

Evaluation of the Danish Innovation Centres

For the Ministry of Foreign Affairs of Denmark and the Danish Ministry of Higher Education and Science



Evaluation of Innovation Centre Denmark

Purpose of the evaluation

The evaluation sheds light on the value creation and additionality of the Danish Innovation Centres, including how they contribute to increase knowledge-sharing and collaboration between knowledge-intensive Danish businesses, research and educational institutions and leading international research, innovation and business systems.

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Table of contents

1. EXECUTIVE SUMMARY	4
Overall results: Increasing internationalisation of Danish research, innovation and education	4
Organisational setup and management	6
Individual results and assessment of the six ICDKs	6
Challenges and recommendations	10
2. INTRODUCTION	17
3. THE SIX DANISH INNOVATION CENTRES	18
3.1 Organisational setup and tasks of the ICDKs	19
3.2 Management and performance of the ICDKs	20
3.3 Type of clients	21
4. VALUE CREATION AND ADDITIONALITY	23
4.1 Value creation of the ICDKs	24
4.2 The additionality of the ICDKs	30
5. ORGANISATION AND MANAGEMENT	33
5.1 Localisation with the Danish representations	34
5.2 Collaboration with the Danish ministries and cross-centre activities	34
5.3 Interplay between the three areas	35
5.4 Incentives and key performance indicators	37
6. INNOVATION CENTRE DENMARK IN SILICON VALLEY	40
7. INNOVATION CENTRE DENMARK IN SHANGHAI	50
8. INNOVATION CENTRE DENMARK IN MUNICH	58
9. INNOVATION CENTRE DENMARK IN NEW DELHI AND BANGALORE	66
10. INNOVATION CENTRE DENMARK IN SÃO PAULO	75
11. INNOVATION CENTRE DENMARK IN SEOUL	83
12. METHODOLOGY	91

TERMS, ABBREVIATIONS AND ACRONYMS

Term	Definition
Executive director	The executive director is a representative of the area ‘commercialisation of innovation’ and carries out the daily management at each of the Danish Innovation Centres. The executive director is appointed and employed on a contract with the Ministry of Foreign Affairs of Denmark.
ICDK	Acronym for the Danish Innovation Centres
Innovation attaché	The innovation attaché is a representative of the area ‘research, innovation and education’. The innovation attaché is designated by the Danish Agency for Science, Technology and Innovation, but employed on a contract with the Ministry of Foreign Affairs of Denmark.
Innovation officer	The innovation officer is a representative of the area ‘commercialisation of innovation’. The innovation officer is employed locally at the Danish Innovation Centres.
Innovation projects	The innovation projects aim at cultivating and disseminating new thematic areas and building up competences and knowledge internally through the interaction between the three areas (‘Research, innovation and education’, ‘Commercialisation of innovation’ and ‘Investment promotion’) of the Danish Innovation Centres.
Investment officer	The investment officer is a representative of the area ‘investment promotion’, Invest in Denmark. The investment officer is appointed and employed on a contract with the Ministry of Foreign Affairs of Denmark.
Invest in Denmark	Invest in Denmark is Denmark’s official investment promotion agency. It is a part of the Danish Trade Council within the Ministry of Foreign Affairs of Denmark.
TC	Acronym for the Danish Trade Council. The Trade Council is the export and investment organisation within the Ministry of Foreign Affairs of Denmark.
Trade	The Danish Trade Council focuses its activities on trade by having trade advisors in foreign countries offering a number of specialised services to Danish companies promoting Danish export.

1. Executive summary

The Danish Innovation Centres (ICDKs) aim to *support Danish businesses, research and educational institutions to access international knowledge and research, create connections and develop business cases with an international perspective.*

The ICDKs are **established and managed as a partnership between the Ministry of Foreign Affairs of Denmark and the Danish Ministry of Higher Education and Science**, and the ICDKs are situated as parts of the Danish diplomatic missions (e.g., embassies, consulate generals or consulates in the relevant countries). The ICDKs are founded on three ‘pillars’ or focus areas, which are ‘research, innovation and education’, ‘commercialisation of innovation’ and ‘investment promotion’.

The **present six ICDKs are located in Silicon Valley, Shanghai, Munich, Seoul, New Delhi/Bangalore and São Paulo**. This evaluation conducted by Oxford Research is the first evaluation that examines all six ICDKs. The evaluation sheds light on the value creation and additionality of the ICDKs, including how the ICDKs contribute to increase knowledge-sharing and collaboration between knowledge intensive Danish businesses, research and educational institutions and leading international research, innovation and business systems.

Before presenting the results and assessment of each individual ICDK, we summarise the general results of the evaluation across the six ICDKs.

OVERALL RESULTS: INCREASING INTERNATIONALISATION OF DANISH RESEARCH, INNOVATION AND EDUCATION

Looking across the six ICDKs, the overall conclusion of the evaluation is that the ICDKs create significant results by increasing and facilitating internationalisation of Danish research and innovation and higher education. The evaluation finds that the ICDKs especially create value by:

- **Bridging the geographical distance from Denmark to foreign markets, R&D and innovation systems, and managing to create cross-national links**, where Danish businesses, research and educational institutions interact with foreign businesses, researchers and investors in developing and exchanging knowledge, skills, practices and views.
- **Playing an important role in incentivising Danish businesses, research and educational institutions to explore foreign markets, R&D and innovation systems** and in creating awareness of the business and research opportunities abroad.

The evaluation also shows that **the additionality of the ICDKs is high**, as the ICDKs have been successful in making use of alliances and partnerships, as well as relationships that are more informal with Danish clusters, organisations, and networks that support R&D and innovation processes. Abroad, the ICDKs have established partnerships and collaborations with different types of actors in the markets and R&D and innovation systems. These include national and regional governments, research and educational institutions, cluster organisations, startups, SMEs, multinational companies, business associations and investors.

From these findings, the evaluation concludes that **the core focus of the ICDKs is qualitatively different from the market focus of the rest of the Danish export promotion system**. The ICDKs focus on assisting clients in the early R&D stage, identifying potential opportunities, partners and solid business models and ensuring that plans actually take off internationally. While the Trade Council (TC) offers a network of foreign offices with in-market advisors in foreign countries who offer a number of specialised services to promote exports, including the identification of potential customers, the ICDKs offer a different kind of support. The ICDKs focus on enabling their clients to have a presence in key technology and innovative clusters by supporting them with a deep local knowledge and understanding of R&D and innovation processes as well as insights into technology and market trends. The clients of the ICDKs are typically from high-tech sectors such as ICT, life sciences and cleantech, and when looking into the client base of the ICDKs, the evaluation finds that they are mostly knowledge and technology-intensive businesses. In addition, as a part of the Danish innovation system, this evaluation also finds that **the ICDKs add extra value because of their focus on innovation as a bilateral and international activity**. While the Danish innovation system is largely national-oriented, the ICDKs, by being located in regions outside Denmark, can help create more cross-national innovation between the Danish innovation and research environments and the innovation and research environments abroad.

Value creation of the ICDKs

The clients generally acknowledge that **the ICDKs are in-sync and understand the needs and strategies of their clients**, including high-tech businesses with a strong R&D focus as well as research and educational institutions. They find that the ICDKs support them in obtaining an overview of the R&D and innovation systems because of their solid technical knowledge and overview of the actors in the local R&D and innovation systems. The ICDKs create value by helping their clients gather knowledge about the market and research agenda in the local regions. The clients receive new and relevant information about the market and research field that they look into as the ICDKs focus on providing deliverables and services that are designed to familiarise the clients with the culture and business practices in the foreign regions they are interested in.

While the clients highlight that all of the ICDKs have a strong overview and understanding of the local R&D and innovation systems, the evaluation also finds that **the clients have different experiences of the outcomes from using the ICDKs depending on the location of the ICDKs**. The clients of the ICDKs located in South Korea, China, India and Brazil state that one of the main outcomes from using the ICDKs is to gain an understanding of the cultural and political practices in the local markets and research area as well as to access new markets and innovation systems. While it is also pointed out as an outcome for clients in Germany and the United States, the environment in these countries is more similar to the Danish environment, and the clients are generally more experienced in operating in these settings. ICDK Silicon Valley and ICDK Munich mainly create value because of their deep knowledge and understanding of R&D and innovation processes, as well as their insights into the key technology and market trends.

Across the ICDKs, the evaluation finds that the ICDKs generally create value by **enabling their clients to access local networks** and thereby, the ICDKs provide a platform for establishing joint projects or validating value propositions. A core focus of the ICDKs is that they make connections and build up networks with actors in their local markets and R&D and innovation systems. The clients make use of the established connections that the ICDKs continually foster and develop.

Given their strong connections and networks in the R&D and innovation systems, the ICDKs accelerate the process, enabling research and educational institutions to conclude collaboration agreements with local partners in the foreign countries. **Lastly, the ICDKs contribute to promote Denmark and the Danish strongholds.** This is partly as a consequence of connecting Danish actors with foreign actors and partly because of the setup and focus of the ICDKs that are considered unique in some regions compared to other countries' representations.

ORGANISATIONAL SETUP AND MANAGEMENT

In the day-to-day operations of the ICDKs, the evaluation finds that **the ICDKs are well managed and are an integrated part of the Danish diplomatic setup.** The expatriate staff at the ICDKs have diplomatic titles such as consul general (the executive director of ICDK São Paulo), consul (the executive director of ICDK Munich) and counsellors (the executive directors of the other ICDKs and the innovation attachées of all the ICDKs). These titles are useful for gaining access to new networks and for establishing valuable contacts. At the same time, the evaluation finds that in countries with a hierarchical business culture such as India, China and South Korea, the co-location with an embassy or consulate general is a benefit to the ICDKs, because an ambassador or consul general can support the ICDKs in opening up doors to the highest management level in companies, authorities and universities. Generally, the ICDKs find that collaboration with the Danish ministries is well functioning even though the administrative reporting and documenting to the ministries is experienced as burdensome.

Across the ICDKs, the evaluation finds that the activity of the ICDKs, to a large extent, is related primarily to the research and education area or the commercialisation area (or, in some cases, the intersection between the two areas), while **the third pillar, the investment promotion area represented by Invest in Denmark, is less involved.** Many of the ICDKs' clients, especially the clients from the research and education system, are generally not aware of the ICDKs' setup consisting of a research and education section and a commercial section.

In order to increase cooperation and synergy between the research and education area and the commercial area, the ICDKs have been given the opportunity to develop and launch so-called 'innovation projects'. In short, **the evaluation shows that the innovation projects are important** for developing new knowledge and helping the ICDKs focus more on precommercial and innovation-oriented activities. However, the evaluation has also identified potentials for further developing and strengthening the innovation projects as an instrument to strengthen the synergy of the centres' setup. This is discussed further in the section on recommendations.

INDIVIDUAL RESULTS AND ASSESSMENT OF THE SIX ICDKS

Oxford Research has carried out a comprehensive evaluation mixing qualitative and quantitative methods. As a key methodological element, the evaluation team of Oxford Research has visited all the ICDKs and therefore gained a deeper understanding of the ICDKs, their activities, context and internal dynamics. There are quite **significant cultural, political and economic differences between the regions** where the six ICDKs operate and, therefore, variances in the challenges and opportunities that the ICDKs and Danish businesses, research and educational institutions encounter. In general, the evaluation shows that it has been more challenging for the ICDKs in the new growth markets to gain foothold and to create solid results.

In addition, the six ICDKs have not been established all at once but over a period of six years. The initiation of the first ICDK was in Palo Alto in Silicon Valley, California, aligned with the Globalisation Strategy of 2006. In 2007, ICDK Shanghai opened, while ICDK Munich opened in 2008. In 2013, three more ICDKs were established in São Paulo, Seoul and New Delhi/Bangalore. Thus, **the level of consolidation and maturity of the ICDKs also vary**, which should naturally also be taken into consideration when interpreting the results of the evaluation.

Silicon Valley

Founded in 2006, ICDK Silicon Valley is the oldest of the ICDKs. Overall, it is the assessment of Oxford Research that ICDK Silicon Valley is well functioning and provides high value to clients in research and innovation. **The evaluation shows that ICDK Silicon Valley has created significant results for its clients.** ICDK Silicon Valley has a comprehensive network, and clients emphasise that employees at ICDK Silicon Valley are good at matching them with relevant high-level actors in the local ecosystem. ICDK Silicon Valley has been especially successful in helping startups, which 10 rounds of SCALEit with around 100 startups testify. The ICDK creates value by giving the entrepreneurs feedback and input from local experts, but they have also been very successful in inspiring entrepreneurs, organisations and large corporations which have come to visit and which are motivated by the local energy and culture. Also in the area of research, innovation and education ICDK Silicon Valley has facilitated a number of meetings, conferences and workshops, where Danish researchers and educational actors travel to Silicon Valley to discuss possibilities for future cooperation with researchers and educational actors in Silicon Valley. Specifically, this has led to new collaborations and partnerships on fundraising, research projects as well as exchange programmes for researchers and students.

Furthermore, it is the evaluator's impression that ICDK Silicon Valley is **the centre where the employees from Invest in Denmark are best integrated in the work of ICDKs.** At the same time, even in Silicon Valley, cooperation is still limited, and continued discussions and identification on possible synergies and collaboration are recommended. The results of ICDK Silicon Valley is naturally caused by the competencies of its employees and management, but its success is also based on the ICDK being placed in one of the world's absolute most famous innovation and tech hubs, where focus on entrepreneurship, innovation and scaling of technology businesses are an integrated part of the DNA.

Shanghai

ICDK Shanghai opened in 2007, and since the end of 2014, it has been located at the Danish Consulate General in Shanghai. It is the second oldest of the six ICDKs and is a well-consolidated unit that has gathered many years of experience in offering innovation services.

China is a unique country, and the very different political, economic and cultural context makes it a complex location. The additionality of ICDK Shanghai is mainly that **they support clients that have little or no Chinese experience in navigating in China.** The feedback from the clients is generally positive, and ICDK Shanghai adds value by helping them in understanding the Chinese market and innovation system in terms of other companies, research institutions, barriers, differences, key drivers and trends. Secondly, they have been introduced to local networks that give them a platform to establish joint development and innovation with

local partners and enabled Danish researchers to establish network and conclude memorandum of understanding (MoU)s with Chinese institutions.

A challenge for ICDK Shanghai in relation to additionality and value creation is that **a relatively large share of its clients in the commercial area receive services that are more market-oriented than oriented towards genuine innovation activities.** This results in a relatively large grey zone between the innovation services of the ICDK and the more classical market-oriented services of the TC.

Munich

ICDK Munich, which is located at the Danish consulate, opened in 2008. Today, it is a well-established ICDK with in-depth knowledge of the innovation environment in Munich and a solid network to relevant R&D players at both the commercial and research and education side. It is clear that **ICDK Munich has a sound organisation and has led to convincing results and a high value creation.** The interviewed clients are positive about the quality of services received and share the view that one of ICDK Munich's main contributions is to gain access to relevant German business and research institutions as well as increased technical knowledge and insight into the German innovation system and precommercial market. There is a common understanding that the staff is dedicated and very skilled in understanding the client's needs.

However, based on interviews with employees, management and clients, it is Oxford Research's assessment that **there is still room for improvement in order to increase the value creation** of ICDK Munich even further. First, the grey zone between ICDK Munich and the TC is still large and could be diminished. Secondly, even though there are examples of valuable interaction between research and commercialisation, the collaboration between the research and education area and the commercial area could be intensified, a conclusion also shared by the management and employees at the ICDK. Finally, the employees and management of the ICDK believe that the financial setup of the ICDK makes it difficult to find time and resources to maintain their local network and contacts and to develop more complex innovation projects with clients. This challenge applies to all ICDKs, but is especially prevalent for ICDK Munich.

New Delhi/Bangalore

The ICDK in India officially opened in fall 2013 as the last of the ICDKs. The ICDK is placed at the Danish Embassy in New Delhi but also has a satellite in the more commercial city of Bangalore. While the ICDK has had a difficult beginning, **value creation now seems to be increasing as the ICDK employees gain experience** in offering innovation services, and the ICDK succeeds in establishing valuable networks and relations to the relevant research and innovation actors in India. Most of the clients interviewed highlight that ICDK New Delhi/Bangalore's in-depth understanding of the Indian culture and society and different aspects of the Indian market and business culture has been of great value. Next to the knowledge of the Indian society, ICDK New Delhi/Bangalore's primary value creation lies in introducing and connecting clients to local Indian networks and partners.

While being on the right track, the evaluation also shows that ICDK Delhi/Bangalore still faces challenges in order to fulfil the full potential of the ICDK. Among others, the evaluation points towards a specific challenge in India when it comes to offering innovation related services and engaging in innovation projects. Until now, the primary focus of ICDK New Delhi/Bangalore innovation projects has been on enhancing market

access for Danish partners and clients. A challenge voiced internally is also that there is a quite large grey zone between the services that ICDK New Delhi/Bangalore provides and the export and market-oriented services that TC offers.

São Paulo

ICDK São Paulo is the newest ICDK, and it is one of the smallest. The innovation attaché arrived in 2011, but ICDK São Paulo did not open until 2013 when the consul general also became executive director of ICDK São Paulo. **The evaluation shows that there is a large interest from Danish educational institutions and among researchers to explore opportunities in Brazil**, especially in the São Paulo area. Brazil and São Paulo are, for most Danish universities, a new country and city where they previously have had no collaboration. In Brazil, collaboration must often be built from scratch, and the educational institutions have no prior experience or contacts, so they need assistance and advice in finding and contacting relevant faculties and researchers. When visiting, there is often a need to help in understanding local culture, customs, language and transportation. Local employees therefore often accompany visitors on their tour of Brazil. The evaluation shows that in this way, ICDK São Paulo succeeds in creating value and additionality within the research and education area.

The commercial innovation services are less established than the research area. The process of building a pipeline of potential customers, defining what constitutes innovation services in Brazil and what the ICDK should offer is still ongoing. In 2014, ICDK São Paulo only had a handful of clients buying innovation services. A challenge which has been pointed out by both the staff at the ICDK and the clients is that it takes a long time - in general easily three years - and many resources to enter the Brazilian market. This fact makes the Brazilian market a difficult and high risk market to enter for SMEs and startups. **Ultimately, it remains to be seen how large the Brazilian market for innovation services is.** The employees and clients at ICDK São Paulo are confident that there are opportunities, but ICDK São Paulo has been hampered by the fact that there is only one innovation advisor employed at the ICDK, which means that the outreach of ICDK São Paulo so far has been limited.

Seoul

ICDK Seoul is located at the Danish Embassy in Seoul, South Korea and officially opened in 2013 as one of the three new Danish ICDKs. ICDK Seoul has only existed for a short period and has experienced a difficult beginning. ICDK Seoul has had difficulties in attracting a sufficient number of clients and in achieving their **earning targets**. However, it seems that ICDK Seoul is on the right track as the clients and collaborators of ICDK Seoul perceive that ICDK Seoul has a sufficient local network and a qualified understanding of the business and innovation system in South Korea. Still, South Korea is a new market, thus ICDK Seoul encounters challenges in cultivating new contacts and maintaining existing relations and networks in South Korea. Even though there is a high concentration of SMEs, a few major players control the majority of the industry in South Korea, and it is challenge to gain access to the highest levels in these dominant companies. A challenge in the organisational setup is the grey zone between the ICDK and the TC, which among other things stems from the earning targets pushing deliverables towards more commercial and trade-oriented activities.

Overall, the evaluation shows that ICDK Seoul is on the right track. Feedback from the clients on the commercial as well as the research and education area is generally positive. It is clear that **ICDK Seoul creates value by helping clients in understanding how to access South Korea** and by finding relevant partners for further collaboration, funding opportunities and concluding MoUs. As an example, ICDK Seoul has been very successful in delivering ‘Innovation Camps’. The experience is that Innovation Camps provide added value in the form of extending networks, sharing knowledge and prospective and joint projects.

CHALLENGES AND RECOMMENDATIONS

Even if the findings of the evaluation are positive overall, the evaluation finds that **there is room for improvement and the value creation of the ICDKs could be increased**. In the view of Oxford Research, the main challenge in increasing value creation is that the grey zone between the ICDKs and the TCs is still quite large. This means that the innovation officers at the ICDKs too often take on tasks that are not innovation related but more commercial and export oriented and therefore could have been handled by the TCs. While to a certain extent a grey zone between the ICDKs and the TCs is expected (and the ICDKs are already focused on diminishing the grey zone), it is still Oxford Research’s assessment that it could be diminished even further. This leads to more genuine innovation activities and thus increased value creation and additionally of the ICDKs.

A key to increased value creation is that employees and management of the ICDKs have a **clear idea of the purpose, focus and supposed services of the ICDKs** and how these differ from the TCs. It is Oxford Research’s impression that this clear notion has been missing in the early years of the existence of the ICDKs but that this has been improved in recent years. Next to a clear notion of the purpose and goal of the ICDKs, it is **crucial that the ICDKs are able to attract an increased number of clients that ask for genuine innovation-related services**. Doing this is clearly not a simple task, and there seems to be some barriers in doing so.

