innovating companies to engage in external knowledge searches and a clear preference for internal knowledge development. Typically this opposition is grounded in the organizational culture of innovating companies (Arora & Gambardella, 2010). A low level of absorptive capacity (Cohen & Levinthal, 1990) in innovating firms is related to the underdeveloped capacity in some companies to make use of external knowledge, which discourages their efforts to engage with innomediaries. Some solution proposals tend to be more valuable when innovating companies are able to combine these technical resolutions with internal complementary assets and knowledge components. Not all innovating companies possess these important complementary skills, which leads them to derive less value from their external knowledge searches (Bresnahan & Trajtenberg, 1995; Ceccagnoli et al., 2010). If solution proposals involve tacit knowledge components it is very difficult for innovating companies to appreciate the value of these proposals or apply this knowledge within their business (Dushnitsky & Klueter, 2011).

A final stream of research is focused on issues related to solution providers. Some authors point out that a high number of solution providers responding to RFPs may decrease the quality of solutions as solution providers are less likely to invest large amounts of resources if the chance of winning is low (Che & Gale, 2003; Taylor, 1995). Others argue that a higher number of solution providers adds to the diversity of solutions thus offsetting possible negative effects (Pisano & Verganti, 2008; Terwiesch & Ulrich, 2009; Terwiesch & Xu, 2008). Silveira and Wright (2010) examine the ambiguous role of IP in the intermediated OI service industry where innovating companies need access to full information to rightfully assess the value of solution proposals while solution providers look for ways to protect their knowledge through IP (Laursen & Salter, 2012). Few studies examine the drivers behind solution providers' involvement in markets for solutions and conclude that monetary rewards are important motivators besides softer motivations such as personal enjoyment (Boudreau, Lacetera, & Lakhani, 2011; Boudreau & Lakhani, 2009; Frey, Lüthje, & Haag, 2011; Lakhani & Jeppesen, 2007).

13.2.2 Trends in Practice

There is increased acceptance in large companies that OI is an essential part of their business. Early adopters of OI such as Philips, Kraft, and PepsiCo have learned from their experiences and have consequently refined their use of OI (Cassiman & Veugelers, 2002; Chesbrough, 2003a, 2006b; Laursen & Salter, 2006). They have moved from exploring technological solutions through traditional partnerships to multi-party collaborations. This is particularly the case where companies recognize the need to work with universities and a multitude of other partners at the same time. An example of

this is the San Diego Zoo Global Bioinspiration program where biologists, engineers, and chemists join forces to solve problems in the areas of technology, transportation, and renewable energy. The more refined OI practice of large companies also becomes clear from their current use of crowd sourcing, which has evolved from writing RFPs based on a few predefined search criteria to setting up competitions in areas where they need to rapidly acquire new knowledge and build partnerships (e.g. Siemens Smart Grid Contest 2010). Furthermore, most early adopters of OI no longer view crowd sourcing and technology scouting as OI actions in themselves but more so as part of the day-to-day job of all members of their R&D teams. A final piece of evidence with respect to the increased refinement of large companies in OI relates to their objectives for external knowledge searches that have broadened out from in-licensing to acquisitions, joint ventures, joint development agreements, and collaborations to secure government funding of development programs. As a result of their increased sophistication in OI and their increased reliance on internal staff for technology scouting early adopters typically rely on innomediaries for external knowledge searches outside their normal field of view or to provide staff as an interim resource to handle specialist OI projects or peaks in workload.

In small innovators we witness increasing recognition of the importance of OI and strong efforts to engage in OI. Particularly, the more the small innovator makes use of complex technologies the more it is likely to use OI for product improvement, cost reductions, solving technology challenges, new product and service development, and opening up new markets. However, a lack of skills and resources as well as a short-term focus seem to restrict the scope for OI action in small companies (Chesbrough, 2011; Dahlander & Gann, 2010; Freel, 2000; Gans & Stern, 2003; Laursen & Salter, 2006; Lee, Park, Yoon, & Park, 2010; Narula, 2004; Spithoven, Vanhaverbeke, & Roijackers, 2012; Van de Vrande, De Jong, Vanhaverbeke, & De Rochemont, 2009b). In order to spur their innovation activities small innovating companies seem to continue relying on interaction with universities. When they do make use of intermediated OI services small firms are more likely to engage with individual consultants rather than innomediaries.