Based on the evaluation, it is Oxford Research’s impression that **the following issues are the most important to discuss between the ministries and the ICDKs in order to increase value creation**:

- **Financial setup**
- **Home-based support and visibility of the ICDKs in Denmark**

According to the ICDKs themselves, the financial setup of the ICDKs and insufficient home-based support make out the two most dominant challenges and barriers for increasing the number of genuine innovation clients. However, the evaluation also points towards a couple of other challenges for the ICDKs, including the following:

- **Measurement of the ICDKs**
- **Synergy and collaboration at the ICDKs**
- **Cross-centre activities and coordination**

Below, the challenges and related recommendations are discussed in more detail.

The financial setup

The innovation officers in the commercial area of the ICDKs charge the clients for their services and have yearly earning targets. The yearly earning targets and the fee for services are the issues that have been discussed the most during the interviews. In general, the ministries, directors and employees agree that this setup has a number of positive effects:

- The earning targets give the ICDKs and employees **direction and a clear goal** for their work.
- It keeps the ICDKs on their toes and forces them to **focus and prioritise** their efforts. The earning targets push the ICDKs to be more proactive in finding and identifying new clients in Denmark.
- It increases the **engagement and expectations** of clients that they pay for the service.
- It **serves as a filter** for clients who are not genuinely dedicated.
- It **generates additional income** that is a part of the annual budget of the ICDKs.

At the same time, the setup is believed to be troublesome by the ICDKs, where both employees and directors point towards the setup having some unintended consequences, including the following:

- **Challenging synergy at the ICDKs.** The earning targets challenge the synergy between the three areas at the ICDKs because the employees in the commercial area are primarily focused on reaching their earning targets instead of prioritising collaboration with the other areas.
- **Less innovation and risk-taking.** The push towards more market-oriented services is making the grey zone between the ICDKs and TCs larger, as the commercial area of the ICDKs focus on reaching their earning targets and become less critical about the innovation height among their clients and in the services that they offer.
- **Less long-term and complex projects.** It makes it difficult for the ICDKs to engage in long-term and complex projects that require development and preparation time before the ICDKs can actually start billing the clients.
- **Focus on income as opposed to value.** It pushes the ICDKs to focus on the clients who are willing/able to pay for services rather than on clients who would benefit the most from the provided services.
- **More difficult to work with SMEs.** It makes it more difficult to attract startups and SMEs who in general are the least able and least willing to pay for services.

The idea of the earning targets and hourly fees are similar to the setup of the TCs. However, since the ICDKs have a stronger focus on precommercial activities, innovation and SMEs than the TCs, and the fact that the setup is believed to be one of the main obstacles to further value creation by all ICDKs, it is Oxford Research's recommendation that the ministries, together with the ICDKs, consider if the setup could be improved. Adjustments, which could be considered, include:

- **Reducing the earning targets in general or making the earning targets more flexible** and easier to reduce to create more room for cooperation across sections and accommodate innovation and R&D-focused projects far from the market. An important focus area of the ICDKs is startups and SMEs, and these are clients that find it difficult to pay for the services of the ICDKs.

- **Changing the structure and incentives** to facilitate cooperation. This can be achieved by aligning the objectives that the employees in the different areas have. The commercial area is the only area that has set up earning targets for the employees while the employees in the research and education area and investment promotion area do not have earning targets.

Currently, the ICDKs use **‘innovation projects’ as an instrument for focusing on precommercial and innovation-oriented activities**. The innovation projects are used for building up competences and knowledge internally and for testing and developing new ideas and projects in the precommercial phase. In the longer term, it can lead to more paying clients. At the same time, the ICDKs receive a reduction of up to 25% in their earning targets from initiating the innovation projects, giving them an incentive to initiate new innovation projects. Oxford Research finds that increasing the number and/or size of the innovation projects is one way of making the system more flexible and allow for more innovation.

At the same time, it is the impression of Oxford Research that the ICDKs spend a significant amount of resources on developing innovation projects. The reduction in the earning targets creates an incentive to spend resources on initiating new innovation projects that the ICDKs would not otherwise be able to spend. Even though Oxford Research finds that the innovation projects generally are meaningful, it is important not to create a system where the ICDKs pursue reductions of the earning targets for the sake of the reductions themselves rather than the opportunity to carry out meaningful and valuable innovation projects. Based on this, Oxford Research recommends that the **innovation projects and other reductions in the earning targets are closely aligned with the strategy** of the ICDKs and not approved independently from the strategy.

Home-based support and visibility in Denmark

One of the challenges and potentials for improvements pointed out by many clients - both clients from the research and education area and clients in the commercial area - is that the ICDKs are not known among many potential clients in Denmark. The evaluation finds that, especially among startups and SMEs, the knowledge of the ICDKs is low.

All ICDKs have pointed out that they would like **more support to promote the ICDKs, advertise events and contact companies from the ministries in Denmark**. Even though the employees of the ICDKs travel to Denmark several times a year, it is difficult for them to build a large network in Denmark and to promote the ICDKs to a larger group of companies and research and educational institutions. In addition, there is still room for improvement when it comes to cooperation with actors in the innovation systems, such as GTS institutes, science incubators, innovation networks, etc. Cooperation does exist, but it could be strengthened.

Recently, the Ministry of Higher Education and Science and the Ministry of Foreign Affairs of Denmark have started focusing more on strengthening the support to the ICDKs, and the process is ongoing. Based on the evaluation, the recommendation is that the Ministry of Foreign Affairs of Denmark and the Ministry of Higher Education and Science continue focusing on how they can improve the support to promote the ICDKs and increase efforts to:

- Promote the ICDKs and their activities, programmes, conferences etc. in Denmark.
- Spot and map companies and institutions that could be potential clients of ICDK.
- Coordinate contacts to companies to avoid having several ICDKs contact and visit the same companies, research and educational institutions within a short period of time and instead facilitate the ICDKs in reaching more companies and institutions.
- Increase awareness and establish closer cooperation with key actors in the innovation systems including universities and university staff, GTS institutes, innovation incubators and the innovation cluster networks.
- Release and distribute a yearly report with examples of good practice cases and dissemination of knowledge from the innovation projects.
- Collect and share information and status on key stakeholders in order to support informed outreach by the individual ICDK.

Measurement of the ICDKs

The evaluation finds that the current key performance indicators (KPIs) of the ICDKs are not measuring the actual value creation of the ICDKs, as the objectives set up in the performance contracts are primarily focused on activities and outputs (e.g., number of innovation projects, number of workshops and conferences held between Danish research institutions/researchers and local research institutions/researchers) rather than outcome and impact.

This is experienced by the ICDKs as a barrier for them to navigate and set a direction for their activities and which clients that they should concentrate on. At the same time, the KPIs are not aligned across the sections of the ICDKs. The evaluation has identified a number of challenges concerning the measurement of the ICDKs where improvement is possible:

- **There is a high number of KPIs.** The yearly performance contracts typically have more than 10 KPIs. Employees at some ICDKs have highlighted that this makes them difficult to remember for the staff at the ICDKs and makes it difficult for partners - such as Invest in Denmark, GTS institutes, and the regional business link centres -to see how they can propose common activities that not only benefit themselves but also help the ICDKs reach their goals.
- **The KPIs do not provide guidance for the daily work**—the main focus is on the earning targets. It appears that the KPIs are mainly taken into account towards the end of the year before reporting of the performance contract.
- **Measurement and management of the ICDKs has many components**—strategic foundation, the overall and individual earning targets, the performance contract and the innovation projects—and they are not necessarily aligned and part of the same process. The employees do not feel that there is a clear overall strategy that sets the goals for their work and cannot see the connection to the content of the performance contract and the focus of the innovation projects.
- **There is a low extent of following up on value creation.** The ICDKs, to a large extent, do not follow up on the clients and their projects and are often not aware of the outcome of their activities. This makes it difficult for the ICDKs to assess their own outcome and to direct their time and effort towards the types of clients where they generate the best results on the outcome level.

While Oxford Research is aware of the fact that setting up sound and easily measurable impact indicators is very difficult and that a certain level of activity-oriented KPIs often would be needed, it is still our recommendation that the ministries and the ICDKs discuss how the KPIs could be improved and to work towards simplifying the structure. This could include:

- **Lowering the number of KPIs.** This can clarify what the main goals of the ICDKs are and make it easier to communicate them to relevant collaboration partners in the research, innovation, trade and foreign direct investment system.
- **Distinction between output, outcome and impact indicators in order to evaluate actual long term impact, quality and value.** Oxford Research has considerable experience in formulating and setting up programme theories that illustrate how activities lead to outputs, outcomes and impacts. While it is important to keep management and performance measurements simple, a programme theory is a useful tool to introduce, understand and illustrate how the ICDKs generate results on the output, outcome and impact level.
- **A clear ‘red thread’ between strategy and KPIs.** Bring strategy, income targets, performance contracts and innovation projects together in one interconnected process where there is a clear red thread between the overall strategy, the KPIs in the performance contracts and the focus and content of the innovation project. Thus, a revised system should, to a larger degree, guide how the ICDKs prioritise on a daily basis and work towards reaching the earning targets—instead of reaching the earning targets being the primary goal in itself.
- **More follow-up on clients in assessing value creation.** It enables the ICDKs to connect its deliverables and services with the outcome or impact that they create. It also allows the ICDKs to segment clients and to have a more strategic approach towards their client base.
- **Continuous monitoring and evaluation of the ICDKs.** It is complex to measure the impact of R&D and innovation support activities because the outcome and, if possible, impact of an innovation process is long-term. Another challenge is that the ICDKs assist the clients with a range of different tasks and often lose contact to their clients after they have assisted them. Therefore, it is a challenge to measure impact on a yearly basis (and in the longer term). However, the recommendation is that an evaluation with a specific focus on outcome and impact is carried out every three or four years. It is important to accentuate that conducting impact evaluations is time consuming and takes up a large deal of resources, thus it is essential to clarify the level of resources that are spent on conducting the evaluation.

Following this, **it is important that the ICDKs focus on how they can collect the information necessary to facilitate an impact evaluation.** Company registration numbers and contact details (e.g., company name, contact person, e-mail, phone number) are the basic information that must be collected. Connected to the basic information, it would also be essential to have descriptions of the type of services the client has received. The suggestion for impact indicators include:

- **Science and innovation impact indicators:** student mobility, researcher mobility, funding for joint projects, joint publications, joint courses.
- **Innovation indicators (company level):** number of highly educated employees in the target country, number of established partnerships abroad, introduction of new services and/or products, increase in R&D spending.

An option is to use longitudinal data collected from Statistics Denmark. The strengths of longitudinal data is that the data can show trends across time, document change on selected indicators and compare groups across time. The drawbacks of longitudinal data are firstly, that data from Statistics Denmark is published with a two-year delay. Secondly, isolating the outcome and impact from an intervention is a challenge. However, for isolating the intervention of the ICDKs, we suggest using two control groups—one containing businesses that have used other innovation programmes, one containing businesses that have not used an innovation service or programme.

Synergy and collaboration at the ICDKs

The ICDKs have three types of employees: executive directors and innovation officers in the commercial area, innovation attachés in the research and education area and Invest in Denmark employees in the investment promotion area. **The evaluation has identified several examples of fruitful collaboration to the benefit of two or more areas.** These examples include collaboration between all three groups of employees, and the fact that the ICDKs can combine a deep network within science with innovation competencies and networks is often highlighted as very valuable by clients and a key feature distinguishing the ICDKs from the TCs.

At the same time, it is clear **that collaboration between the different areas and the investment promotion area represented by Invest in Denmark is limited** as employees in this area are the least involved in the joint activities at the ICDKs. In some ICDKs, they are, in reality, not involved in common activities on a daily basis but function, to a large degree, as separate units.

Whether this is caused by the aims and activities of the investment promotion area and the two other areas being too different to gain from regular cooperation or to possible synergies simply not being spotted or sought enough is difficult to determine based on the evaluation. However, **employees and management at the ICDKs clearly experience the low level of cooperation as a problem**, since they have the impression that a high degree of cooperation is desired for by the ministries. Based on these findings, Oxford Research recommends that:

- **The ministries clearly express their expectations to the nature and level of cooperation** between the investment promotion area and the two other areas of the ICDKs.
- The ICDKs, in cooperation with the ministries and Invest in Denmark, **investigate where and if there actually are possible areas for increased collaboration** that clearly leads to added value creation.

Concerning the last recommendation, it should be mentioned that initiatives to investigate and discuss collaboration between Invest in Denmark and the two other areas of the ICDKs are already planned.

Cross-centre activities and coordination

The ICDKs are becoming more consolidated as they have spent significant resources on exploring which areas to focus on, which services to provide, how to work together internally and how to get the institutional setup in place. Even if the ICDKs still have some work to do in these areas, most employees and directors at the ICDKs and stakeholders agree that the time has come to start exploring collaboration across the ICDKs

in more depth. Some collaboration does exist - for example, between the innovation attachés and in relation to the innovation projects - but it is limited. Based on this, Oxford Research recommends that:

- **All employees of the ICDKs meet once a year in Copenhagen** to further explore the potential for increased collaboration. If collaboration is to be promoted, the employees must meet face-to-face occasionally to get collaboration going.
- **The knowledge from the innovation projects is spread between the ICDKs** to enhance that new technological and sectorial knowledge are used broadly across more ICDKs.

The ICDKs are part of highly different contexts, and the main type of tasks they solve for clients can differ from country to country. **Collaboration between all the ICDKs should therefore not necessarily be pushed.** Focus should be on identifying opportunities for mutual beneficial collaboration, and it should be acknowledged that not everyone necessarily has common interests.

Need for more ICDKs?

The evaluation finds that there is a positive view of the ICDKs among the clients and collaborators, and even though their knowledge of the actual setup of the ICDKs is limited, they assess that the ICDKs add value as a part of the Danish export promotion system and innovation system. Therefore, they are all positive about the idea of establishing more ICDKs around the world in the future. However, **the data of the evaluation is not sufficiently strong to recommend where the new ICDKs should eventually be placed in the future.**

2. Introduction

With the continuing internationalisation of science and innovation, tapping into foreign sources of knowledge has become increasingly important. Global cooperation has been constantly increasing and gaining new forms with the opening and globalisation of societies. Over the last decade, internationalisation and innovation of businesses have been considered two of the most important factors in determining business success. In addition, the internationalisation of research and educational institutions is crucial for the renewal of society. High-standard education and scientific research are preconditions for the welfare and international success of Denmark.

The Danish Innovation Centres (ICDKs) aim at supporting Danish businesses, research and educational institutions to access international knowledge and research, create connections and develop business cases with an international perspective. According to the strategic foundation 2014-2015, the vision is that ICDKs should be a key strategic initiative of the Danish government's efforts to promote the internationalisation of Danish research, innovation and institutions of higher education for the benefit of Danish growth and employment. Furthermore, the mission of the ICDKs is to help Danish institutions of higher education and learning as well as businesses transform knowledge into growth by facilitating networks and partnerships with leading foreign businesses and by offering tailored advice.

The ICDKs have been evaluated in 2008 and 2010, but this evaluation carried out by Oxford Research is the first evaluation that examines all the six ICDKs. Oxford Research has carried out a comprehensive evaluation mixing qualitative and quantitative methods. Three main sources of data have been used throughout the evaluation: desk research, qualitative interviews and surveys. Combined, these methods constitute a methodological triangulation that has the benefit of minimising idiosyncratic opinions and views of the different data sources and strengthening the validity of the data. As a key methodological element of the evaluation, Oxford Research has personally visited the ICDKs and therefore gained a deeper understanding of the ICDKs, their activities, context and internal dynamics.

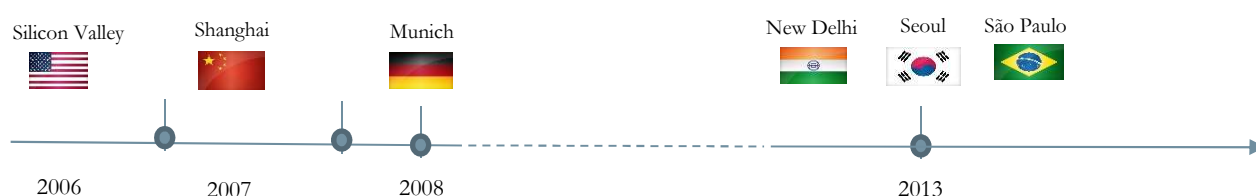
The evaluation sheds light on the value creation and additionality of the ICDKs, including how the ICDKs contribute to increase knowledge-sharing and collaboration between knowledge-intensive Danish businesses, research and educational institutions and leading international research, innovation and business systems. In addition, the evaluation identifies the factors influencing the value creation of the ICDKs, including their organisational setup and management structure.

This report contains the findings of the evaluation, including opportunities, challenges and recommendations for further improvement. The report begins with an overall description of the six ICDKs, their organisational setup and tasks and the management and performance of the ICDKs. Then, the evaluation looks into the value creation and additionality of all the ICDKs and their organisational setup. Lastly, the six ICDKs are evaluated and assessed individually.

3. The six Danish Innovation Centres

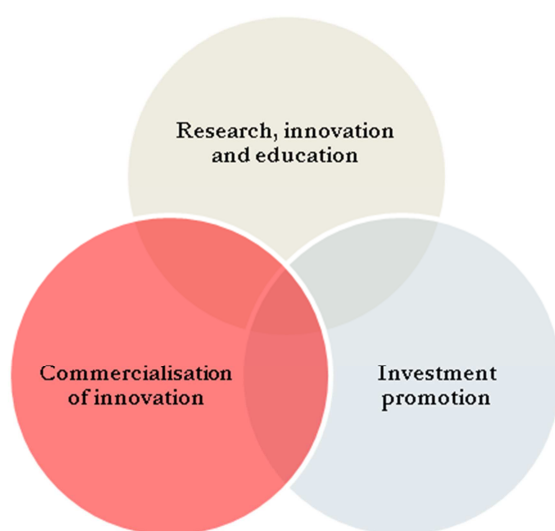
In partnership with the Danish Agency for Science, Technology and Innovation under the Ministry of Higher Education and Science and the Trade Council, the Ministry of Foreign Affairs of Denmark has established and operated the ICDKs since 2006. The initiation of the first ICDK was in Palo Alto in Silicon Valley, California, aligned with the Globalisation Strategy of 2006. In 2007, ICDK Shanghai opened, while ICDK Munich opened in 2008. In 2013, three more ICDKs were established in São Paulo, Seoul and New Delhi/Bangalore. Currently, there are six ICDKs, as shown in figure 3.1 below:

Figure 3.1: Timeline of the establishment of the ICDKs



Besides being located in Munich, Silicon Valley, Shanghai, Seoul, New Delhi/Bangalore and São Paulo, a joint staff is located at the Danish Embassy in Tokyo as part of the strategic partnership agreement between the two governments since 2014. Each ICDK has a tagline which describes the main purpose for each ICDK.

Figure 3.2: Three areas of the ICDKs



The taglines are: **Silicon Valley:** 'We help you scale by giving you access to world-class research and capital in US'; **Shanghai:** 'We help you navigate in China and open doors to research and business opportunities'; **Munich:** 'We give you access to state-of-the-art industry and R&D in Europe'; **New Delhi:** 'We guide you to long-term research and business opportunities in India'; **São Paulo:** 'We guide you to research and technology with high impact in Brazil'; and **Seoul:** 'We give you access to the Asian powerhouse of applied research and technology'.

Overall, three main areas, as shown in figure 3.2, contribute to the content of the six ICDKs. The employees at the ICDKs work in the three areas: 'Commercialisation of innovation' (the executive director and the innovation officers), 'Research, innovation and education' (the innovation attaché), and 'Investment promotion' (invest in Denmark staff). The combination of these different areas make the ICDK distinct from the Ministry of Foreign Affairs of Denmark's other missions abroad.

3.1 ORGANISATIONAL SETUP AND TASKS OF THE ICDKS

Each of the ICDKs is part of the overall official Danish representation and promotion of Danish interests in the United States, China, Germany, Brazil, India and the Republic of Korea under the authority of the Danish embassies in the respective countries. ICDK New Delhi and ICDK Seoul are located at the embassies of Denmark in New Delhi and Seoul, ICDK São Paulo and ICDK Shanghai are located at the Danish Consulate Generals in São Paulo and Shanghai, and ICDK Munich is located at the Danish Consulate in Munich. ICDK Silicon Valley is the only ICDK which is not located at an official Danish diplomatic representation in its country.

The daily management of each ICDK is carried out by an executive director, who is appointed and employed on a contract with the Ministry of Foreign Affairs of Denmark. At each ICDK, an innovation attaché is employed, who is designated by the Danish Agency for Science, Technology and Innovation, but employed on a contract with the Ministry of Foreign Affairs of Denmark. Furthermore, each ICDK has a number of local innovation officers employed and one or more Invest in Denmark employees.

The ICDK staff's primary task is to make contact and help Danish companies as well as researchers, universities and educational institutions gain access to local networks, knowledge, technology, capital and markets. The ICDKs offer services and deliverables such as market analysis, monitoring of knowledge, technology and trends, partner search and matchmaking, review of business plans, arranging of contacts and customised visit programs for delegations.

There are five main pillars which describe some similarities and examples of the deliverables and services that the ICDKs offer:

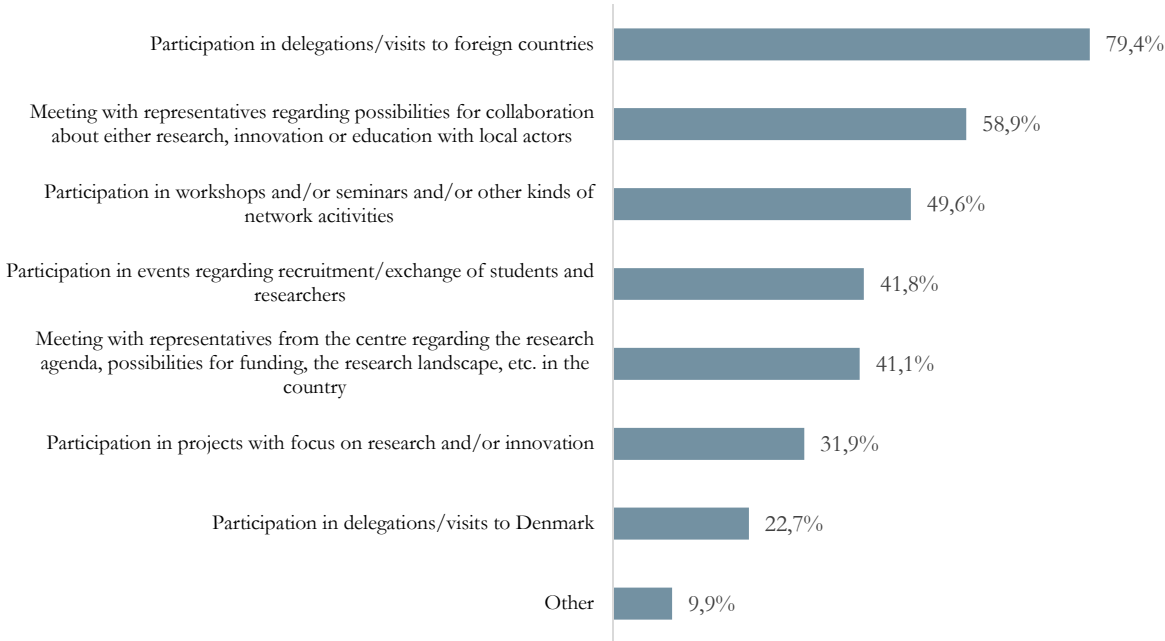
- **Entrepreneurship**, which include Entrepreneurship Camps, knowledge about and access to funding possibilities and knowledge import to Denmark.
- **Higher Education Collaboration**, which include Student Innovation Camps, educational agreements and promoting Danish higher education and careers.
- **Science and technology scouting, partnering and assessment**, which include scientific workshops and partnering, technology scouting and partnering and science and technology-driven assessment.
- **Business Development**, which include business model development, product and technology assessment and strategy, partnerships and innovation policy development.
- **Innovation projects**, which aim at cultivating and disseminating new thematic areas and networks in the respective local region and promoting Danish competencies, products and talent development through cooperation between ICDK staff from at least two of the three focus areas of the ICDKs. The joint innovation projects—of which a certain number have been implemented already—are an important component in creating the ICDK brand; therefore, innovation projects get special financial support.

In addition, some deliverables and services are unique to a single ICDK. An example is **Top Talent Denmark**, which was originally initiated by ICDK Shanghai. Another example is the **SCALEit programme** offered by ICDK Silicon Valley. Also, the focus and strategy of the ICDKs vary. As an example, ICDK Munich differs from the other ICDKs by having a stronger emphasis on EU research programmes such as FP7 and

Horizon 2020 and being the only ICDK that does not work on creating bilateral agreements between higher educational institutions.

According to the survey data shown in figure 3.3, the clients in the research and education area mainly use the ICDKs for participation in delegations/visits to foreign countries (79%), while participation in delegations/visits to Denmark is a service that the clients use the least (23%). Nearly 60% of the clients in the research and education area use the ICDKs for meeting with representatives regarding possibilities for collaboration about either research, innovation or education with local actors. ‘Participation in workshops and/or seminars and/or other kinds of network activities’ (50%), ‘Participation in events regarding recruitment/exchange of students and researchers’ (42%) and ‘Meeting with representatives from the centre regarding the research agenda, possibilities for funding, the research landscape, etc., in the country’ (41%) are other services that the clients in the research and education area use to a large extent.

Figure 3.3: Deliverables and services used by clients (research, innovation and education area)



Source: Oxford Research 2015

n = 153

3.2 MANAGEMENT AND PERFORMANCE OF THE ICDKS

The objectives of the ICDKs are pursued through **annual performance contracts** with each ICDK, signed with the Ministry of Foreign Affairs of Denmark and the Ministry of Higher Education and Science. The contracts define priorities for the coming year based on the success criteria as well as the opportunities that exist in the local area. The performance contracts contain a number of **key performance indicators (KPIs)** such as ‘Number of innovation projects’, ‘Number of workshops and conferences held between Danish re-

search institutions/researchers and local research institutions/researchers’, ‘Number of science and higher education related tasks solved for researchers and also science and higher education institutions’, ‘Yearly earnings targets’ and ‘Number of contacts in Denmark and locally’, to name a few.

In 2014, the six ICDKs had 253 unique clients and completed 397 cases for clients in total, including invoiced services and unbilled services. ICDK Shanghai provided the highest number of services and deliverables (171 cases) of the six ICDKs in 2014. In the same year, the total budgeted earnings for the six ICDKs was 7.7 million DKK. However, they only managed to sell services and deliverables for 6.8 million DKK, resulting in a level of goal achievement at 89% (see Table 3.1).

Table 3.1 Number of commercial clients 2014			Budgeted and realised earnings 2014		
ICDK	No. of unique clients	No. of cases for clients in total	Budgeted (DKK)	Realised (DKK)	Level of goal achievement (%)
Silicon Valley	52	87	1.578.330	1.580.529	100
Shanghai	107	171	2.342.899	2.032.407	87
Munich	36	48	1.502.625	1.560.300	104
New Delhi/ Bangalore	12	21	790.128	789.819	100
São Paulo	9	17	431.676	439.820	102
Seoul	37	53	1.056.251	442.300	42
Total	253	397	7.701.909	6.845.175	89

Source: CRM data

Note I: ‘Number of unique clients’ and ‘Number of cases for clients in total’ include invoiced services and unbilled services.

Note II: The hourly rate is 935 DKK for services provided by the commercial area of the ICDKs.

As a part of the TC setup, ICDK is based on the same payment scheme as the one used in the TC. The payment scheme only applies to the employees in the commercial area. The conditions of the payment scheme are laid out in the executive order of payment for services in the foreign service¹, allowing the Danish foreign service to charge for consulting services and assistance that aim at supporting international Danish commercial activities. The ICDKs are separated from the rest of the TC setup as they can receive a reduction of up to 25% in the earning targets by initiating innovation projects that focus on precommercial and innovation-oriented activities.

3.3 TYPE OF CLIENTS

The ICDKs assist Danish companies and research and educational institutions as well as work for establishing partnerships with foreign research institutions, business and organisations. The primary focus areas of the

¹ Bekendtgørelse om betaling for tjenestehandlinger i udenrigstjenesten

ICDKs are ICT, life science and cleantech. These are typical high-tech sectors, and when looking into the clients that use the ICDKs, they are primarily knowledge and technology-intensive businesses. This does not mean that the ICDKs work exclusively with businesses in high-tech sectors; the ICDKs work with companies in any industry as long as they are relevant subjects for the innovation services that the ICDKs are offering.

Various Danish universities and research institutions have worked with the ICDKs. The ICDKs represent them and work on specific requests such as connecting researchers and students and concluding agreements. Danish businesses collaborate with the ICDK on specific tasks and projects such as workshops, conferences, innovation projects, etc. For many of the businesses, a driver for engaging and using the deliverables and services of ICDK is a desire to expand to new and larger foreign markets. Notably, the born global startups perceive the small domestic market in Denmark as a constraint to their growth prospects.

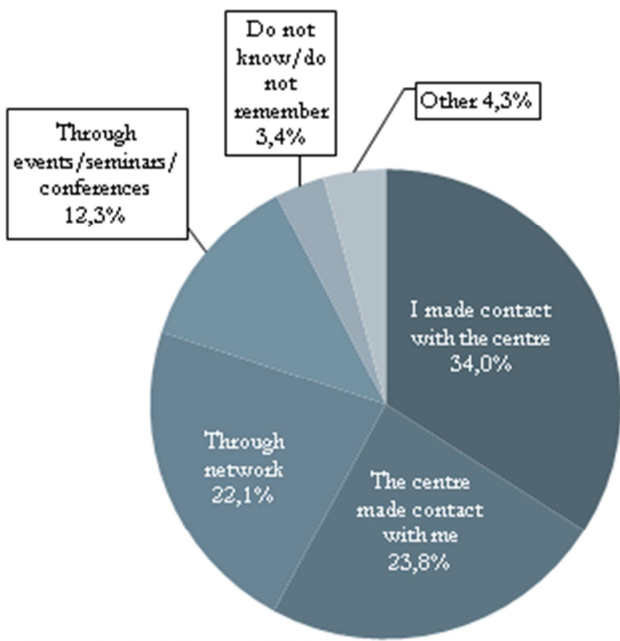
It is a constant challenge for the ICDKs to find clients among smaller companies and startups, and for the research and education area, it has been challenging to collaborate with GTS institutes. If there is an opportunity, the ICDKs are looking for connecting with businesses and research institutions. An example is ICDK New Delhi/Bangalore, which contacted a Danish university department in food science about collaboration opportunities with Indian dairies. As shown in figure 3.4, among the clients in the research and education area, 24% have been contacted by the ICDKs.

At the same time, the largest share of the clients in the research and education area find the ICDKs by themselves and make the first contact (34%).

On the other hand, the picture is different if we look into the clients from the commercial area. According to the interviews with the clients in the commercial area, the clients generally point out that they were contacted by an ICDK, typically at a conference or event in Denmark or directly by mail or telephone. In addition, many of the clients in the commercial area have heard of the ICDKs through network.

The evaluation finds that, especially among the clients in the commercial area, the awareness of the ICDKs is low while the clients in the research and education area are more aware of the ICDKs.

Figure 3.4: How the clients got in contact with the ICDKs



Source: Oxford Research 2015

n = 153

4. Value creation and additionality

This evaluation finds that the ICDKs bridge the geographical distance between Denmark and the foreign markets and manage to create a cross-national link where Danish actors interact with foreign actors in developing and exchanging knowledge, skills, practices and views. Through their deliverables and services, the ICDKs play an important role in incentivising startups, SMEs, larger businesses and research and educational institutions to explore foreign markets, R&D and innovation systems and to create awareness of business and research opportunities abroad.

From the interviews and survey results, it is clear that **the ICDKs act as vital links for Danish businesses, researchers and educational institutions looking for new partners, cutting-edge research or R&D resources in foreign markets.** The main findings of the evaluation regarding the value creation of the ICDKs are:

- The clients acknowledge that the ICDKs are in sync and understand the needs and strategies of high-tech businesses with a strong R&D focus as well as research and educational institutions.
- The clients find that the ICDKs support them in obtaining an overview of the R&D and innovation systems in the target countries. The ICDKs have solid technical knowledge and an overview of the local R&D and innovation systems, including the relevant research institutions, R&D based businesses, innovation hubs, etc.
- Across the ICDKs, the evaluation finds that the ICDKs create value by enabling their clients to access local networks, and thereby, the ICDKs provide a platform for establishing joint projects or validating value propositions.
- From using the ICDKs, the clients believe that they receive new and relevant information about the market and research field that they look into. Thereby, they learn about the market and research agenda in the target countries.
- Given their strong connections and network in the R&D and innovation systems, the ICDKs accelerate the process to enable research and educational institutions to conclude collaboration agreements with local partners in foreign countries.
- The ICDKs contribute to market Denmark and the Danish strongholds partly as a consequence of connecting Danish actors with foreign actors and partly because of the setup and focus of the ICDKs that are considered unique in some regions compared to other countries' representations.

Between the ICDKs, there are differences in their value creation. The above-mentioned outcomes apply to all the ICDKs, but for the ICDKs located in South Korea, China, India and Brazil, there is a more prevalent focus on creating access to their markets. There are three reasons for this:

1. The significant cultural, political and economic differences between the Danish environment and the environment in the above-mentioned countries make it more difficult for an individual client to navigate in these markets.
2. The clients are often new to the markets and typically have no prior experience with these regions.

3. ICDK Seoul, ICDK New Delhi/Bangalore and ICDK São Paulo are still relatively young ICDKs. Thus, they are still in the initial phase of building up networks and creating linkages locally.

The evaluation finds that **the additionality of the ICDKs is high**, which is suggested by the interviews with the clients and by the survey data, where the general feedback is that the ICDKs have been crucial for generating an outcome for the client. The ICDKs have been successful in making use of alliances and partnerships as well as relationships that are more informal with Danish clusters, organisations and networks that support R&D and innovation processes. Therefore, and to a large extent, they tour Denmark not only to seek contacts with relevant and potential Danish partners but also to maintain their Danish relations. Abroad, the ICDKs have established partnerships and collaborations with different types of actors in the markets and R&D and innovation systems. They range from national and regional governments, research and educational institutions, cluster organisations, startups, SMEs, multinational companies, business associations and investors.

From these findings, the evaluation concludes that **the focus of the ICDKs is qualitatively different from the market focus of the rest of the Danish export promotion system**. The ICDKs focus on assisting clients in the early R&D stage, identifying potential opportunities, partners and solid business models and ensuring that plans actually take off internationally. While the TC offers a network of foreign offices with in-market advisors in foreign countries who offer a number of specialised services to promote exports, including the identification of potential customers, the ICDKs offer a different kind of support. The ICDKs focus on enabling their clients to have a presence in key technology and innovative clusters by supporting them with a deep local knowledge and understanding of R&D and innovation processes as well as technology and market trends.

As a part of the Danish innovation system, this evaluation also finds that **the ICDKs add extra value because of their focus on innovation as a bilateral and international activity**. While the Danish innovation system is, to a large extent, national-oriented, the ICDKs, by being localised in regions outside Denmark, can help create more cross-national innovation between the Danish innovation and research environments and the innovation and research environments abroad.

4.1 VALUE CREATION OF THE ICDKS

This evaluation finds that the **ICDKs create value by acting as vital links for Danish businesses and researchers looking for new partners, cutting-edge research or R&D resources in foreign markets**. In this chapter, we will look into the value creation of the ICDKs in greater detail by providing concrete examples of how they work and the outputs and outcomes that the clients get from collaborating with the ICDKs.

The value creation of the ICDKs is measured on the following indicators:

- **Output indicators** describe the delivery of the activities, including number of workshops, number of innovation projects, etc. Some of these are set up in the performance contracts.
- **Outcome indicators** describe the changes that the outputs produce on the short and long term.
- **Impact indicators** describe progress made towards socioeconomic effects such as job creation, turnover, etc.

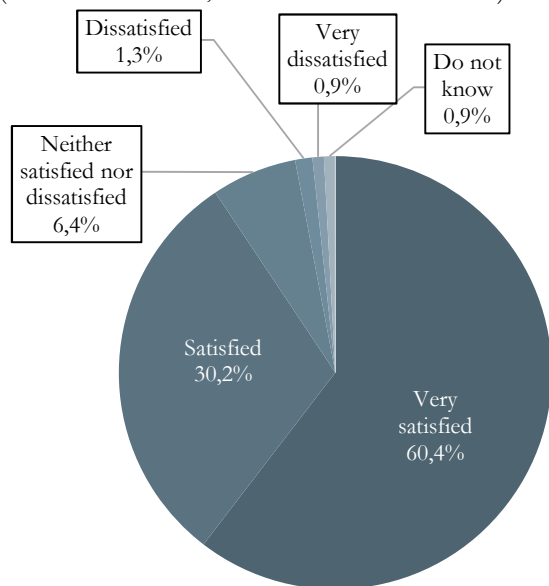
Based on this framework, the evaluation finds that the ICDKs primarily create value on the output and outcome level while results on the impact level are sparse. The evaluators assess that the low value creation on the impact level is expected because innovation processes lie at a distance from the actual market introduction, and because of that, a time lag is expected before the full economic impact is realised. Therefore, in the evaluation, the focus is on the results on the output and outcome level.

4.1.1 Results on the output level

Generally, the ICDKs have been successful in achieving the objectives set up in the performance contracts. The performance contract mostly focuses on outputs such as the number of joint innovation projects, number of workshops and number of activities held. Reaching the output goals is the basis for creating outcome and impact in the long term, therefore the high level of achievement regarding the performance indicators underlines that the ICDKs are successful in executing the plan that have been set up for them overall.

As described in the previous chapter, the ICDKs initiate a broad range of deliverables and services that are mainly innovation oriented. The overarching purpose of these deliverables is to help the Danish businesses

Figure 4.1: Level of satisfaction with the ICDKs (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 153

and researchers connect with businesses, research institutions and local authorities, and in this way, clarify the research and business opportunities abroad. In the interviews, the clients on the commercial and research side generally express the view that they are very satisfied with the collaboration with the ICDKs, a view that is also supported by the survey data that shows that since 2010, two-thirds of all clients in the research and educational area have used the ICDKs more than once. The fact that the majority of the clients return to the ICDKs after using their services accentuate that the ICDKs have deliverables and services that meet the needs and demands of the clients. Among the clients in the research and educational area, the survey result in figure 4.1 shows that the level of satisfaction with the ICDKs is high; 90% are either very satisfied or satisfied with the ICDKs.

The clients acknowledge that the ICDKs are in sync and understand the needs and strategies of high-tech businesses with a strong R&D focus as well as the needs of research and educational institutions. The survey data shows that 81% of the clients in the research and education area strongly agree or agree that the ICDKs have a good understanding of their challenges and needs.

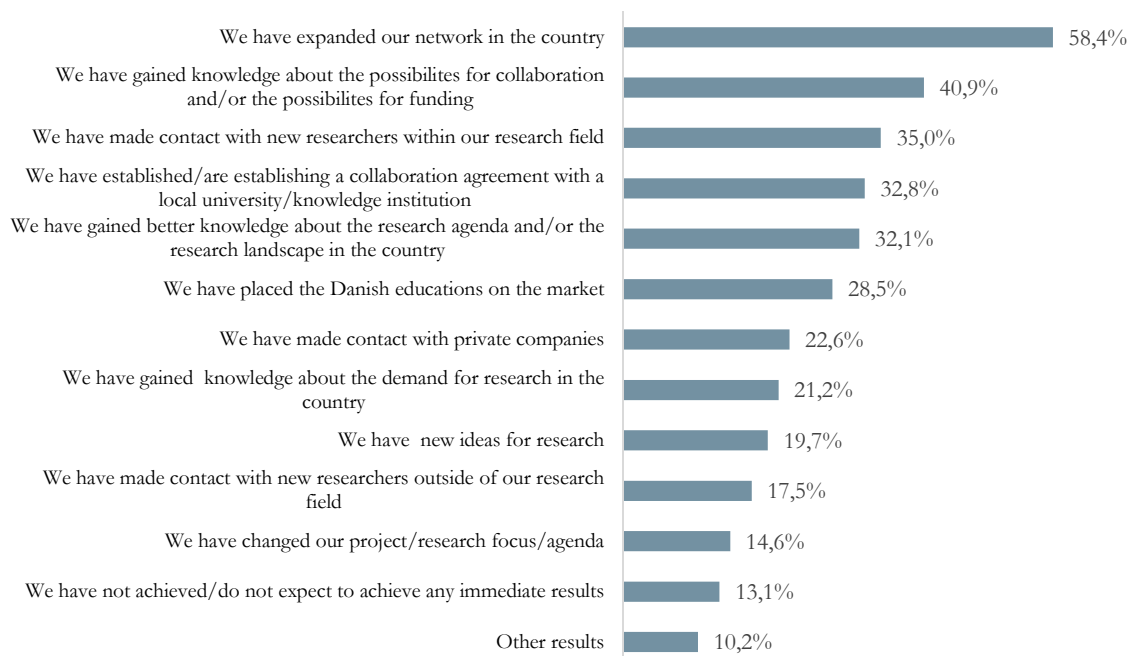
4.1.2 Results on the outcome level

The interviews with the clients and the survey data show that the ICDKs primarily lead to results on the outcome level. The evaluation finds that the following are the main outcomes for all ICDKs:

- An overview and understanding of the R&D and innovation systems in the target countries.
- Access to local networks that give a platform for establishing joint projects and validating value propositions.
- An increased level of knowledge of the market and research agenda in the target countries.
- Conclusion of collaboration agreements with research partners.
- Marketing of Danish strongholds in the target countries.

Figure 4.2 shows the results from the survey with the research and education clients. It shows that the main outcome for the research and education clients is that they have expanded their network in the target country (58%). 41% of the clients in the research and education area have gained knowledge about the possibilities for collaboration and/or possibilities for funding, while 35% have made contact with new researchers within their research field. However, not all clients in the research and education area gain from their collaboration with the ICDKs, and 13% state that they have not achieved and do not expect to achieve any outcome because of their collaboration with the ICDKs. The survey results are unfolded and analysed later on in this section.

Figure 4.2: Outcome of using the ICDKs (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 153

4.1.2.1 An overview and understanding of the regional R&D and innovation systems

A main outcome that applies to all ICDKs is that clients obtain an overview and understanding of the regional R&D and innovation systems. The clients believe that they receive highly qualified support from innovation officers who have a deep knowledge and understanding of innovation and technology markets. For a high-tech business or a research institution, it is a benefit that they can rely on the ICDKs insights into the R&D and innovation systems in the respective target countries.