Increased interest in OI among all types of companies and a heightened refinement in the use of OI in large companies have expanded the market for innomediaries and encouraged new entrants (Diener & Piller, 2010). OI is a people intensive process and whilst techniques such as crowd sourcing now make it much easier to find data, people are still needed to make sense of what is found. Hence, many innomediaries have increased their focus on supplying hard to replicate analytical and soft people skills for OI to ward off competition. Ninesigma, Innocentive, IXC, Yet2.com, and YourEncore have expanded their services to now cover advice not only in the orientation and exploration phases of external knowledge searching, which were traditionally the phases where innomediaries would offer their services, but also in selection and engagement (see Figure

13.1). Innomediaries nowadays provide OI consultancy through their staff throughout all phases of external knowledge searching and stimulate companies to take actions for increasing the value they can derive from using intermediated OI services (e.g. recruiting, training, and appointing OI champions).

13.3 EXTERNAL KNOWLEDGE SEARCHES: WHAT INNOVATING COMPANIES PERCEIVE AS SUCCESSFUL OUTCOMES OF INTERMEDIATED OI SERVICES

A number of studies describe the intermediated OI services offered by innomediaries in external knowledge searches (Mortara, 2010a). Few researchers have paid attention to what constitutes a successful outcome of interactions between innomediaries and their clients. Most observations in this respect are of a general nature where researchers mention that value pertains to lower internal R&D costs, reduced R&D risks, shorter time-to-market, and access to new ideas (Arora et al., 2001a; Enkel et al., 2009). In this section we describe the intermediated OI services offered by innomediaries and we link these intermediated services to the various phases that innovating companies typically go through when searching for technological knowledge outside their boundaries. Furthermore, we specify what constitutes a successful interaction with an innomediary in each phase as perceived by Ninesigma clients (see Figure 13.1).

In orientation the intermediated services of innomediaries are focused on helping their clients to understand and formulate their technological needs as well as coaching them to write RFPs that contain high-quality problem statements. One of the most difficult facets of writing RFPs is associated with formulating problem statements that adequately cover the innovating company's technological needs. The quality of the problem statement in an RFP (in terms of pinpointing the precise technological problem) determines the quality of the solutions that are offered by solution providers (in terms of the extent to which the proposed solution meets the technical needs of the innovating company) (Sieg et al., 2010). Interviewees mention the following in relation to intermediated OI services in this phase: "(...) Ninesigma asks questions that force us to think carefully about the problem we are trying to solve (...) they work with us on defining the problem (...)."

In the exploration phase innomediaries facilitate the retrieval of new and unexpected technology solutions. Based on their network of technology companies, universities, research institutes, etc. they are able to invite solution providers to respond to their clients' specific technological needs. As such, innomediaries help their clients obtain proposals from parties that they might

not have considered as relevant technology sources or that they might not have been able to reach otherwise. Managers at innovating companies phrase this as follows: “(...) Ninesigma can use its platform to identify thousands of engineers working on particular research problems and within a couple of weeks we know whether to continue or terminate a project (...) they provide us with information regarding possible solutions and solution providers that we could not find on the internet or in the scientific literature. We could have been searching forever and never found them (...)” The exploration phase is considered to be successful by Ninesigma clients when they are able to gain access to new insights and perspectives with respect to their internal problem-solving initiatives through their use of intermediated OI services. An interviewee described this successful outcome in the following manner: “(...) through Ninesigma we get exposed to companies with different views (...) different perspectives or angles that we did not consider before and sometimes this leads us to re-evaluate our projects (...)”