The clients emphasise that it adds value to them that the ICDKs have highly educated employees with a specific interest in innovation and with a technical profile. As an example, in ICDK Shanghai, they have recruited innovation officers with PhD degrees that have a specialised insight and knowledge of technical areas such as photonics engineering and life science. To illustrate the importance of having specialised technical understanding, a small Danish life science company has used two different ICDKs for the same purpose. In one ICDK, they had an innovation officer with a specific technical knowledge in life science, and in the other one, it was a generalist. Even though the company was generally satisfied with the level of service provided by both ICDKs, it was a positive add-on and it gave them a better understanding of the challenges and opportunities of the market that one of the ICDKs had a specialised technical capacity in the field.

The clients and collaborators highlight that the employees at the ICDKs are flexible, responsive and cooperative. As an example, a larger Danish pharmaceutical company has found that despite the innovation officer at the ICDK not having any knowledge about the sector beforehand, she quickly learned it and understood the challenges that the company faces. In another case, the interviewed client, representing a smaller Danish cleantech company, found that the innovation officer had no technical insight in the cleantech area, but the added value from their relation with the ICDK was that the innovation officer spoke the language in the country and had an understanding of the opportunities and challenges in the country.

4.1.2.2 Accessing local networks

A core focus of the ICDKs is that they make connections and build up networks with actors in their local markets and R&D and innovation systems. The clients make use of the established connections that the ICDKs continually foster and develop, thus many clients in the research and commercial area emphasise that ‘accessing local networks that give a platform for establishing joint projects or validating value propositions’ is an important outcome.

As figure 4.2 shows, the main outcome for research and education clients is that they have expanded their network in the target country (58%). Participation in delegations and visits abroad contribute to accessing new networks, where they meet local actors in research, innovation or education for discussing possibilities for collaboration. The innovation attachés at the ICDKs find that the researchers and educational institutions contact them with a concrete request or idea of what they want to gain from their collaboration with the ICDK. Often, it is about building up their network and meeting researchers and educational institutions in their own research field, while they rarely want to explore new research and develop new ideas for research. It is also mirrored in the survey results in figure 4.2, where about 20% have had new ideas for research and about 18% make contact with new researchers outside their research field.

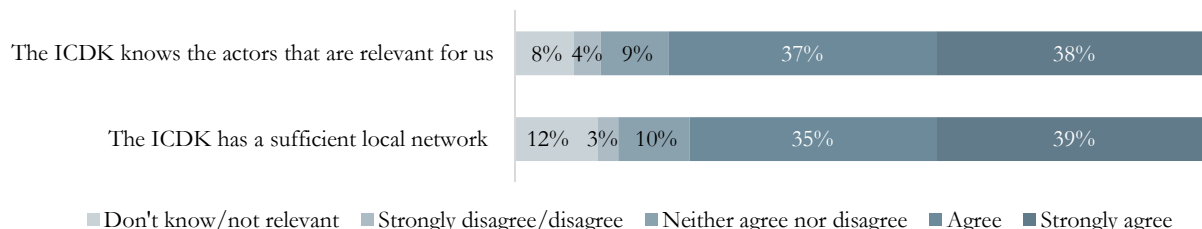
In the interviews, many clients have highlighted the importance and benefit they gain from accessing local networks because in some cases, it gives them a platform for engaging themselves in joint projects with relevant local partners or in validating a value proposition as they go through the process of interacting with potential customers to understand their particular needs. The Innovation Camps are a service where a process is initiated in aligning the clients' products offering to the opportunities in the target markets. Large international Danish companies, in collaboration with ICDK Seoul and ICDK Shanghai, have coordinated Innovation Camps focusing on bringing together students to develop new ideas for products as well as to encourage future cross-national cooperation in innovation.

In the interviews, the clients pointed out that the ICDKs have strong local knowledge and insight in terms of knowing the right people and the actors in the country's research and innovation system. Especially for the research clients, it appears to be crucial that they meet high-level individuals in order to make agreements with partners. There are differences between the ICDKs because the dynamics of creating networks are different between the countries. In the Asian countries (China, India and South Korea), it is crucial to establish connections with high-ranking officials and researchers; it is also relevant in other countries, but to a lesser extent. The business culture in Germany is still more formal than in Denmark, while connecting with relevant actors in Silicon Valley is more informal. The level of consolidation of the ICDKs is also an influential factor, as the younger ICDKs are still in the process of building up their network and making new connections, while ICDK Shanghai, Munich and Silicon Valley also stay in touch with their network and are continually making new connections, and therefore, these ICDKs have been able to build up a denser network.

As an example of a successful case, ICDK Silicon Valley supported a Danish research institution through its strong and dense network in the local R&D and innovation environment. ICDK Silicon Valley collaborated closely with UC Berkeley, and through this, ICDK Silicon Valley helped the Danish research institution in raising money for a large research project. A small Danish cleantech company used the Innovation Growth service, and ICDK São Paulo assisted the company in screening and mapping potential partners for collaboration. In the end, the company was part of an application for research funding, and the interviewed client is certain that it was possible because ICDK São Paulo had an entrance to the right level at the local universities.

Figure 4.3 shows that the research and education clients believe that the ICDKs know the relevant actors in the local environment (78% strongly agree or agree) and have access to a sufficient local network (75% strongly agree or agree).

Figure 4.3: Access to network (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 153

4.1.2.3 An increased level of knowledge of the market and research agenda

Another outcome from using the ICDKs is that the clients find that they receive new and relevant information about the market and research field that they look into. Therefore, as a result from their collaboration with the ICDKs, they get ‘an increased level of knowledge of the market and research agenda in the target countries’. The ICDKs focus on providing deliverables and services that are designed to familiarise the clients with the culture and business practices of the foreign regions. As an example, ICDK Shanghai is very active in shedding light on China’s economic development and transition to becoming a more knowledge-intensive and innovative economy through the facilitation of workshops and networks.

The type of information varies from factual insights about legislation to more tacit knowledge about cultural practices. From the interviews with the clients in the commercial area, it appears that there are two ways that the clients gather new information about the markets. In some cases, the clients want to explore a market and find out how it works. As an example, a Danish SME in the ICT sector contacted ICDK Seoul to meet up with relevant partners and collaborators in South Korea. ICDK Seoul arranged a tour where the company had a chance to meet South Korean ICT companies that were potentially relevant as partners. Subsequently, the Danish SME gained an insight into the South Korean market and its technological and innovative level. The tour also gave the client a better understanding of cultural codes and business conduct in South Korea. In other cases, the client contacts the ICDK with a concrete request and need. As an example, a Danish startup in life science contacted ICDK New Delhi to understand the legislation and regulation of the Indian medical sector. ICDK New Delhi gathered and structured the information for the company, and the company learned about the regulatory challenges of entering the Indian market.

The research clients typically meet with relevant research institutions in a similar research field through delegations and inspirational tours to gain insight into the research agenda. In some countries such as China and South Korea, the research agenda and priorities at the universities are tightly linked to the state level’s research and science policy. The research clients find that the added value of the ICDKs is that they help them in understanding the research priorities and strategies. A representative of a private Danish foundation has found that ICDK Shanghai supported them in translating the cultural and bureaucratic challenges that they faced in China into opportunities for them. ICDK Shanghai gave them an understanding of the Chinese research agenda, and as they were new to China, the client avoided making wrong decisions and mistakes.

The evaluation finds that this outcome is especially prevalent for the clients of ICDK Shanghai, Seoul, New Delhi and São Paulo partly because the clients often are new to the market and research agenda in these regions, and partly because the cultural, political and economic context in these regions is very different from the Danish context. In these regions, the ICDKs act as a gateway to Danish businesses and researchers that want to understand the markets and research agenda. While it is also pointed out as an outcome for clients in Germany and the USA, the environment in these countries is more similar to the Danish environment, and the clients are generally more experienced in operating in these markets. ICDK Silicon Valley and ICDK Munich create value because of their deep knowledge and understanding of R&D and innovation processes as well as insights into the key technology and market trends.

4.1.2.4 Concluding collaboration agreements with research institutions and businesses

For the clients in the research and education area, ‘concluding collaboration agreements with research institution’ is a concrete outcome that the assistance of the ICDKs accelerate. A point made by larger research institutions is that they have the administrative and professional capacity to conclude agreements with foreign universities by themselves, but with the assistance of the ICDKs and their network, they are able to do it more efficiently and at a faster pace. In the survey shown in figure 4.2, one-third have established or are establishing collaboration agreements with a local university or knowledge institution.

The insight of the ICDKs into the R&D and innovation systems means that they are able to link researchers and businesses. As an example, ICDK New Delhi/Bangalore assisted a Danish research institute in food science in concluding collaboration agreements for an exchange programme for PhDs with Indian research institutions as well as with businesses.

4.1.2.5 Marketing of Denmark and Danish strongholds in the target countries

‘Marketing of Denmark and Danish strongholds in the target countries’ is an outcome that the collaborators in the target countries see as an important result of the ICDKs’ global presence. To them, the ICDKs represent a unique setup because of their innovation focus that the other comparable countries do not have at their diplomatic representations. It gives the ICDKs an advantage in accessing the R&D and innovation systems in the target countries and, in this way, brand Denmark and the Danish strongholds.

4.2 THE ADDITIONALITY OF THE ICDKS

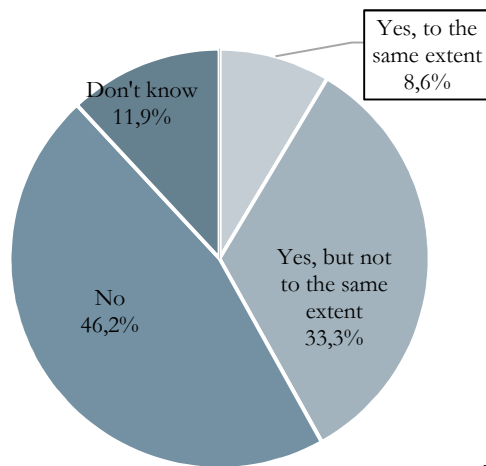
The additionality of the ICDKs is high, which is suggested in the interviews with the clients, where the general feedback is that the ICDKs have been crucial for generating an outcome. Across the ICDKs, the main additionality is that they help clients efficiently navigate the uncertain process of gaining access to markets and research and innovation systems in new foreign countries. For many of the businesses, a driver for engaging and using the deliverables and services of the ICDKs is that they want to establish themselves in new regions and innovate their high-tech products and services. Notably, the born global startups perceive the small domestic market in Denmark as a constraint to their growth prospects and in gaining access to new knowledge. For research and educational institutions, the ICDKs can boost their internationalisation strategies and assist them in concluding new MoUs or in gaining access to cutting-edge research.

The ICDKs have been **successful in making use of alliances and partnerships as well as relationships that are more informal with actors and organisations that support innovation processes in Denmark.** Therefore, to a large extent, they tour Denmark not only to seek contacts with relevant and potential Danish partners, but also to maintain their Danish relations. Abroad, the ICDKs have established partnerships and collaborations with national and regional governments as well as with research institutions, business associations, service providers, nonprofit organisations and investment groups. In the interviews with the ICDKs, it is also clear that some of the ICDKs, especially at ICDK Silicon Valley where relations are more informal, make extensive use of informal ties to support clients in their efforts to access the markets. Therefore, experienced employees are important because they are able to tap into their social and professional networks when helping a company identify potential customers, partners, investors or specialised service providers.

Even though the ICDKs have succeeded in creating results on the output and outcome level, a challenge that the ICDKs face is to differentiate and segment clients to create the best possible outcome. Many employees at the ICDKs underline that it is difficult to work strategically and select the most appropriate clients and partners for their services as they do not have a tool for measuring the outcome and impact of their services. Therefore, they are not certain about which client segments that create the highest outcome, and the risk is that the deliverables and services offered by the ICDKs are suboptimal.

Figure 4.4 shows the distribution of the research and education clients, when asked about the additionality of the ICDKs. The survey data clearly suggests that the ICDKs create a value that the clients would otherwise not have been able to create. 46% indicate that they would not have been able to reach the same results without the intervention, and 33% indicate that they could have reached the results, but not to the same extent. Only 9% state that they would have been able to reach the same results without the ICDKs involvement.

Figure 4.4: Would you have been able to reach the same results without the support of the ICDK (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 153

Between the ICDKs, there are some differences when it comes to their additionality. While in South Korea, China, India and Brazil it is fundamental that they can help their clients in accessing the local markets and give them an understanding of the cultural and political context, it is less important in Germany and the United States. In these countries, the political and cultural environment is closer to the Danish environment. It appears that the technological insight and overview of the vital actors in the R&D and innovation systems in these countries are important for their clients.

Looking into the activities of the ICDKs, they focus on assisting clients in the early R&D stage, identifying potential opportunities, partners and solid models and ensuring that plans actually take off internationally. The evaluation finds that **the focus of the ICDKs is qualitatively different from the market focus of the rest of the Danish export promotion system.**

While the TC offers a network of foreign offices with in-market advisors in foreign countries who offer a number of specialised services to promote exports including the identification of potential customers, the ICDKs offer a different kind of support. The ICDKs focus on enabling their clients to have a longer presence in key technology and innovative clusters with full immersion in the foreign business environment and with the assistance of innovation officers that have a deep knowledge and understanding of innovation and technology markets. Also, as a part of the Danish innovation system, this evaluation finds that **the ICDKs add extra value because of their focus on innovation as a bilateral and international activity**. While the Danish innovation system, to a large extent, is national-oriented, the ICDKs, by being localised in international regions outside Denmark, can help create more cross-national innovation between the Danish innovation and research environments and the innovation and research environments abroad.

5. Organisation and management

This evaluation finds that **the ICDKs are well managed and are an integrated part of the Danish diplomatic setup**. The expatriate staff at the ICDKs have diplomatic titles such as consul general (the executive director of ICDK São Paulo), consul (the executive director of ICDK Munich) and counsellors (the executive directors of the other ICDKs and the innovation attachées of all the ICDKs). These titles are useful for gaining access to new networks and for establishing valuable contacts. At the same time, the evaluation finds that in countries with a hierarchical business culture such as India, China and South Korea, the co-location with an embassy or consulate general is a benefit to the ICDKs, because an ambassador or consul general can support the ICDKs in opening up doors to the highest management level in companies, authorities and universities.

One of the main challenges that the ICDKs face is the grey zone between the ICDKs and TCs, which means that the innovation officers at the ICDKs often take on tasks that are not innovation related but more commercial and export oriented and thus could have been handled by the TCs. While a grey zone between the ICDKs and TCs is expectable, the earning targets reinforce the grey zone. Also, the evaluation finds that the earning targets challenge the synergy between the three areas - research and education, commercial and investment promotion - because the employees in the commercial area are primarily focused on reaching their earning targets instead of prioritising collaboration with the other areas. These are challenges that limit the value creation of the ICDKs.

An instrument that pushes the ICDKs in the direction of focusing more on precommercial and innovation-oriented activities and in creating synergy at the ICDKs is the innovation projects. The innovation projects are used for building up competences and knowledge internally and for testing and developing new ideas and projects in the precommercial phase. The ICDKs are incentivised to initiate new innovation projects as they receive a reduction up to 25% in their earning targets from initiating the innovation projects.

In addition, the evaluation finds that:

- The collaboration between the ICDKs and the Danish ministries (the Ministry of Foreign Affairs of Denmark and the Ministry of Higher Education and Science) is well functioning. However, the administrative reporting and documenting to the ministries is experienced as burdensome.
- The ICDKs need more backup from the ministries in seeking out new clients and in assisting them to prioritise and segment clients and partners.
- The ICDKs are becoming more consolidated, but so far the level of cross-centre activities has been limited.
- The ICDKs are not satisfied with the performance contract as a tool because it is too focused on activities and outputs and less on outcomes and impacts. It makes it difficult for them to navigate and set a direction for the activities and clients that they should focus on.
- To a large extent, the activity of the ICDKs is related merely to the research and education area or the commercial area (or in some cases the intersection between the two areas), while the investment promotion area represented by Invest in Denmark is less involved. Many of the ICDKs' clients and especially

the clients from the research and education system, are generally not aware of the ICDKs' setup consisting of a research and education section and a commercial section.

In the succeeding chapters, the evaluation examines the following themes: localisation with the Danish representations, collaboration with the Danish ministries and cross-centre activities, interplay between the three areas, including the joint innovation projects, and incentives and performance contracts, including the payment scheme and earning targets.

5.1 LOCALISATION WITH THE DANISH REPRESENTATIONS

The evaluation finds that co-location with a consulate general or an embassy is mostly a benefit for the ICDKs especially in India, China and South Korea, because an ambassador and consul general can support the ICDKs in opening up new doors to the highest management level in companies, authorities and universities. Also the evaluation finds that the royal crown adds value, because the ICDKs are viewed as official representatives of Danish interests. Also in Silicon Valley, where networks and connections are more informal, the royal crown plays an important role, but it is not as vital as in the other regions.

The interviews with the employees and the foreign collaborators suggest that potential partners in the foreign regions attach great value to the ICDKs being a part of a consulate, consulate general or an embassy. An observation obtained from the interviews with the employees at the ICDKs and the consuls, consul generals and ambassadors is that from an outside perspective, it is less confusing if the partners view the ICDKs as an integrated part of the Danish representation rather than an independent unit. The interviews with the foreign collaborators suggest that they do not differentiate between the ICDK and the Danish representation. To them, it is one unit representing Danish interests.

In the day-to-day operations at the Danish representations, sharing the same office and being an integrated part of the Danish diplomatic setup is generally viewed positively. Cooperation and knowledge sharing between the ICDKs and the TCs are actively promoted. At ICDK Seoul, the ambassador pays attention to sharing knowledge between the diplomats and the employees at the ICDK and the TC. There is a joint meeting at the embassy on a weekly basis, and coordination and management meetings are held continuously. In Seoul, the focus on creating cooperation has, among other things, led to a joint project between the ICDK and the TC about water resources. As the head of the diplomatic representations, the ambassadors are the formal chiefs of the ICDKs, which sometimes pose a potential challenge especially at the ICDKs located within an embassy. If the ambassador wants the ICDK employees to do a certain task in relation to an official state visit, they are expected to participate, even though it is not a success criteria in the performance contracts set up for the ICDKs.

5.2 COLLABORATION WITH THE DANISH MINISTRIES AND CROSS-CENTRE ACTIVITIES

The expansion from one ICDK to six ICDKs in seven years underlines the mutual interest and willingness for further collaboration between the Ministry of Foreign Affairs of Denmark and the Danish Ministry of Higher Education and Science. **Since the beginning of the interministerial collaboration in 2006, the evaluation finds that the two ministries is gradually getting closer.** Taking into consideration that the

ministries have different political agendas and focuses, the collaboration has been successful. The interviews with the government officials in the two ministries support this finding.

In addition, the evaluation finds that **the collaboration between the ICDKs and the Danish ministries is generally well functioning**, as the ministries are viewed as approachable and easy to communicate with. However, the interviewees at the ICDKs point out that there is room for improvement when it comes to the level of reporting and administration, as their experience is that they spend too many resources and time on documenting their activities. As one employee of an ICDK puts it, he would appreciate less micro management and instead a management approach increasing the ICDKs' autonomy for planning and managing their activities. At another ICDK, an interviewee thinks that the ministries need to realise that the ICDKs can operate in the target countries more independently, and therefore the ICDKs do not need to be involved in every decision at the governmental level concerning them. **The most important challenge that the ICDKs face is that they spend many resources on seeking out and finding potential clients and partners in Denmark.** Except ICDK Munich, all of them are far away from Denmark geographically, which makes it challenging to maintain connections in Denmark as well as to find new clients and partners. The interviews with the Danish clients suggest that they experience that the general Danish knowledge of the existence of the ICDKs among Danish startups and SMEs is low. Because of this, the ICDKs suggest that the ministries increase their level of backup in seeking out new clients and in assisting them to prioritise and segment clients and partners. More focus on marketing and branding the ICDKs in Denmark is another action that the ICDKs and the interviewed clients think that the ministries should take.

The ICDKs are becoming more consolidated, but so far the level of cross-centre activities has been limited. Most employees and directors at the ICDKs agree that the time has come to start exploring the opportunities for collaboration across the ICDKs. There are examples of collaboration across the ICDKs, but the general opinion is that enhancing collaboration would strengthen the total effort of the ICDKs, as a higher level of knowledge sharing and spillover effects helps to reduce the level of error of new projects initiated by the ICDKs.

5.3 INTERPLAY BETWEEN THE THREE AREAS

A large number of the ICDK activities focus merely on the research and education area or the commercial area (or in a few cases, in the intersection between the two areas), while the investment promotion area represented by Invest in Denmark is less involved in the activities. The employees at the ICDKs find the level of involvement of the investment promotion area a problem because they have the impression that the ministries require a high level of cooperation. However, the evaluation has identified variations between the ICDKs regarding the interplay and collaboration between the three areas. (Please note that Invest in Denmark is not a part of the setup in ICDK São Paulo.) As an example in one ICDK, the innovation attaché finds it easier to collaborate with the employees from Invest in Denmark than with the employees from the commercial area. This is partly due to the earning targets of the commercial area incentivising them to reach their own targets and partly due to the common interest between the research and education area and the investment promotion area, where initiating research collaborations between Danish and foreign research institutions at the same time is an opportunity to market Denmark as a place for investments.

Generally, the coordinators from Invest in Denmark find that it is more meaningful to collaborate with the innovation attachés than with the employees from the commercial area. Across the ICDKs, collaboration between the commercial area and Invest in Denmark is practically nonexistent. As one interviewee puts it, it has to do with the differences in their logic. While Invest in Denmark works more commercially and to attract investments to Denmark, the commercial area in the ICDKs works towards attracting Danish clients to foreign countries and has a focus that is more precommercial than Invest in Denmark.

There is a number of good cases and examples of interplay between the research and education area and commercial area, and an instrument that enhances this is the joint innovation projects that focus on linking more areas. **In the day-to-day operations at the ICDKs, the employees generally experience a high level of collaboration between the research and education area and the commercial area** as they share knowledge and experiences. Still, the employees at the ICDKs assess that a large share of their deliverables and services are either in the research and education area or in the commercial area.

A main finding is that the earning targets for the commercial area push further in the direction of less synergy between the research and education area and commercial area, as the employees in the commercial area prioritise reaching their earning targets instead of creating links and collaboration with the research and education area. Going through the interviews with the clients of the ICDKs, many of them use deliverables and services from either the research and education section or the commercial section. Few have been in direct contact with both sections, and in the interviews, the clients are generally not preoccupied with the added value of this ICDK setup. Typically, they have a specific request, and especially among the research and education clients, the awareness of the commercial area at the ICDKs is low, as they often have a specific focus on meeting other researchers and potential partners from research and educational institutions.

5.3.1 The joint innovation projects

The evaluation finds that **the innovation projects are instruments that create synergy between the research and education area and the commercial area**. The ICDKs receive a reduction in their earning targets up to 25% from initiating the innovation projects, giving them an incentive to initiate new innovation projects.

The general feedback from the ICDKs is that the innovation projects enhance the link between the research and education area and commercial area. The main reason is that the innovation projects are used for building up competences and knowledge internally and for testing and developing new ideas and projects. As an example, ICDK Shanghai has initiated an innovation project in nutrition and health, which is a new area in ICDK Shanghai, and with the project, they gained an insight into the challenges and opportunities of the market and research field in nutrition and health in China, knowledge that they can bring into play for future clients.

In the same way, the evaluation finds that the innovation projects are an important instrument because they push the focus of the ICDKs towards precommercial and innovation-oriented projects that lie at a further distance from the market than some of their other deliverables and services. With the innovation projects, the ICDKs get a chance to concentrate fully on their core focus, and because of the reduction in earnings targets,

they are less incentivised to sell deliverables and services that are in the grey zone between innovation and market.

However, in the evaluation process, we have identified potential for strengthening the innovation projects even further and in increasing their level:

- Some interviewees at the ICDKs mention that the administration of the innovation projects acts as a barrier, as they find the processing time from handing in the application to initiating the project too slow.
- Because of the low extent of collaboration with the investment promotion area at the ICDKs, Invest in Denmark is rarely actively involved in the innovation projects. In the action plans and the innovation project reports, the investment promotion area is often mentioned as a part of the project, but the overall assessment at the ICDKs is that the involvement of Invest in Denmark in the innovation projects is limited.
- Recently, the ICDKs have started to collaborate more closely and initiated joint innovation projects such as Industry 4.0 and Megahubs/Smart Cities. However, spreading knowledge from the innovation projects initiated at the different ICDKs could be further developed, as some ICDKs have experienced that they were unaware of relevant innovation projects that other ICDKs had initiated.

5.4 INCENTIVES AND KEY PERFORMANCE INDICATORS

The current key performance indicators (KPIs) of ICDKs are not measuring the actual value creation of the ICDKs, as the objectives set up in the performance contracts are primarily focused on activities and outputs rather than outcome and impact. The evaluation finds that it constitutes a barrier for the ICDKs to navigate and set a direction for their activities. In addition, the evaluation finds that **the earning targets challenge synergy between the three areas - research and education, commercial and investment promotion - and push the ICDKs towards offering more market-oriented services** rather than pre-commercial and innovation-oriented activities.

5.4.1 The performance contract

The ICDKs use the objectives set up in the performance contracts as general guidelines for the activities that they initiate. However, the evaluation finds that **the KPIs do not provide guidance for the daily work of the ICDKs - the main focus is on the earning targets**. It appears that the KPIs are mainly taken into account towards the end of the year before reporting of the performance contract.

As demonstrated in the previous section, the ICDKs have been successful in achieving the objectives set up in the performance contracts. In the interviews with the employees at the ICDKs, they view the performance contract as a management tool, but **across the ICDKs, they are not satisfied with the performance contract because of the following reasons:**

- The performance contracts typically have more than 10 KPIs. Employees at the ICDKs have highlighted that the high number of KPIs makes it difficult to remember and makes it difficult for partners such as Invest in Denmark, GTS institutes and the regional business link centres to see how they can propose common activities that not only benefit themselves but also help the ICDKs reach their goals.

- The measurement and management of the ICDKs has many components - strategic foundation, overall and individual earning targets, the performance contract and the innovation projects - and they are not necessarily part of the same process and aligned. The employees do not feel that there is a clear overall strategy that sets the goals for their work and cannot see the connection to the content of the performance contract and the focus of the innovation projects.
- To a large extent, the ICDKs do not follow up on the clients and their projects and are often not aware of the outcome of their activities. This makes it difficult for the ICDKs to assess their own outcome and to direct their time and effort towards the types of clients where they generate the best results on the outcome level.

5.4.2 The payment scheme and the earning targets

The commercial area of the ICDKs are subject to the payment scheme, which means that they have to invoice the deliverables and services that they sell to the commercial clients. All ICDKs have earning targets that they have to meet, and the evaluation finds that the earning targets of the ICDKs are a factor that significantly influences the scope and focus of the ICDKs.

The evaluation has identified both pros and cons with the earning targets. **The advantage of having earning targets is that it gives a strong incentive to find new clients and professionalise the ICDKs**, while **the disadvantages are that the earning targets challenge synergy between the three areas and push the ICDKs towards offering more market-oriented services**. This push creates a large grey zone in the intersection between innovation and commercialisation.

Based on the interviews with the employees at the ICDKs and their clients, the evaluation finds that the earning targets have a positive influence on the ICDKs because:

- The earning targets give the ICDKs and employees **direction and a clear goal** for their work.
- They keep the ICDKs on their toes and force them to **focus and prioritise** their efforts. The earning targets push the ICDKs to be more proactive in finding and identifying new clients in Denmark.
- They increase the **engagement and expectations** of clients that they pay for the service.
- They **serve as a filter** for clients who are not genuinely dedicated.
- They **generate additional income** and thus additional resources to the basic financial resources of the ICDKs.

At the same time, the ICDKs find the setup troublesome. Both employees and directors point towards the setup having some unintended consequences such as:

- **Challenging synergy at the ICDKs.** The earning targets challenge the synergy between the three areas at the ICDKs because the employees in the commercial area are primarily focused on reaching their earning targets instead of prioritising collaboration with the other areas.
- **Less innovation and risk-taking.** The push towards more market-oriented services is making the grey zone between the ICDKs and TCs larger, as the commercial area of the ICDKs focus on reaching their

earning targets and become less critical about the innovation height among their clients and in the services that they offer.

- **Less long-term and complex projects.** It makes it difficult for the ICDKs to engage in long-term and complex projects that require development and preparation time before the ICDKs can actually start billing the clients.
- **Focus on income as opposed to value.** It pushes the ICDKs to focus on the clients who are willing/able to pay for services rather than on clients who would benefit the most from the provided services.
- **More difficult to work with SMEs.** It makes it more difficult to attract startups and SMEs who in general are the least able and willing to pay for services.

Another challenge with the payment scheme voiced internally, mainly by the innovation attachés, is that the guidelines for paying clients are too vague. As an example, an innovation attaché mentions that it is unclear whether or not certain services of the attaché should be charged, such as if a university asks for help about identifying relevant businesses, as this would be a task for an innovation officer. Another challenge that the ICDKs face is that for private foundations, the dividing line between the research and education area and commercial area is not clear. Therefore, one innovation attaché has experienced that it was uncertain if the private foundations should be regarded as a commercial client or a research client.

6. Innovation Centre Denmark in Silicon Valley

ICDK Silicon Valley is the oldest of the ICDKs. ICDK Silicon Valley was founded in 2006 to give Danish companies and research institutions access to the world's premier technology cluster: Silicon Valley. ICDK Silicon Valley is located in Palo Alto in the heart of the Valley.

Silicon Valley is known for its entrepreneurship ecosystem, its access to capital and its ability to scale startups and successful ICT companies, such as Apple, Facebook, Microsoft, Google, LinkedIn, Twitter, PayPal and Instagram, which are all located in Silicon Valley. The location and the local ecosystem have influenced the activities of the ICDK which has a stronger focus than the other ICDKs on introducing Danish startups to the ecosystem and providing them with feedback on their business plans from experienced entrepreneurs from the Valley.

ICDK Silicon Valley also introduces some of the more established companies and organisations to the latest developments within innovation and technology and link Danish universities and other educational institutions to local educational institutions, such as Stanford University and University of California Berkeley. The tagline of ICDK Silicon Valley **'We help you scale by giving you access to world-class research and capital in the US'** is also testimony to the focus on helping businesses scale. Scaling of businesses is something which is often highlighted as one of the biggest challenges for Danish entrepreneurs and something which the Danish ecosystem does not facilitate well.

6.1 DELIVERABLES AND SERVICES

ICDK Silicon Valley offers a number of the same services as the other centres but also has a couple of unique services which have grown out of the focus on entrepreneurship in the region. The typical clients of the ICDKs can be divided into five overall groups:

- **Startups** that want to tap into the unique Silicon Valley ecosystem to get feedback from experts and potential investors on their business ideas, business plans, value proposition, pitch, strategy, go-to-market plan, etc.
- **Established companies** that would like to build a network in Silicon Valley, find partners, set up operations or find inspiration to strengthen innovation in their company.
- **Organisations** that would like to learn about the latest development in entrepreneurship, innovation, technology transfer, ICT etc.
- **Ministers, delegations from parliament and regions** who seek for inspiration for new policies and initiatives to strengthen economic growth in Denmark.
- **Educational and research institutions** that seek partners in Silicon Valley, research collaboration and student/faculty exchange with local educational and research institutions.

The local culture and way of doing business is closer to the Danish culture than it is in, for example, China, Korea and India, and the language barrier is not an issue for most clients. The value of services therefore mainly stems from the substance of the services and not so much related to knowledge of local culture, customs and language even if it can be valuable for visitors to the valley to be introduced to the laid-back dress code, networking culture, way of pitching business ideas, etc.

One of the main activities offered by ICDK in Silicon Valley is SCALEit. The purpose of SCALEit is to teach startups how to scale their activities. The programme has three steps: Inspire, Ignite and Accelerate.

SCALEit Inspire consists of events around Denmark and seeks to inform startups about Silicon Valley and demonstrate how companies can benefit from going to Silicon Valley, the growth possibilities in Silicon Valley and why they should apply for SCALEit Ignite.

As part of **SCALEit Ignite**, potential high-growth startups are selected to go to Silicon Valley for a weeklong boot camp. During the week, the startups are challenged through five days of workshops and presentations with leading experts from the entrepreneurial scene. The participants work on improving the pitches, revisit their business plans and meet up with potential investors. SCALEit has been conducted 10 times, and more than 90 startups have participated.

SCALEit Accelerator is a 12-week programme where participants spend three times two weeks (six weeks in total) in Silicon Valley. Accelerator gives companies an entrance to Silicon Valley and help companies prepare to internationalise. The programme connects participating companies to business support from experienced and dedicated local mentors. As part of the programme, the participants receive an external mentor; participate in at least 10 workshops focused on various aspects of the company; engage in a minimum of 10 external events and conferences and feedback sessions with local entrepreneurs, advisors, and investors and are introduced to minimum two domain experts from the industry of the company. Accelerator has been conducted fewer times than Ignite because it has been difficult to raise money to conduct the programme, among others. It is also significantly more expensive for the companies to participate and involves a bigger time commitment.

Another key service provided by ICDK Silicon Valley is to **organise inspiration tours** for organisations that would like to visit Silicon Valley to learn about entrepreneurship, innovation, the latest trends in technology and new business creation. This can be both organisations that are relatively new to the field and organisations that work with entrepreneurship and innovation as their core business. A large number of organisations, such as ministries, regions, municipalities, GTS institutes, regional business link centres, DI, DEA and EM-BA classes, have been on these tours. Given the reputation of Silicon Valley as the world's primary hub for entrepreneurship and new technology, ICDK Silicon Valley receives more requests for these types of tours than the other ICDKs.

ICDK Silicon Valley has conducted a series of **innovation projects** focused on understanding new and developing trends and future business opportunities for ICDK Silicon Valley. Recently ICDK Silicon Valley conducted a project on 3-D printing which included a one-day workshop in Denmark with relevant stakeholders from Denmark to discuss the 'maker movement' enabled by 3-D printing. The workshop also includ-

ed participants from Silicon Valley and helped ICDK Silicon Valley develop a deeper knowledge of 3-D printing and build a network of Danish and American companies, researchers and other stakeholders. ICDK Silicon Valley also carried out an innovation project entitled 'Educational Disrupt' which focused on educational technology as a potential future focus area for ICDK Silicon Valley. The project included a summit in Copenhagen called #EDUdisrupt with 130 participants, including international and Danish thought leaders as well as private enterprises. Because of the project, ICDK Silicon Valley has been able to build a network with actors across the Danish and American educational establishments.

ICDK Silicon Valley sells **innovation services** to individual companies that either contact ICDK Silicon Valley or which ICDK Silicon Valley contacts to inquire about their interest in Silicon Valley. The services include a variety of tasks, such as market assessments, business plan reviews with a board of experienced entrepreneurs and businesspeople, go-to-market strategy for how to enter the US market, building and accessing networks, meetings with investment managers and preparation for raising venture capital and tech scouting which includes identification of the latest technologies, relevant companies, potential partners and distributors. ICDK Silicon Valley also provides incubation and sales services for companies that would like to have a physical or virtual office in Silicon Valley.

In addition, ICDK Silicon Valley has a focus on **corporate innovation**, which is a service targeted at larger companies that would like to follow the latest trends in their sector and foster innovation in existing companies where innovation might need a boost. ICDK Silicon Valley has worked with a number of large companies but currently focuses on strengthening corporate innovation activities which is an area they hope they can develop further.

Finally, ICDK Silicon Valley provides a substantial amount of **services to educational institutions, mainly universities, and researchers** who would like to build networks and establish cooperation with actors in Silicon Valley. Some of these institutions include Stanford University, University of California campuses, SRI International, NASA and Lawrence Livermore National Laboratory, among others. These actors are known not only for their high academic standards but also for their contribution to entrepreneurship and innovation in Silicon Valley.

The innovation attaché has facilitated a number of meetings, research convenings and workshops where Danish researchers have come to Silicon Valley to meet local researchers within their field to discuss common interests and possibilities for future cooperation. Concrete common activities include exchange of knowledge, common funding applications, common research projects, common scientific articles, exchange of researchers and exchange of students. Often the innovation attaché will also be involved in the follow-up process after meetings and workshops to keep the actors engaged and facilitate that further collaboration is established if relevant.

The innovation attaché can apply for funding from the Danish Agency for Science, Technology and Innovation (DASTI) to organise the initial workshop. This funding opportunity is highlighted by both the innovation attaché and the American and Danish researchers as a key tool to facilitate workshops in order to explore opportunities for further collaboration. Visits for Danish educational institutions to local educational institutions are also commonly provided by ICDK Silicon Valley.

There is significant interest in establishing cooperation from both Danish and local universities, and often ICDK receives more interest than one innovation attaché can handle. Therefore, the innovation attaché has attempted to lift his work to a more strategic level where he provides the tools and means for Danish educational institutions and researchers to reach out to the local counterparts without him being the middleman facilitating one-to-one contacts and meetings. One such tool is a list of American universities that would like to collaborate with Danish universities and a description of within which fields they would like to collaborate. The list is based on a questionnaire to all American universities and will be distributed to the Danish universities.

6.1.1 Results on the outcome level

In general, clients are highly satisfied with the outcome of their collaboration with ICDK Silicon Valley and the activities they have been involved in in Silicon Valley. ICDK Silicon Valley has a large group of startups and technology businesses among their customers, and because of the local context and competencies, these businesses in particular have something to gain from being introduced to Silicon Valley.

The majority of businesses have been able to **build a valuable network with local companies, research institutions and experts**. This is a key outcome for most clients of ICDK.

Most companies have also acquired a good **overview of relevant companies** and potential partners in Silicon Valley as well as an **understanding of how Silicon Valley works** and how business is conducted.

The startups in particular highlight the value of getting **feedback from investors and experts** on their business idea, pitch, business plan, technology and go-to-market strategy which have provided the startups with tools and knowledge to develop their business further. Some have also secured access to funding -either in the US or after returning to Denmark with an improved pitch and business plan -or decided to enter the American market. Since the ICDKs do not follow their clients systematically, it is not known exactly how many have achieved this.

The technology was interesting, but the US was probably not the right market.

A Danish company looking to internationalise used ICDK Silicon Valley to set up a three-day programme to meet potential investors, researchers and experts to get their perspective on the technology. The representatives were very impressed that all meetings set up for them were highly relevant and also highlighted that the employees at ICDK Silicon Valley had many good inputs and a good understanding of the venture capital market which helped them prepare for the meetings. A member of the board says,

We got what we came for. We found out that our technology was interesting for investors - even in a world-leading technology innovation hub. At the same time, we learned a lot about what it takes to scale the business and what to focus on if we decide to go for American venture capital.

In the end, the company decided that another market was more relevant for them in the short run. At the same time, the US market remains interesting for them in the longer run, and it was highly valuable for the company to learn that in the short term, the US was probably not the right market to spend too many resources on.

At the same time, some of the companies have also learned from their visit that they are **not ready to move to Silicon Valley/the US** or enter the American market. This is also a very valuable outcome for the companies which save time and money by realising this early in the process.

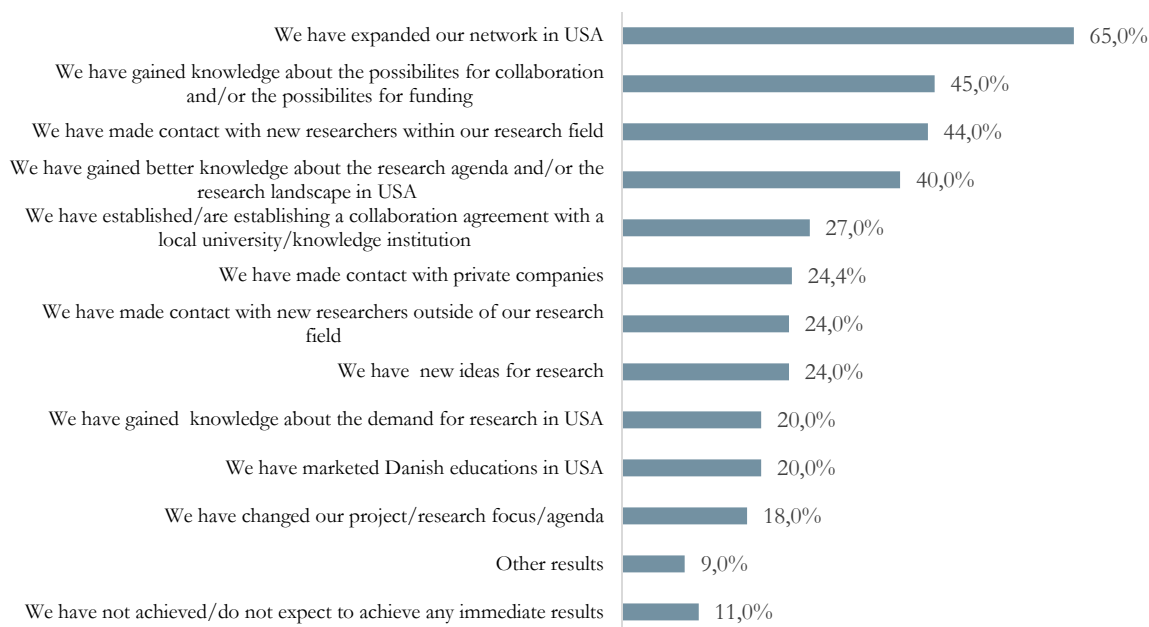
More or less all clients -both companies and other organisations - also highlight that they return to Denmark **full of inspiration** to develop their business or organisation and to promote innovation and entrepreneurship. Silicon Valley is a special place, and many return energised by the local culture, openness and drive.

One of the interviewees explained the outcome of their tour to Silicon Valley as follows:

Primarily, ICDK Silicon Valley has helped us to create a network of companies, research institutions and other actors that are relevant to our business. They have additionally helped us by collecting knowledge about different companies and how business is conducted in Silicon Valley. They have opened many doors for us in California. Finally, they have helped us established an office in San Francisco.

For the clients in the research and education area, the outcome achieved by most respondents to the survey has been ‘increased network in the US’ (65%) followed by ‘knowledge of possibilities for collaboration and/funding funding’ (45%), ‘contact to new researchers within the same area of research’ (44%) and new knowledge of the research agenda and/or the research agenda in the US (Figure 6.1).