In the selection phase innomediaries offer services that aid innovating companies in selecting valuable solution proposals. When solution providers submit possible technical answers to problem statements that were worded in RFPs, innovating companies have to determine the value of these solutions. Furthermore, they need to decide whether or not to engage in further interactions with solution providers. Innomediaries capture and deliver information that their clients need to make such difficult decisions. In addition, they provide methods and tools to assist in the decision-making process. When working with innovating companies Ninesigma makes use of a traffic light system to recommend and prioritize solution proposals meeting companies’ original objectives where “green lighted” solutions represent the most valuable solutions in terms of meeting technical specifications. As one client put it: “(...) Ninesigma ranks solutions based on relevant criteria that allow us to prioritize the top responses (...)” In selection Ninesigma clients perceive a high number of “green lighted” solutions as a successful outcome of their interaction with the innomediary. One interviewee states that: “(...) it is not just about the number of solutions we receive (...) it is about the number of solutions we find useful (...)” Another successful outcome in selection is the number of solution proposals that can be referred to other departments within the client organization. Sometimes innovating companies receive solution proposals that are not directly relevant for the team/department that got involved with the innomediary in the first place. In these cases proposals may get transferred within the company to other teams/departments working on different sets of technological problems benefitting more directly from the proposed solutions. As one manager put it: “(...) it was not directly of use to us (...) so we knew of some scientists within our company working on such issues (...) we sent it to them and they could use it (...)”

In engagement innomediaries help to bring about agreements between their clients and solution providers that were selected in the previous phase.

Innomediaries assist their clients in conducting negotiations with solution providers and help to set up NDAs to stimulate further technological discussions and more definitive arrangements pertaining to the transfer of technological knowledge/IP or joint knowledge creation. Ninesigma clients describe this service as follows: “(...) Ninesigma facilitated interaction with a solution provider, which allowed us to communicate through face-to-face talks and clarify those nuances that came out of telephone conversations and were still unsolved (...)” Innovating companies perceive this phase to be successful when they sign a beneficial NDA or a tech-transfer agreement with a solution provider. One interviewee mentioned the following in this respect: “(...) for me a successful project is the one that ends in a signed agreement for further cooperation (...)”

Throughout all phases of external knowledge searching innomediaries rely on their staff to provide clients with technical advice and OI consulting where necessary. One of the interviewees referred to this service aspect in the following manner: “(...) we have had discussions with Ninesigma project managers to describe our needs (...) they capture what we need and then translate that need to make it work for their network of solution providers (...)”

13.4 EXTERNAL KNOWLEDGE SEARCHES: WHAT INNOVATORS CAN DO TO INCREASE VALUE FROM USING INTERMEDIATED OI SERVICES

Clients’ perceptions of successful outcomes of using intermediated OI services are linked to different phases of external knowledge searching. The successful completion of this search process is evidenced by a signed agreement between innovating companies and solution providers. This valuable end result is by no means an isolated outcome as it builds on the results obtained in previous phases: A high-quality RFP with a well-defined problem statement is likely to attract a high number of interesting solution providers resulting in a high number of “green lighted” solution proposals. A high number of valuable technical solutions positively affect the chances of successful negotiations between innovating companies and solution providers. Being successful in each of the phases of external knowledge searching whilst joining forces with an innomediary partly hinges on the quality of the intermediated OI services offered by the innomediary; it is also partly dependent on the ability of the client to make effective use of these intermediated services. Some innovating companies have a higher likelihood of signing an NDA or a tech-transfer agreement with solution providers than others following their interaction with innomediaries. Broadly we can say that for less successful innovating companies, which have a signed agreement as one of their main targets, around 40% of their RFPs

lead to a signed agreement whereas more successful companies, targeting a signed agreement, are able to turn 60–70% of all their external knowledge searches through RFPs into successful contracts. These differences in success rates can be linked to the actions innovating companies take internally to add to their ability to make effective use of intermediated services in each phase thus increasing their chances of signing an agreement with a solution provider in engagement (Ihl, Piller, & Wagner, 2012). In this section we identify the actions innovating companies can take in different phases of their external knowledge searches to increase their chances of success (see Figure 13.1).