Figure 6.1: Outcome/expected outcome of using ICDK Silicon Valley (clients in the research, innovation and education area)



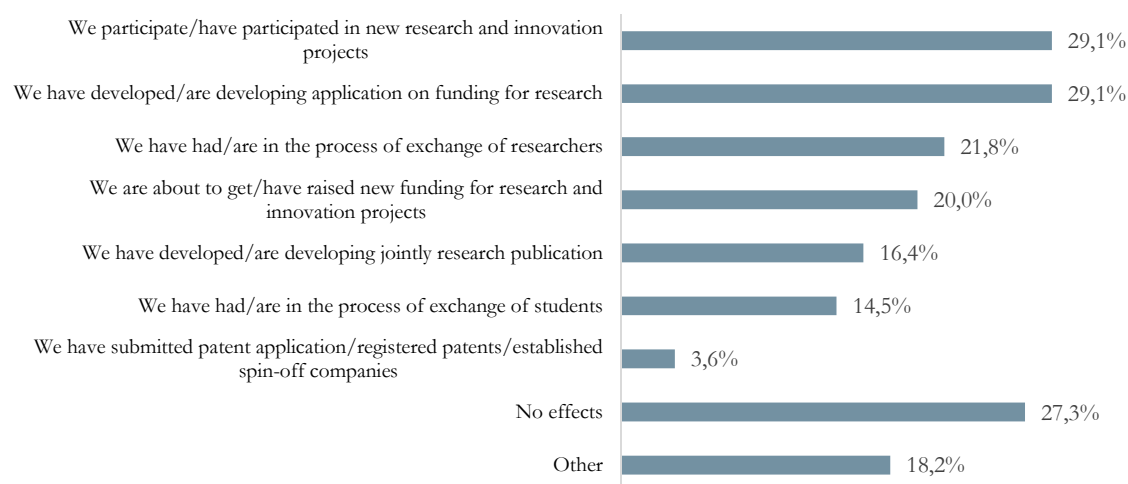
Source: Oxford Research 2015

n = 55

Around one out of five has also ‘established/are establishing a collaboration agreement with a local university/knowledge institution’, ‘have made contact with new researchers within our research field’, ‘have made contact with private companies’, ‘have new ideas for research’, ‘have gained knowledge about the demand for research in the US’ and/or ‘have marketed Danish educations in the US’. 11% have not achieved/do not expect to achieve any immediate results.

The survey to clients in the research and education area also included a question about the longer-term outcome, and the responses to this question are also very positive, as illustrated in figure 6.2). Thus 29% have prepared/are preparing an application for research funding. Similarly, 29% participate/have participated in new research and/or innovation projects. The exchange of researchers is another long-term outcome that 22% of clients obtain from using ICDK Silicon Valley , while 20% are in the process of raising/have raised money for research and/or innovation projects. However, not all clients have a long-term outcome of ICDK Silicon Valley, and more than a quarter of the clients in the research and education area have not achieved any results (27%).

Figure 6.2: Long-term outcome of using ICDK Silicon Valley (clients in the research and education area)



Source: Oxford Research 2015

n = 55

6.1.1.1 Collaboration with clients and partners

The partners are in general very positive towards their collaboration with both the research and innovation staff at ICDK Silicon Valley. They are regarded as well connected, knowledgeable, competent, flexible and good at matching the companies and organisations with the right actors in Silicon Valley. Furthermore, they are good at understanding the needs of the clients.

Two of the clients highlight the following:

'They are first and foremost very talented and have an extremely professional approach. I find that the employees are very competent in their work. I have a lot of experience working with professional organisations in Denmark, and I really feel that ICDK Silicon Valley is knowledgeable and very professional'.

'They seem competent internally - good organisational structure and culture - but also externally, where I feel that they have a strong network. I find that the employees are good at asking what our needs are, which is very important'.

The clients in the area of research and education are also highly satisfied. Overall, 89% of the respondents are either very satisfied or satisfied with the service they have received from ICDK Silicon Valley. The clients are also impressed by the local network, knowledge of potential local partners, the needs and challenges of the clients and knowledge of commercialisation and innovation, which ICDK Silicon Valley possesses. Even when it comes to knowledge of the clients' research area - which is undoubtedly very complex and highly specialised - only 4% disagree that ICDK Silicon Valley has a good knowledge of their area.

DKK 42 million for joint Danish American research project in 2014

A Danish centre for energy informatics at a Danish university has been in contact with ICDK Silicon Valley several times and has achieved substantial concrete effects from their collaboration with the ICDK. One of the professors from the Danish centre was initially invited to Silicon Valley to speak at a Smart Grid conference, and the innovation attaché has subsequently facilitated contacts to and cooperation with some of the most prestigious research institutions in the area, including Lawrence Berkeley National Laboratory, NASA Ames and UC Berkeley. The Danish center has secured funding for the large research project 'COORDICY' worth DKK 42 million, which they highlight themselves they would not have been able to get funding for without collaborating with ICDK Silicon Valley.

The center is also involved in exchange of PhD CITRIS at UC Berkeley.

6.2 VALUE CREATION AND ADDITIONALITY OF ICDK SILICON VALLEY

Both the survey and the interviews show that the research and innovation services provided to clients provide additional value which the clients could not have achieved without the ICDKs.

First and foremost, ICDK Silicon Valley is able to **open doors and set up meetings** that the clients could not have done themselves. They have **local knowledge of the ecosystem and companies**, which makes them able to match the clients with the most relevant companies, research institutions, etc. In many cases, companies and organisations could probably develop a list of potentially relevant companies and organisations to meet, but they would still lack the local knowledge to match the companies with local actors, which ICDK Silicon Valley can do.

ICDK Silicon Valley also has a **comprehensive network** in Silicon Valley, which allows the centre to set up meetings with highly relevant experts, serial entrepreneurs, investors and established companies - often at a high level - from Silicon Valley companies and organisations. Furthermore, the fact that ICDK Silicon Valley officially represents the Danish state and can use the coat of arms also opens doors that individual companies and organisations often could not have opened.

ICDK Silicon Valley **specialises in the tech environment** and has strong ties to research institutions, which is something that sets ICDK Silicon Valley apart from the consulate and embassy and provides added value

to their services because they are more specialised and therefore have stronger networks within the tech industry and at research institutions.

One client says:

I would say that what separates ICDK Silicon Valley from other Danish actors in the area is that they are more centred on technology and knowledge. Where others may be more generic - like the consulate or embassy - I find that ICDK specialises more in the tech environment'.

The **knowledge and understanding of the local culture and political context** is not as important in Silicon Valley as it is in, for example, Korea, China and India, because the culture and way of doing business is closer to the Danish culture. At the same time, there are differences, and ICDK Silicon Valley also provides value by briefing clients about the local culture and the aspects that are different from Denmark.

The main value provided by the innovation attaché is to match people and organisations. Based on the survey, most clients in the research and education area also agree that ICDK Silicon Valley provides additional value they could not have achieved themselves. Thus, 49% respond that they could not have achieved the same results, 16% do not know, 22% estimate they could have achieved results but not to the same degree without the ICDKs, and 13% find they could have achieved the same results to the same degree without the ICDK.

A client from a Danish university is very clear about the additional value provided by ICDK Silicon Valley and says,

In terms of concrete results we can measure that we have secured funding for a large research project worth DKK 42 million. We would not have been able to get funding for this project without collaborating with ICDK Silicon Valley'.

6.3 ORGANISATIONAL SETUP AND SYNERGIES

ICDK Silicon Valley currently consists of an executive director, an innovation attaché, three innovation officers, two investment officers from Invest in Denmark and two trade officers from the TC and are planning to hire a couple of more innovation officers in 2015. Thus, ICDK Silicon Valley is one of the biggest ICDKs. ICDK Silicon Valley has seen a high turnover of staff the past six months, where around 70% of the employees have been replaced. The innovation and trade officers are also part of a sector network for all employees in North America within a specific sector. However, it varies how active these networks are.

Given the large turnover of people, ICDK Silicon Valley is currently rebuilding the team and is focused on strengthening collaboration internally. It is highlighted by both employees at ICDK Silicon Valley and by clients that the competencies within research, innovation and commercialisation are highly valuable and distinguish ICDK Silicon Valley from what a consulate or an embassy can traditionally offer.

Cooperation at ICDK Silicon Valley is often informal and often facilitated by meetings in the open office space. Sharing of contacts and network is highlighted as a valuable form of cooperation. When employees at

ICDK Silicon Valley receives a request for a service, the employees also share information about how tasks have been solved previously.

The employees from Invest in Denmark seem to have the closest collaboration with ICDK Silicon Valley, and especially with the innovation attaché. This does not mean that there is no room for improvement, but the Invest in Denmark employees are not as isolated as in some of the other ICDKs.

Two factors can explain why collaboration is closer in Silicon Valley than elsewhere. **First of all, ICDK Silicon Valley has had some assignments where Invest in Denmark and one or two of the other units at ICDK Silicon Valley could see a clear interest in the same project.** Contributing to a local conference where ICDK Silicon Valley had an opportunity to showcase Danish competencies and strongholds is an example of this. For Invest in Denmark, this was a good opportunity to present Danish competencies for American companies that could potentially be interested in investing in Denmark, and for the innovation attaché, it was a good opportunity to get some researchers over to the US to promote themselves and meet like-minded American researchers. **Second, Invest in Denmark has done well in the US the last couple of years and has reached their goals early in the year.** This has freed up resources to engage in collaboration which might not create jobs in Denmark short term. Visit from ministers is another activity where the different parts of ICDK Silicon Valley have worked closely together and have been able to leverage each other's competencies to create a better programme for the visit.

6.4 ASSESSMENT OF ICDK SILICON VALLEY

Overall, it is the assessment of Oxford Research that ICDK Silicon Valley is well functioning and provides high value to clients in research and innovation. ICDK Silicon Valley is the oldest and located in the most famous innovation hub in the world and can as such be regarded as the flagship among the ICDKs. Focus on entrepreneurship, innovation and scaling of technology businesses is such an integrated part of the area that it is natural for ICDK Silicon Valley to focus on research, innovation, new technologies and trends. **Therefore, ICDK Silicon Valley also has a distinctively different profile, self-understanding and services from the TC at a consulate or embassy.** Some of the ICDKs have spent a lot of time understanding which innovation services they can offer and how they differ from the services already offered by the TC, but this is not the case in Silicon Valley. In Silicon Valley, innovation and entrepreneurship is the focal point of most activities, and therefore, it is a natural focus for ICDK Silicon Valley.

It is the impression of Oxford Research that the employees at ICDK Silicon Valley -despite the earning targets -often take a long-term approach to their work. In general, they are **good at balancing the short-term focus on reaching the earning targets with a long-term focus on engaging in deep innovation projects and developing new business areas**, which might not be easily convertible into new sales short term.

It is further Oxford Research's impression that ICDK Silicon Valley is the ICDK where the employees from Invest in Denmark are best integrated in the work of the ICDK. However, improvement is still possible. The employees at ICDK Silicon Valley has been able to identify tasks where collaboration between Invest in Denmark and the other employees is of mutual interest, and they have contributed to both parties in achieving their goals. When organising local conferences which promote Denmark and visits from ministers, Invest in Denmark has collaborated with other employees at the ICDKs to the benefit of all parties. Currently, with

many new people on staff, the innovation officers at ICDK Silicon Valley also benefit from the network the Invest in Denmark staff has.

ICDK Silicon Valley has created significant results for its clients. **ICDK Silicon Valley has a comprehensive network, and clients emphasise that ICDK Silicon Valley is good at matching them with relevant actors in the local ecosystem at a high level.** ICDK Silicon Valley has been especially successful in helping startups, which 10 rounds of SCALEit with around 100 startups testify. **ICDK Silicon Valley creates value by giving the entrepreneurs feedback and input from local experts, but they have also been very successful in inspiring entrepreneurs, organisations and large corporations,** which have come to visit and which are motivated by the local energy and culture.

The survey among clients from research and education also shows that they are highly satisfied with the service they have received and have obtained concrete results out of the collaboration with ICDK Silicon Valley.

ICDK Silicon Valley has organised 14 visits by ministers in 2014. The visits is a good opportunity for ICDK Silicon Valley to brand themselves and to illustrate the value they can provide to clients. At the same time, no additional resources are provided to organise these visits, and the earning targets are not lowered to compensate for substantial amount of time and resources spent on planning and executing a visit by a minister. The large number of visits has tied up significant resources at ICDK Silicon Valley in 2014. According to the tradition in the Ministry of Foreign Affairs of Denmark, extra resources should not be received if a minister or delegation from Parliament visits. At the same time, the number of visits to Silicon Valley has been extraordinarily high.

In general, it has been pointed out by clients that the ICDKs are not well known at the universities. However, in Silicon Valley, the innovation attaché receives more request than he is able to handle and does not need to reach out to universities to generate interest in exploring potential collaboration with education institutions in the Silicon Valley area or other parts of the United States.

7. Innovation Centre Denmark in Shanghai

ICDK Shanghai opened in 2007, and since the end of 2014, it has been located as an annex to the Danish Consulate General in Shanghai. It is the second oldest of the six ICDKs and is a consolidated unit that has gathered many years of experience in offering innovation services to Danish businesses and researchers and in building up network and relations in China. The tagline and purpose of ICDK Shanghai is **‘to help Danish businesses and researchers to navigate in China and open doors to research and business opportunities’**.

ICDK Shanghai is located in one of the world’s leading and expanding global economic hubs. Shanghai is China’s leading production centre and is often seen as its economic locomotive. The metropolis is striving to retain its dominance and has succeeded in developing an innovation environment with extensive global linkages and leading research institutions. A large number of China’s elite universities are situated in Shanghai, including Fudan University and Shanghai Jiao Tong University. With GDP growth averaging 10% and a population of more than 1.3 billion, China recently became the second largest economy in the world² and is increasingly playing an important and influential role in the global economy. Every five years, China’s government launches a Five-Year Plan, and the present one is the 12th Five-Year Plan (2011-2015), which focuses on enhancing the ability of its economy to innovate³.

The political, economic and cultural environment in China is very different from the Danish environment. This means that there are some obvious points of attention for ICDK Shanghai to operate in China. For example, the political and social relations in China need to be acknowledged and dealt with carefully because of the higher power distance that can be observed in China. Another influential factor is the difference in language, which makes it impossible to enter the Chinese market and establish networks and partnerships without having Chinese interpreters at hand.

7.1 DELIVERABLES AND SERVICES

ICDK Shanghai has a broad range of deliverables and services that aim to help Danish businesses and researchers connect with Chinese companies, research institutions and local authorities in order to address research and business opportunities. Going through the deliverables and services of ICDK Shanghai, it is clear that ICDK Shanghai has a focus on providing different types of innovation services ranging from assisting clients in the early R&D stage to identifying potential opportunities, partners and solid models and ensuring that plans actually take off internationally.

Among the interviewed commercial clients, the idea and motivation behind using the deliverables and services of ICDK Shanghai vary, but these are all new to China and they do not intuitively associate Shanghai and the Chinese market with innovation and knowledge-sharing unlike Silicon Valley. To them, ICDK Shanghai can provide an entrance to China and connect them with potential partners. They want to access new and unknown territory. At ICDK Shanghai, they experience that most of the commercial clients do not

² International Monetary Fund (IMF): World Economic Outlook 2014

³ McKinsey (2011): Unleashing innovation in China

have a concrete idea for entering China but just want to explore what China is. Therefore, ICDK Shanghai puts a large deal of resources into helping and supporting the businesses in defining and understanding their own needs and to match them with the Chinese market.

Since 2010, ICDK Shanghai has initiated and carried out a large number of **innovation projects**, which focus on joint projects between the commercial area and the research and education area. At ICDK Shanghai, they regard the innovation projects as an important tool, because the projects increase synergy between commercialisation and research. An example of an innovation project is Nutrition and Health, which focuses on (1) strengthening relationships with Chinese universities, (2) initiating research collaboration in nutrition and health under the MoU framework between the Danish Technical University (DTU) and the China National Center for Food Safety Risk Assessment (CFSA) and (3) identifying new commercial innovation leads. For the commercial part of ICDK Shanghai, it is about serving as a knowledge foundation to build more concrete activities in Denmark and/or China in 2015 and to gain insight into Chinese challenges with a view of accessing the Chinese market. For the research and education area, the purpose is to disclose new knowledge valuable for Danish universities and research institutions and to improve their knowledge about the market/demand for research within nutrition in China.

Besides the innovation projects, ICDK Shanghai offers its clients a large number of tailor-made services that fit their specific needs. Therefore, it is a core activity of ICDK Shanghai to understand their clients and match their clients' needs with a service. An example of this is the **Innovation Growth programme** which helps SMEs identify their potential for growth through international innovation partnerships. The companies receive individual advice based on their business models. The output is a tailor-made action plan for internationalisation through innovation. Innovation Camps (for research, students, design processes and commercial interests) and Top Talent Denmark (an innovation project) are other examples of specialised services that ICDK Shanghai has fostered and developed over the years.

The idea behind the **Innovation Camps** is to give Danish businesses and students an authentic experience of going to and being in China. The camps have different objectives such as helping SMEs understand the Chinese market and, like the Bang and Olufsen Innovation Camp, bringing Danish and Chinese students together for developing new ideas for products. **Top Talent Denmark**, previously known as the Sino-Danish Network, is one of the most prominent innovation projects and one of the primary initiatives run and administered by ICDK Shanghai. It is an example of a project

Attracting Chinese talent to Danish universities and companies

With the long-term goals of (1) increasing the uptake of Chinese students at Danish universities, (2) providing more and better-trained Chinese talents to the Danish industry and (3) providing the stepping stones for a long-term allegiance of Chinese talent to Denmark, ICDK Shanghai initiated the innovation project 'Top Talent Denmark'.

One of the key activities has been Top Talent Denmark Days - the largest Danish education and career fair outside Denmark. Here the Danish universities and companies have a chance to promote their education programmes and career opportunities. Furthermore, appointing local 'ambassadors' at the Chinese universities has helped to nurture the interest from the Chinese side.

The project has been successful in raising awareness about Danish opportunities and the presence of ICDK Shanghai among elite Chinese universities such as Fudan University, Shanghai. As a sign of its success, other ICDKs have shown interest in initiating the same type of project.

where the research institutions and the businesses have collaborated with the aim of attracting Chinese students to Denmark. It focuses on bringing Danish companies and universities together with the Danish diplomatic missions around China to promote Danish study and career opportunities to Chinese students and professionals. Top Talent Denmark has created linkages to several organisations in China and Denmark. According to the survey with the clients in the research and education area, 53% have used ICDK Shanghai to participate in events on recruitment and exchange of researchers and students.

Besides the more specialised deliverables and services, ICDK Shanghai initiates services in tech scouting, mapping and analysis, facilitation of meetings, seminars and networks, facilitation of delegations and official visits from Denmark and incubator services. The most important and defining deliverables and services seen from the perspective of ICDK Shanghai and the clients are described below.

ICDK Shanghai has highlighted **tech scouting** as an important tool in China, because it is essential for identifying competition in a market, but also potential partnerships. Partnerships can be crucial for successfully entering the Chinese market. For a company that is new to China, tech scouting is typically one of the first steps to take. Larger companies also use tech scouting. A large Danish pharmaceutical company used the service because they needed help in identifying the most active innovators in China in insulin and identifying their development pipelines. A large Danish dairy company also used the service to identify top Chinese researchers in pediatrics, nutriology and food clinic trials, and to communicate with them about future collaboration prospects. On the research side, fact-finding missions are carried out in order to identify relevant collaborators with regard to exchange of Danish researchers to China. As an example, ICDK Shanghai supported a large Danish research foundation in establishing two Danish postdoctoral positions at the two best universities in China.

Mapping and analysis is used internally to build up knowledge about China, such as the newly implemented foresight analyses, and externally for Danish researchers and businesses to gain insight into the different aspects of innovation, research, education and technology in China. From the clients' perspective, it is considered a key service because they typically have not had prior Chinese experience. As an example, ICDK Shanghai has published a report that gives general guidance to Danish secondary and tertiary education institutions with an interest in China and Chinese institutions. It provides an overview and comparison of the Chinese regular and mainstream education system and compares it to the Danish system.

Hosting and facilitating meetings, seminars and networks is a constant activity for ICDK Shanghai. Annually, ICDK Shanghai has hosted the 'Innovation in China?' seminars that put spotlight on China's transition from being a manufacturing nation towards more innovation. For Danish businesses and researchers, the transition makes a difference in how they approach China. In the Innovation Community Network, ICDK Shanghai has helped in gathering a forum and network of senior and upper level directors and managers for roundtable discussions on challenges and opportunities in working with R&D in China. The Innovation Community Network is especially beneficial to companies wanting to share challenges, experiences and solutions with Danish peers in China.

Another service often used is **facilitation of delegations and official visits from Denmark**, which is a central activity of ICDK Shanghai that is very popular among the research and educational institutions. Accord-

ing to the survey with the clients in the research and education area, 69% have participated in delegations and official visits in China.

7.1.1 Results on the outcome level

All the interviewed commercial clients have had two main outcomes from using ICDK Shanghai. **First, using ICDK Shanghai gave them an increased level of knowledge of the Chinese market and innovation system** in terms of other companies, research institutions, barriers, differences, understanding of key

Gaining an understanding of the ‘Chinese way’

A Danish pharmaceutical company used the insights and knowledge of ICDK Shanghai to select and meet up with researchers and potential collaborators.