To increase value from using intermediated services innovating companies need to develop skills with respect to rightly formulating problem statements and writing up high-quality RFPs. In orientation, one of the main challenges is defining a high-quality problem statement (Sieg et al., 2010). If the problem statement contains more than one technical issue, there is a high likelihood that very few solution providers will respond to the RFP. If the problem statement is too descriptive in terms of applications solution providers from industries other than the innovating company's may fail to address the problem or offer their solutions. Innovating companies with the skills and experience necessary for translating their technical needs into specific problem statements tend to be more effective in teaming up with an innomediary and jointly developing an RFP. Ninesigma clients mention the following in this respect: "(...) it is all about how you craft the RFP (...) formulating a problem statement that is free of industry language is of eminent importance (...)." Another important action that innovating companies can take to be more effective in their interactions with innomediaries is to instigate a reward for successful solutions in the orientation phase. Most of the successful innovating companies make available a financial reward for solution providers that present them with valuable solutions. The amount of the reward available for a solution provider should be proportional to the potential value created through the successful solution. There is a high correlation between the reward offered by an innovating company and the likelihood that this company will ultimately sign a mutually beneficial agreement with a solution provider either to engage in further negotiations or to transfer knowledge from the solution provider to the innovating company (Boudreau et al., 2011; Boudreau & Lakhani, 2009; Frey et al., 2011; Lakhani & Jeppesen, 2007). As one interviewee put it: "(...) the financial incentive shows that you are serious and willing to spend money to solve a problem (...)."

To stimulate more effective interactions with innomediaries throughout all phases of external knowledge searching innovating companies need to appoint an OI champion to support the project as well as label the project as "strategic" and fund it as such. Innovating companies that effectively make use of intermediated OI services experience very strong support for OI initiatives and intermediated services from the very top levels of their organization.

Most of these companies have an OI champion in place when interacting with innomediaries. An OI champion is typically an experienced, high-status individual who is well-connected within the innovating firm and is empowered to manage all phases of external knowledge searching. Innovating companies interacting with Ninesigma describe the role of an OI champion in the following manner: “(...) the champion is an early point of contact for outside companies (...) the champion preaches the OI mentality (...) the champion is cheerleader, coach, strategist, organizer, maintainer of the OI philosophy (...)” When all phases of external knowledge searching are driven by a champion, the success rate doubles and triples compared to companies that do not have such executive support. As one interviewee stated: “(...) this whole process has been supported by senior management; otherwise it simply would not happen (...)” Furthermore, innovating companies that are most effective in signing agreements with solution providers typically designate their OI projects and their engagements with innomediaries as “strategic.” Strategic projects are a corporate priority and are not likely to be cancelled due to changing corporate agendas. When an innovating company uses the most strategic projects for external knowledge searches that have a certain urgency about them, chances for success go up dramatically. In the interview phase we found that “(...) the main reason why projects do not succeed is because they are not strategically relevant to the company (...)” Another Ninesigma client mentioned that “(...) senior management has to provide long-term financial support (...) you have to have full engagement of internal resources (...) for it to be successful (...)”

13.5 CONCLUSIONS AND VENUES FOR FURTHER RESEARCH

On the basis of interviews and survey research among Ninesigma clients this chapter has shown that there are several actions innovating companies can themselves take to increase value from interacting with innomediaries in all phases of their external knowledge searching. More and more innovating companies with broad technology portfolios in automotives, pharmaceuticals and medical devices, communications and defense, and other sectors of industry make use of intermediated OI services to stimulate their external knowledge searches. While these typically large companies (early adopters such as Siemens, Glaxo-Smithkline, and Jaguar Land Rover) have gained substantial experience in OI and the use of sophisticated OI tools, innomediaries have intensified their service offerings in the initial phases of external knowledge searching and expanded their activities to also cover intermediated services in the final phases of external searches and OI consultancy in all phases. In

recent years several interesting publications have emerged describing the role played by innomediaries in the external knowledge searches of large innovating companies (Enkel et al., 2009). While some authors (Ceccagnoli et al., 2010) have identified a number of factors influencing the potential value innovating companies can derive from using intermediated OI services these factors are mostly difficult to change or beyond the direct sphere of influence of most companies. Building on a few other studies (Boudreau & Lakhani, 2009; Lakhani & Jeppesen, 2007; Ihl et al., 2012) in this chapter we focus on what innovating companies can do internally to increase the likelihood of success when engaging with innomediaries.

Our exploratory research identifies several routes to improving the chances of success when engaging in external knowledge searches: Optimizing the RFP writing process; rewarding solution providers that add value to internal problem-solving; appointing an experienced, high-profile OI champion to stimulate external knowledge searches; prioritizing OI projects and allocating long-term funding to these initiatives. What is interesting about these results is that there is a specific set of actions that innovating companies can take at the very beginning of their external knowledge searching, that is before even putting out an RFP (defining a high-quality problem statement and making mention in the RFP of a reward coupled to receiving valuable solutions), which significantly increase the likelihood of engaging with solution providers in the final stage of external knowledge searching.

On its website Ninesigma hosts an OI scorecard diagnostic tool that captures companies' OI adoption rates or maturity level. Of the companies visiting this website (not necessarily clients of Ninesigma) and providing input to the tool 34% are not involved in OI at the moment; 37% of all respondents report to be in the early stages of OI; 23% of companies are currently optimizing an existing OI program; 6% are re-launching an OI program. From these figures we can conclude that although there are several large innovating companies with a fairly high level of experience in OI and highly sophisticated OI programs in place, there are also many (small) companies that are only just beginning to learn about the potential benefits related to engaging in external knowledge searches. For all of these innovating companies (both experienced and inexperienced at OI) aiming to learn about new technologies through using intermediated OI services it is of utmost importance to realize that there are several actions they can take themselves, such as building skills in the RFP writing process and appointing an OI champion, to significantly add to the value they can potentially derive from using these intermediated services (Enkel, Bell, & Hogenkamp, 2011; Ihl et al., 2012).

We discern several venues for further research by OI scholars targeted towards increasing the efficiency and effectiveness of intermediated OI services in all phases of external knowledge searching leading to more benefits for all parties involved. Several case studies in intermediated OI services have

emerged over time. However, they have lagged behind practice due to reluctance in innovating companies to publish how they gained competitive advantage and due to the fact that product/service launches and resulting revenue generation occur years after their interactions with innomediaries. There is thus still a need for case study research as well as large-scale data research to identify best practices in intermediated OI services. Detailed research into the effects of engaging in intermediated OI services on commercial success and other innovation-related Key Performance Indicators (KPIs) may help innovating companies to better assess the value of these intermediated services for their business and choose the venue that is right for them. While early adopters of OI become increasingly knowledgeable with respect to external knowledge searches and innomediaries intensify their service offerings to address more refined needs in these large companies it seems that smaller companies are mostly in need of more basic OI services that help them to build up experience in external knowledge searching. With their lack of skills and resources the question comes to mind of how to make intermediated OI services accessible and affordable for small companies. As an increasing number of innomediaries intensify their service offerings to include OI consultancy, the question arises which business model is most appropriate to commercialize these new intermediated services. As large companies become more experienced at external knowledge searches they develop their own competitions to attract solution providers. How does this development affect innomediaries? Other interesting questions relate to the topic of group-based problem solving: Are RFPs best written in isolation or with the help of outside parties? Are solution providers best off responding to RFPs by themselves or should they team up with other knowledge parties to provide higher-quality solutions? Although both theory and practice point to the importance of monetary rewards for solution providers in stimulating their participation in markets for solutions more research with respect to the drivers behind solution providers' involvement may shed light on how to attract the most knowledgeable ones.