ICDK Shanghai had a close and ongoing dialogue with the company and assisted the client in its strategic approach to China. The company used the extensive network of ICDK Shanghai, and in this way gained an understanding of the “Chinese way”:

“We have found out how to operate in China, and to understand how the innovation process works there. It is a valuable first step for us.”

As the company’s development manager puts it, the combination of the company’s technological understanding with ICDK Shanghai’s ability to think strategically and operationally accelerated the process of the company’s desire to enter China.

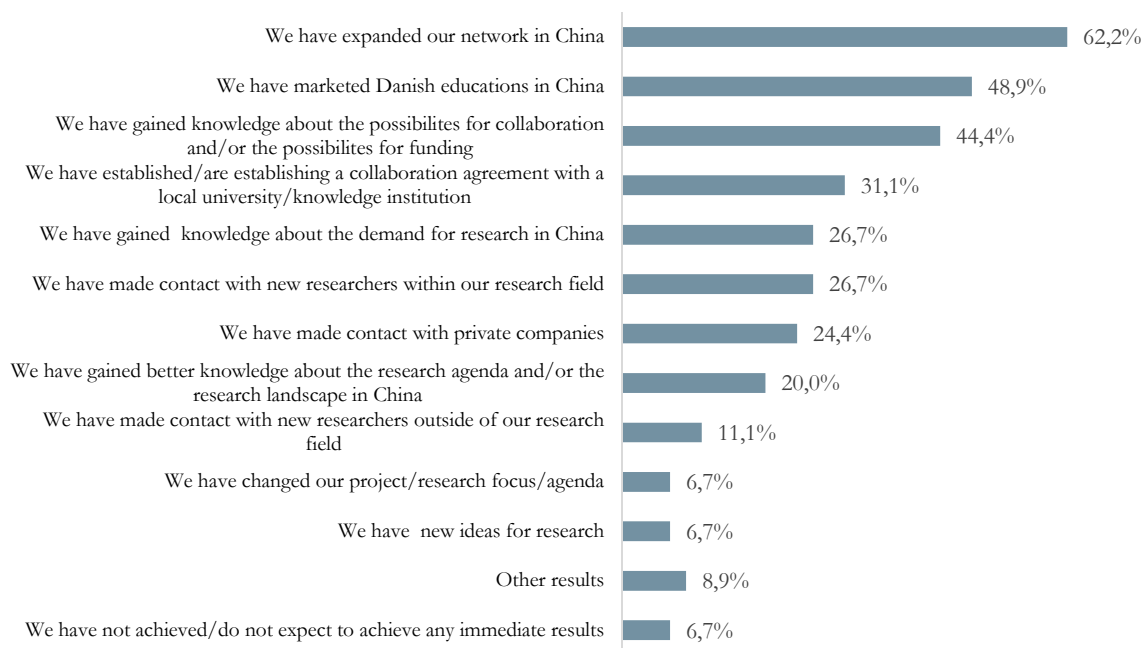
drivers and trends. **Second, they have been introduced to local networks** that give them a platform to establish joint development or innovation with local partners.

In one case, ICDK Shanghai did not succeed in recruiting the relevant Chinese companies to a workshop. ICDK Shanghai made an effort in recruiting the Chinese companies but was met with a general dismissive attitude in China towards the idea. The client was satisfied with the effort made by ICDK Shanghai but was also made aware of the challenges and difficulties of operating in China. In this case, the result of ICDK Shanghai’s effort was that the Danish client realised that China was not yet a mature market for the services that they offer. For ICDK Shanghai, a challenge of operating in China is that the geographical distance to Denmark is high, which means that they are sensitive when it comes to hosting events in China and recruiting Danish companies. If one company cancels its participation, it is difficult to find a new company.

For the clients in the research and education area, **the primary outcome has been concluding new MoUs with Chinese research institutions.** Other outcomes include **gaining an overview of the actors in the Chinese research and innovation system and gaining access to Chinese researchers in their own scientific field.** The survey data in figure 7.1

support the findings from the interviews. Thus, the primary outcome of using ICDK Shanghai is that the clients expand their network in China (62%). From their collaboration with ICDK Shanghai, 49% have marketed Danish education in China. Compared to the other ICDKs, a relatively high share have used an ICDK to market their education, which is linked to one of ICDK Shanghai’s main services, Top Talent Denmark, which focuses on attracting Chinese students to Denmark. By meeting potential Chinese collaborators and partners, 44% have gained knowledge about the possibilities for collaboration and/or the possibilities for funding.

Figure 7.1: Outcome/expected outcome of using ICDK Shanghai (clients in the research, innovation and education area)



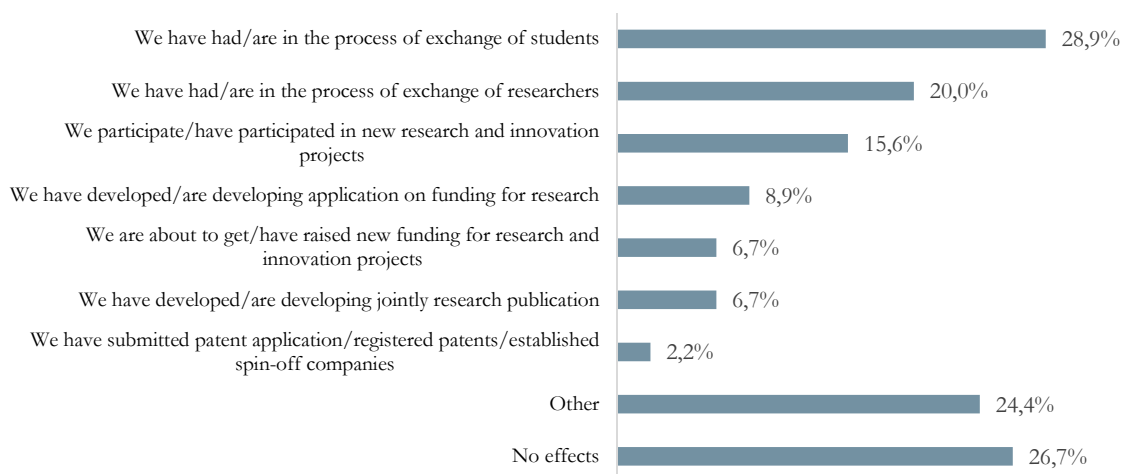
Source: Oxford Research 2015

n = 45

From their contact with ICDK Shanghai, few clients in the research and education area get new ideas for research (7%) or get in contact with new researchers outside their research field (11%). The interview with the innovation attaché at ICDK Shanghai supports this finding as the experience is that research clients often have a clear request or idea that they want to meet other researchers or institutions and, to a lesser extent, want to use ICDK Shanghai for exploring new research ideas or projects.

The survey also included questions about the long-term outcome. In general, the responses highlight two main outliners: exchange of students (29%) and exchange of researchers (20%), which is naturally linked to the specialised service that ICDK Shanghai has fostered, Top Talent Denmark. However, the responses show that 27% have not yet achieved any results.

Figur 7.2: The long-term outcome of using ICDK Shanghai (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 45

7.1.1.1 Collaboration with clients and partners

Generally, the clients and collaborators of ICDK Shanghai highlight that the employees are flexible, responsive and cooperative. In addition to this, they regard the employees as skilled and technically proficient in their field of expertise, as a large number of the employees at ICDK Shanghai hold PhDs. For the clients, it is a benefit that ICDK Shanghai has recruited innovation officers with special technical skills. The employees at ICDK Shanghai generally differ from the employees at the TC as they are more into aspects of technology, research and innovation, and are less commercial oriented. It is also recognised from the clients that are aware of the distinction between the ICDKs and the rest of the export system.

Taken together, the clients and collaborators have experienced engaged employees, and the clients are confident that ICDK Shanghai acts as a worthy representative of their interests with the Chinese counterparts. A client emphasises that he is content with the honesty and transparency that ICDK Shanghai has demonstrated throughout their collaboration as ICDK Shanghai did not give him any false expectations as to what they could achieve in China as a new business.

7.2 VALUE CREATION AND ADDITIONALITY OF ICDK SHANGHAI

Several of the clients share the view that **one of ICDK Shanghai’s main contributions is their understanding of the Chinese cultural and political context.** With this knowledge, ICDK Shanghai can support Danish companies, researchers and educational institutions in interpreting and translating Chinese conduct and ways of doing business into a Danish context. As an example, the Five-Year Plan is crucial for understanding the Chinese political agenda, and in a country where research is closely tied to the policy dictated by the government in Beijing, ICDK Shanghai plays a role in linking the Chinese research policy agenda to the Danish strongholds. One commercial client voiced that they could use even more insight into China and more clarification of challenges and barriers of operating in China.

Also, with a mix of Danish and Chinese employees at ICDK Shanghai, matching Danish research and business needs with Chinese demand is made easier. The fact that the innovation officers at ICDK Shanghai are Chinese and speak Chinese as their mother tongue lowers the risk of information asymmetry between the Danish and Chinese side. As one of the interviewed researchers puts it, the support of ICDK Shanghai leads to fewer beginner's errors and initial difficulties in concluding MoUs with Chinese research institutions. Likewise, a representative of a large pharmaceutical company has experienced that the insights ICDK Shanghai have regarding Chinese business procedures has been crucial in preparing the ground for establishing new relations and networks in China. According to the survey data, 71% of the clients in the research and education area agree that ICDK Shanghai has a sufficient network in China, and furthermore, 73% of clients in the research and education area agree that ICDK Shanghai knows the relevant actors in China.

The additionality of ICDK Shanghai is high, and the clients interviewed on the commercial side and the research side voice that using ICDK Shanghai has been crucial for entering China. They all emphasise that they would not have been able to reach the same outcome without the assistance of ICDK Shanghai. According to the survey, 53% would not have reached the same outcome without the assistance of ICDK Shanghai while 31% would have reached the outcome, but not to the same extent.

7.3 ORGANISATIONAL SETUP AND SYNERGIES

From the interviews with the employees at ICDK Shanghai and the TC at the Danish Consulate General, there is an understanding that the core of ICDK Shanghai's work is to focus on innovation services before the market focus of the TC. Generally, the TC and ICDK Shanghai experience that the distinction is meaningful. However, it is also clear that there is a grey zone between ICDK Shanghai's services and the services delivered by the TC because the practical distinction between innovation and trade is not as clear cut in practice as in theory. In many cases, it is clear that it is innovation, such as in the idea generating phase or when testing a product. However, in other cases, the dividing line between innovation and market is blurred. From the interviews at ICDK Shanghai, it is observed that the earning targets contribute to pushing the boundaries towards services that could be handled by the TC.

Generally, the employees at ICDK Shanghai view the co-location with the Danish Consulate General as an opportunity because they can use each other's experiences and knowledge base in their daily work. However, there is also an awareness that they constantly have to demonstrate how their research and innovation oriented approach is different from the rest of the TC.

There are clients that appreciate the synergies created between the research and education area and commercial area at ICDK Shanghai and are aware of the value that they gain from it. This is especially the case for the knowledge and technology intensive businesses who work at the intersection between science, innovation and market. Others are not aware of it, and while some SMEs have only been in contact with the commercial area, some researchers have only had collaboration with the research and education area. However, internally there is a sense that the collaboration between the commercial area and research and education area adds extra value for the clients and collaborators. As one of the interviewees at ICDK Shanghai puts it:

'We are often confronted with the notion that we don't work together. In my view, we work together all the time. I can't imagine ICDK Shanghai without the mix of the commercial and research-based perspective. This is what makes our setup strong and unique'.

However, a challenge in the setup voiced internally is that the commercial earning targets, to some extent, overshadow the research and education area. Therefore, there is a risk that the agenda of ICDK Shanghai shifts more towards the commercial perspective than the research perspective because the earning targets push the innovation officers towards selling commercial deliverables and services and initiating projects with more of a commercial focus.

Another challenge in the organisational setup has been to link the area of investment promotion, represented by Invest in Denmark, with the other two. There is a consensus that the interplay between Invest in Denmark and the two other areas is practically nonexistent. The common explanation is that the purpose of Invest in Denmark, which is to attract investments to Denmark, and the purpose of ICDK Shanghai, which is to create and bridge links between Danish companies and researchers in China, are too different from each other.

7.4 ASSESSMENT OF ICDK SHANGHAI

ICDK Shanghai is a consolidated unit that has many years of experience in offering innovation services to Danish clients. China is a unique country, and the very different political, economic and cultural context makes it a challenging location. For a Danish researcher or company, entering China for the first time is like a jungle, and the additionality of ICDK Shanghai is mainly that they can help clients with minor Chinese experience to support them in navigating in China. The feedback from the clients is generally positive, and ICDK Shanghai adds value by helping them in understanding China and by finding potential partners and other opportunities. As an example, ICDK Shanghai has succeeded in creating linkages and ties to the elite research institutions placed in China and has enabled Danish researchers to establish network and conclude MoUs with Chinese institutions.

In the commercial area, the clients are positive about the services provided by ICDK Shanghai, and to a large extent, ICDK Shanghai offers research and innovation-based deliverables and services and, in some cases, make use of the synergy between research and commercialisation (e.g., in the innovation projects such as Top Talent Denmark). **However, a challenge voiced internally is the grey zone between innovation services of ICDK Shanghai and the market-oriented services of the TC.** A general notion is that the earning targets set up for ICDK Shanghai enhance the grey zone. Another side effect of the earning targets is that the objectives of the commercial area are pushed towards reaching commercially oriented targets instead of strengthening the synergies between the research and education area and commercial area.

Overall, ICDK Shanghai act as a valuable gateway for Danish clients in the commercial area and research and education area. **ICDK Shanghai has been successful in creating links in the Chinese R&D and innovation system and adds value to its client by creating smoother and easier access to China.** At the same time, ICDK Shanghai adds value by its technological insight and specific knowledge of high-tech sectors such as ICT and life sciences. A challenge for ICDK Shanghai is that a large share of its clients in the commercial area receive services that are more market-oriented than oriented towards innovation services, a push that is strengthened by the earning targets.

8. Innovation Centre Denmark in Munich

ICDK Munich officially opened in 2008, a year after ICDK Shanghai, making it the third oldest of the six ICDKs. Today, ICDK Munich is well established with a strong focus on the cleantech, life science and ICT industries. The tagline and purpose of ICDK Munich is **‘to give access to state-of-the-art industry and R&D in Europe’**, which means that the ICDK works as a gateway to the European market and to strengthen the connection between Danish and German businesses, research and innovation systems.

ICDK Munich is located in one of Europe’s largest, best-performing and most versatile high-tech business regions. Munich has a financial sector of considerable dimensions as it is Germany’s top location for financial services such as insurance and pension, investment and asset management, venture capital, etc.⁴. Therefore, the metropolitan area of Munich is home to several business clusters with a strong focus on IT security and the financial services industry. Important industry sectors include the automotive, aerospace, cleantech, ICT, insurance, life science, med-tech and media sectors, including global companies such as Allianz, Audi, BMW, Brainlab, Siemens, etc. The venture capital community is strong, but compared to Silicon Valley, it has some disadvantages for local startups and innovative entrepreneurship as Munich is the most expensive city in Germany⁵. The Munich region contains leading universities that contribute to delivering excellence in R&D and developing an innovative environment with focus on high-tech businesses and leading research institutions. Germany is Denmark’s largest export market by far, and the possibilities for innovation partnerships in the German speaking countries are substantial. However, it is important to understand the cultural differences between Northern and Southern Germany, as Germany is far from a homogeneous market. Furthermore, the German industry and R&D environment is perhaps not as formal as in Asia but more formal compared to Silicon Valley and the Danish business environment.

8.1 DELIVERABLES AND SERVICES

ICDK Munich’s deliverables and services consist of a wide variety of projects. Generally, they follow the aim of helping Danish businesses, research institutions and local authorities gain access to the European market and establish partnerships across business and research institutions in Germany. This means that the deliverables and services concern every level of the innovation process, from developing and accessing business cases to setting up partnerships and collaboration to facilitating access to fundraising.

The **joint innovation project** is an initiative that combines the three areas at ICDK Munich. The innovation projects, of which more than 30 have been implemented since 2010, are given high priority and are an important component for establishing ICDK Munich as well as the ICDK brand. An example of a joint innovation project in ICDK Munich is the European Bioeconomy project, which focuses on the life science technology sector, with the aim of positioning Denmark as one of the world leaders within innovative biotechnology. ICDK Munich’s mission in this project was to explore and facilitate opportunities within bioeconomy through three focus areas: (1) drug discovery and therapeutics, (2) patient data and registries applying big data and (3) industrial biotechnology. All of the three areas of ICDK Munich were involved in the project. On the

⁴ ICDK Munich, Latest News; <https://icdk.um.dk> “Finance and IT Across Border”

⁵ Engel, J. *Global Cluster of Innovation*, “Germany: high-tech region in Munich”

commercial side, the main activity was to find relevant cluster organisations and major players in Germany relevant for partners and projects. The research side facilitated a collaboration agreement between a participating Danish company and a university/research institute, possibly via available EU funding. Finally, the investment promotion part participated in a conference for finding key stakeholders from German cluster networks to promote investment in Danish knowhow in the field of bioeconomy.

ICDK Munich offers its clients **Entrepreneurship and Innovation Camps**, which aim to establish an internationalisation programme for SMEs within the industries of cleantech, life science and ICT through meetings and workshops. ICDK Munich has hosted several of these activities, and the mission of these activities is to open doors to venture capital, corporations and innovation and entrepreneurship agencies to deliver firsthand feedback to business ideas and establish partnerships across countries. These Entrepreneurship and Innovation Camps demonstrate that one of the core deliverables and services of ICDK Munich is to help SMEs identify their potential for growth through matchmaking and networking events and camps.

Another type of deliverable and service for the purpose of matching Danish business and researchers with German stakeholders are **study/delegation tours and collaboration missions**. ICDK Munich holds events and arranges study/delegation tours for Danish partners, including SMEs and research and educational institutions. The main aim is to establish an opportunity for Danish partners who are specialised in certain fields of science to exchange knowhow, give inspiration on how to improve production and research and to find partners for EU cooperation. ICDK Munich uses their extensive network within the commercial and research side, which has been essential to providing Danish partners opportunities to exchange contacts and facilitate meetings, opening doors to cluster networks and consortiums for fundraising and collaboration partnerships. According to the survey conducted with the clients in the research and education area, 71% have used ICDK Munich to participate in foreign delegation visits/meetings, which include activities with different objectives, but in general aim to give Danish research and educational institutions an understanding and overview of the research and innovation possibilities in Southern Germany. An example of such deliverables and services is a study tour to the cleantech area called Innovative Express 2.0 Smart Grids & Renewable Energy. The purpose was to visit key players in the smart grid and renewable energy sector in Southern Germany with representations from both countries and with input and reflections over future technology requirements. Both research institutions and businesses collaborated to organise the study tour for Danish SMEs, large companies and research institutions to explore German opportunities. In addition to these deliverables and services, ICDK Munich also facilitates **partnering missions**, where the event takes place in Denmark and with participation from both Danish and German companies and researchers.

Furthermore, ICDK Munich works with **technical assessment/precommercial review and mapping of potential partners**. In general, the objective is more concrete than other types of deliverables and services because ICDK Munich gets a specific request for support, such as a precommercial assessment, in relation to the German and European market. Typically, the service outcome is more knowledge about the market as well as identifying relevant partnerships. In contrast with a trade assessment and business review, this type of service requires a technical understanding and knowledge about the specific industry, for example cleantech, life science and ICT, to support the precommercial process. In these types of deliverables, it is an advantage to have a strong network in the research and innovation environment in order to find experts at universities or other research institutions to elaborate on the necessary technical assessment and conduct a precommercial review of the product.

The innovation attaché makes it clear that one of the core elements in the deliverables and services concerns **matchmaking between universities and knowledge institutions** in order to kick off opportunities such as Horizon 2020 applications. From the client's perspective, there is also a strong interest in the funding opportunities within the EU, and therefore, ICDK Munich devotes many resources in **funding assessments** to facilitate collaborative projects, which typically concerns the EU's Horizon 2020. According to the survey, 33% of all the clients in the research and education area (the sum of the two variables) have either prepared an application for funding or have accomplished funding for research and innovation projects. Following the funding assessment, the interviews with the clients show that ICDK helps with **lobbying** in relation to Horizon 2020. The main activity leading up to lobbying is setting up meetings with relevant businesses and researchers in order to prepare common interests for the European Commission.

8.1.1 Results on the outcome level

Generally, as shown in the interviews and published cases by ICDK Munich, there is a clear line from the commercial partners that the main outcome concerns **increased technical knowledge and insight into the German innovation system and precommercial market**. There is a common understanding that the staff is dedicated and very skilled in understanding the client's needs. Secondly, there is a common understanding from the commercial clients that a main outcome from using ICDK Munich is to **identify experts within a scientific field in Germany in order to extend the clients network and set up innovation events between complementary industries**. The purpose of contacting ICDK Munich has mainly concerned insight into the Southern German market, including an **assessment on local expertise** in order to make a precommercial analysis of the product.

From the interviews with the employees at ICDK Munich and the clients, it is clear that a key outcome of the deliverables and services of ICDK Munich is about **network extension**. All interviewed clients agree that they are very satisfied with the contacts ICDK Munich has helped them to establish. Clients in the research and education area say that the primary outcome has been the **expansion of networks in Germany** (51%); thus, they gained better knowledge about the research agenda and the research landscape in Germany (38%). In contrast to other ICDKs such as Shanghai and São Paulo, there is less focus on completing MoUs with German authorities and research institutions because of the existing collaboration on the research and education level in the European Union. The survey data in figure 8.1 elaborate the picture on the outcome of the research and education clients.

Matchmaking between universities led to DKK 11 million in funding for research.

ICDK Munich contacted a university in Denmark with the purpose of initiating workshops in Denmark for foreign researchers in order to prepare application for elite funding and grants. Besides initiating the workshops, ICDK supported the concept economically.

Also, an add on from ICDK was the connection to relevant researchers outside Denmark and insight into the funding opportunities. According to the Danish university, the ICDK contributed to a fruitful matchmaking day, which launched several applications for funding. For example, an application succeeded in a large grant of 11 million DKK.

Figure 8.1: Outcome/expected outcome of using ICDK Munich (clients in the research, innovation and education area)

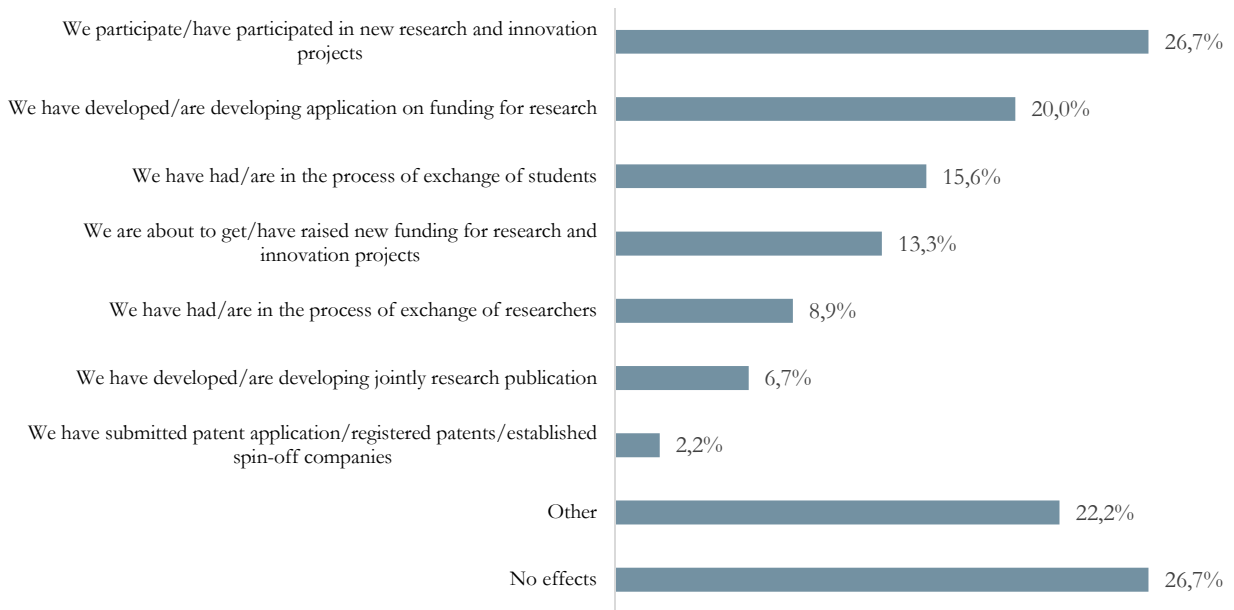


Source: Oxford Research 2015

n = 45

The survey also included questions about long-term outcome, and the results contribute to the understanding that ICDK Munich assists clients within the research and education area to participate in new research and innovation projects (27%). In addition, another primary outcome from using ICDK Munich is about preparing new applications for funding for research (20%), and 13% of the clients are about to get/have raised new funding for research and innovation projects (see figure 8.2).

Figure 8.2: Long-term outcome of using ICDK Munich (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 45

8.1.1.1 Collaboration with clients and partners

Overall, the interviews highlight that the clients and partners are very satisfied with the collaboration with ICDK Munich. The clients and partners highlight that the employees are flexible, responsive and cooperative. Furthermore, the quality of their competences in technically understanding the client's needs and challenges is high. For the client, it is a benefit that ICDK Munich has recruited specialists within the three main high-tech areas - cleantech, life science and ICT - which is, moreover, seen as the main difference from the employees at the TC. ICDK Munich is more specialised in the aspects of technology innovation and R&D and less commercial oriented.

8.2 VALUE CREATION AND ADDITIONALITY OF ICDK MUNICH

The vision of the ICDKs is that its stakeholders should experience substantial value in their international activities. In the interviews and survey with the clients, it is clear that ICDK Munich overall complies with this vision. Several of the clients share the view that without ICDK Munich's help, they would not have achieved the same results, or at least not to the same extent. It is possible to point to several explanations for value creation and additionality that ICDK Munich provides, and it is clear that three conditions in particular contributes to value creation and additionality for the clients.

Firstly, several of the clients share the view that **one of ICDK Munich's main contributions is to gain access to relevant German business and research institutions.**

The accessibility to Germany is relatively easy in terms of language and resources; however, it is still crucial to gain knowledge and relations in order to be successful in value creation. The professional culture in Germany is more formal than the business and research environment in Denmark (though not as formal as in Asia),

A fruitful dialogue for improving innovation process and design.

A Danish global healthcare company asked ICDK Munich to identify relevant specialist within different industries in Germany in order to allow an innovation dialogue between non-competitive industries. The result was a fruitful dialogue and insight in regard to how German industrial players innovate. From the Danish company, they contacted ICDK Munich because they have the network and insight to open doors to key players in the sector. Afterwards, the company expressed interest in similar 'innovation dialogue' to Seoul, Silicon Valley and Shanghai.

which means that it is necessary to invest in existing and new network. According to an ICDK Munich employee, *'it is much easier to gain access if you are supported by the royal family'*, and furthermore, as one of the research clients puts it, *'the way you talk, spell and expresses yourself is different, and if you don't have an understanding for the setting, you will lose the deal'*. However, it is important not to overrate the formal culture because the entrance to the German market is relatively easy. ICDK Munich already has a good understanding of the environment, including strong contacts and network. For example, among the clients in the research and education area, 87% agree that ICDK Munich has a sufficient local network and 78% agree that ICDK Munich knows about actors who could be relevant collaboration partners.

However, the interviews with ICDK Munich employees also highlight that it is a challenge to maintain strong and continuous contacts. This mainly concerns the KPIs that make it difficult to document more 'soft' effects such as contact with researchers, businesses and networks. Therefore, the risk is that investment in networks of relevant business and research partners will be down-

graded in favour of more 'hard' services such as funding, venture capital and joint application, which is a challenge because the services often depend on a well-established network.

Secondly, there are **good examples of valuable interaction between research and commercialisation**, contributing to the linkage between the two areas in the ICDK Munich organisational setup. First, the interaction between research and commercialisation is valuable because of the potential synergies. When synergies occur, it will expand the network and knowledge, because both areas will jointly support the client's needs. An example of a valuable collaboration between the research and commercial area is the case of the Sound CARE workshops. The innovation attaché invited a Danish cluster organisation to stay an extra day and spend the time to meet relevant German SMEs. The client got in contact with a commercial network of potential partners and experts of technology and knowhow. ICDK Munich succeeded in connecting the cluster organisation during an innovation camp. Furthermore, this will qualify the opportunity to raise awareness of the innovation camp for potential Danish participants. Another good example of a valuable interaction is a Swiss-Scandinavian Matchmaking Day in connection with the EUREKA Innovation Event, where the commercial area used their network to recruit SMEs and enterprises, the research and education area contributed by contacting innovation networks, GTS institutions and innovations agencies and Invest in Denmark matched foreign investors with the Danish companies.

These examples illustrate that ICDK Munich contributes to valuable interaction between the research and commercial side. However, there is potential to create more synergies. First, the interviews with the employees clarify that in practice, they have trouble in seeing the collaboration besides services such as study/delegation tours. One interviewee said: *‘To run in the same track, we need to have more clients who are interested in R&D and innovation, which is further away from the market and where the universities play a stronger role’*. To realise the potential of synergies, a strategic focus on finding the right client is recognised as a key challenge to create additional value for the clients.

Finally, **the additionality of ICDK Munich can also be detected in their ability to make high-tech assessments for clients**. According to the research clients, 84% agree that ICDK Munich has a good understanding of the client’s challenges and needs, and 56% agree that they have a sufficient knowledge of the client’s research area, which illustrates that ICDK Munich has the necessary competencies and potential to create value for the clients. Overall, the interviews show that the employees have a good understanding of the technical area, especially within cleantech, life science and ICT. In addition, it is clear that ICDK Munich has well-established networks within excellent research institutions which can support the technical assessment which the client can benefit from. An example of the technical assessment is a Danish solar business who contacted ICDK to gain insight into the German market, including a precommercial analysis of the product. The service concluded, with support from researchers at leading universities within renewable energy, that the company was not fully ready for the German market and needed further product development.

8.3 ORGANISATIONAL SETUP AND SYNERGIES

ICDK Munich is located within the Danish Consulate in Germany, and the collaboration focuses on continuous information and joint projects where the director takes on the responsibilities. The relation to the Danish Consulate is strengthened because of the organisational setup, where the ICDK Munich executive director is also the Danish consul/head of mission at the Danish Consulate. Generally, the employees at ICDK Munich welcome the close connection because they can work jointly and use each other’s competencies and network. Furthermore, it is clear that being a formal part of the consulate also opens up doors in Germany, especially in the perspective of a more formal German business environment than the Danish one.

In the description of the organisational setup of ICDK Munich, it is relevant to mention that ICDK Munich had a difficult beginning. However, the interviews clarify that things were improved, and today, ICDK Munich is a well-functioning and well-managed organisation with coordination, both internally between the research and commercialisation area and externally between ICDK Munich and the Danish Consulate.

ICDK Munich is in line with the other ICDKs organised in a setup containing three areas. Whereas the cooperation and links between the ICDK and the TC in Munich has been improved and seems to be increasing, it is also clear that the link to Invest in Denmark could be further strengthened. The employees explain that ICDK Munich and Investment in Denmark’s different KPIs seem too dissimilar to make frequent synergies in their daily work.

Overall, the TC and ICDK Munich find that the distinction between these separate units are unclear. From the interviews with the employees, it is clear that there is a grey zone between ICDK Munich’s services compared to the TC because of the practical distinction between the commercial side in the innovation pro-

cess and the business side with the trade perspective. The challenge especially concerns the invoice system and earning targets, which overshadows the research/innovation part. As the interviews made clear, there is a risk that ICDK Munich services shift to a more commercial perspective, including selling deliverables and services with a more commercial/trade perspective than innovation and research, in order to complete the earning targets. According to an employee at ICDK Munich, it is difficult to separate innovation and commercialisation in a trade perspective. The solution is to take in clients that are only interested in R&D; however, as the person interviewed explains, *'this is a challenge because the client then will be further away from the market, which means that the current payment structure will be a problem for the client'*.

Secondly, because many of the research activities are not ideal for invoicing, it is difficult to recruit employees that on one hand must be salespeople and on the other have an in-depth understanding of the R&D community with a preestablished network.

8.4 ASSESSMENT OF ICDK MUNICH

ICDK Munich opened in 2008, and today, it is a well-established ICDK with in-depth knowledge of the innovation environment in Munich and a solid network to relevant R&D players at both the commercial and research and education side. After a turbulent beginning, it is clear that ICDK Munich is now on the right track with convincing results, and it creates value for many Danish companies as well as universities and other knowledge and R&D stakeholders.

However, the evaluation of ICDK Munich also shows that there is potential for improvement. From Oxford Research's perspective, the **grey zone between innovation and trade** is still too large and occurs too often. Employees at ICDK Munich carry out projects for commercial clients that are more oriented towards the market and export services, similar to those of the TC. The employees and management at ICDK Munich have also expressed that the **payment scheme and the earning targets** make it difficult to develop and prioritise more genuine innovation projects and services, since this typically takes many resources and working hours that are not billable. In the view of the employees in ICDK Munich, it is also a **challenge to maintain relations and networks**. They experience that frequent contact and participation in formal events is even more crucial for keeping good relations in Germany compared to Denmark. With few nonbillable working hours, the employees find it very difficult to prioritise this.

Finally, even though ICDK Munich has succeeded in creating synergies and collaboration between research and the commercial side in some projects, ICDK Munich can still do more in order to **seek synergies and collaboration between the innovation attaché and the commercial innovation officers** in order to strengthen the links between research and commercialisation, a conclusion that is shared by the employees and the management of ICDK Munich.

9. Innovation Centre Denmark in New Delhi and Bangalore

The ICDK in India opened in September 2013 as the last of the three new ICDKs (ICDK São Paulo and ICDK Seoul being the two others) as an annex to the Danish embassy in New Delhi. At the same time, a satellite ICDK office opened in Bangalore. Therefore, ICDK New Delhi/Bangalore has only existed for a short period. However, working with a trial-and-error approach, they are continuously building valuable experiences in offering innovation services to Danish companies and researchers and are building useful networks and relations in India. ICDK New Delhi/Bangalore's tagline is *'We guide you to long-term research and business opportunities in India'*, as long-term relationship building is key in India. ICDK New Delhi/Bangalore focuses on life science, cleantech and ICT, but also has a special focus on the potential within frugal innovation⁶ or sustainable and inclusive innovation. As one of the interviewees at ICDK New Delhi/Bangalore puts it:

ICDK New Delhi/Bangalore is trying hard to find the areas where there are opportunities for Danish companies as for instance frugal innovation. The Indian middle class earns a salary that is the equivalent of the poverty level in the United States. It is difficult for Danish companies, especially SMEs, to operate in the Indian market. However, if one can perform in India, you can perform everywhere. India is a good development terrain for companies that dare to think long term.

ICDK New Delhi/Bangalore is located in two of the fastest growing cities in one of the fastest growing countries in the world in terms of increasing population. With a population of 1.2 billion, the Indian market is potentially very large. Furthermore, India has yearly GDP growth rates at 6-8 percent and a growing middle class. Nevertheless, India is still an emerging economy with many challenges. However, the new Indian government is prioritising to create jobs for a growing population through the programme Make in India and to provide officially recognised education to more Indians through the initiative Skilling India⁷. Though there are many possibilities for Danish businesses and researchers in India, a number of barriers make it complex to operate there.

Firstly, Denmark and India face different market realities. Many Danish companies specialise in selling innovative and refined products and services at relatively high prizes, which is difficult in India, as highlighted in the above-mentioned quote.

Secondly, relationship building is essential in India, and it takes time to build long-term relationships there. This makes it difficult to 'sell' India in Denmark compared to the United States and Germany. Other issues which make it challenging to sell India in Denmark are its reputation as a 'difficult' country, a country where western companies mainly outsource simple ICT tasks and a country with much bureaucracy.

⁶ In the context of limited resources, frugal innovation is the commercialization of quality products and services that are affordable to the masses. <http://blogs.ufm.dk/indlaeg/kristoffer-brix-bertelsen/en-maaned-i-indisk-forskning>

⁷ http://www.business-standard.com/content/b2b-manufacturing-industry/focus-on-skill-development-to-achieve-make-in-india-goals-economic-survey-115022700655_1.html

Thirdly, Indian universities are not at the top of international rankings, and the national accreditation system has not yet penetrated fully into the institutions, making it difficult to identify the top research and educational institutions and environments in India. However, India is highly specialised and has top researchers in fields such as ICT, space research, virology/health biotechnology.

9.1 DELIVERABLES AND SERVICES

In 2014, ICDK New Delhi/Bangalore provided deliverables and services to Danish companies and research and educational institutions under all four major service offerings: entrepreneurship, higher education collaboration, science and technology (partnering and assessment) and business development. More specifically, they have provided deliverables and services such as analysis of market potential, proof-of-concept, partner identification, setting up meetings, study trips, and initiatives such as the Innovation Camp and Top Talent. Denmark.

During 2013 and 2014, ICDK New Delhi/Bangalore initiated a number of joint **innovation projects** between the commercial area and the research and education area. Examples of innovation projects are:

1. Frugal Innovation: a Blue Sky innovation project which attempts to specify the content of the special Indian innovation way (Frugal Innovation or Sustainable and Inclusive Innovation)
2. Emerging Health Devices: development of services in the health sector based on wireless diagnostics
3. MEGAHUBS: sustainable urban development and urban design in India with a focus on technology and infrastructure (as part of a comprehensive innovation project across all six ICDKs)

From the interviews with ICDK New Delhi/Bangalore and TC employees, there is a specific challenge in India when it comes to designing innovation projects that have a high level of innovation, understood as a knowledge or technology transfer. Until now, the primary focus of ICDK New Delhi/Bangalore innovation projects has been on enhancing market access for the Danish partners and clients as *'(...) there is not much Blue Sky innovation in India'*, as one interviewee puts it. In India, innovation is mostly understood as product or service modifications which can help make access to the Indian market easier, as *'(...) price point⁸ is king in India'*. Another issue regarding joint innovation projects is that they were underprioritised during 2014 because the commercial innovation officers prioritised working on achieving their earning targets. As a new ICDK, the employees wanted to prove they could manage to sell enough services to Danish clients to reach their earning targets.

According to the ICDK New Delhi/Bangalore employees, **Innovation Package** and **Innovation Growth** services have worked especially well in the Indian context in 2014. Looking further across all the deliverables and services sold by ICDK New Delhi/Bangalore, most activities were related to the label **Tech Scouting, Analysis and Mapping**. More specifically, these are services helping Danish companies – mostly SMEs – to get a better insight into the Indian market, including focused and customised market analyses related to product, technology and/or service customisation, proof-of-concept, technology scouting, partner identification (e.g., at universities), opening doors and setting up meetings. Based on the interviews with clients, the market

⁸ Price points are prices at which demand for a given product is supposed to stay relatively high. <http://www.nøjsommeløsninger.dk/Mere/Case-stories/Prispunkter-i-markedet.aspx>

analysis/reporting from ICDK New Delhi/Bangalore is knowledge intensive and consists of valuable information on data such as the specific market and is of high quality (see example in text box).

According to ICDK employees, the area of **science and technology scouting** also seems to work well albeit they still need more experience on the matter, as there are many projects from 2014 which will end in 2015.

However, commercial activities which did not reach its full potential also need to be looked at. The first **innovation camp** did not turn out as well as hoped in an Indian context, as it was difficult to attract Danish SMEs to the event on the possibilities and opportunities in India. The main challenges were identifying the right Danish partner, the recruitment of participants and availability of funding. All of these challenges were very time-consuming processes, and the success rate, as well as revenue generation, could not be guaranteed. Although their first camp was not a success, ICDK employees will arrange more innovation camps in the future, learning from their experiences from the first Innovation Camp in India.

Another activity, which did not reach its full potential, was the first **Top Talent Denmark event in India**. Around 1,100 students signed up for the event, but only 130 of the registered participants attended the Top Talent Denmark event. Despite not reaching its full potential, the innovation attaché sees great potential in the Top Talent Denmark programme if they can manage to bring Danish educational institutions to India to present the possibilities of studying in Denmark for Indian students. Another important issue in relation to the latter is that ICDK New Delhi/Bangalore is now aware of the fact that they have to customise the Top Talent Denmark event to different kinds of Danish educational institutions, as universities and universities of applied sciences (business academies and university colleges) have different target groups and offerings for students in India. According to the survey data, the main deliverables and services for clients in the **research, innovation and education area** are **participation in events on recruitment and exchange of researchers and students** (52%) which is most likely a result of the Top Talent Denmark event.

According to the innovation attaché, he has spent much time approaching Danish research and educational institutions in order to spread the word that the ICDK in India exists, about what ICDK New Delhi/Bangalore has to offer and about the possibilities in India. According to the survey results, 38% have **participated in**

A two-phase study for a Danish company in 2014

Phase 1: The company was interested in exploring the opportunities in the Indian market for the CADScor device for the detection of coronary artery disease. Towards this end, ICDK helped the company explore Indian market dynamics for their product.

Phase 2: ICDK finished the Indian market analysis for the CADScor device and recommended a model that suits the business. As next steps, the company received assistance from ICDK to dive even deeper into the distribution setup, gather physicians' opinion on the product and get some conference and event support. ICDK identified and shortlisted a number of suitable distributors, who could give the company direct feedback on business models and product-market fit of their CADScor device. ICDK also managed to arrange meetings with some top physicians for the company in order to have complete information on suitability of the product as per the local market needs. Furthermore, ICDK helped in identifying the key partners and opinion leaders that the company can work with for conducting Clinical trials in India for its CAD score device. Lastly, ICDK also helped the company be a part of the CSI conference with an aim to provide an easy platform to the company for marketing their product.

delegations/visits in India and 38% have **participated in meetings with ICDK New Delhi/Bangalore about possibilities of collaboration with Indian partners on research, innovation and education**. The innovation attaché predicts that in one or two years, when more stakeholders become aware of the existence of ICDK New Delhi/Bangalore and the possibilities in India in the areas of research, education and innovation, more will participate in more narrowly focused workshops and seminars or in projects focusing on research and innovation with Indian partners.

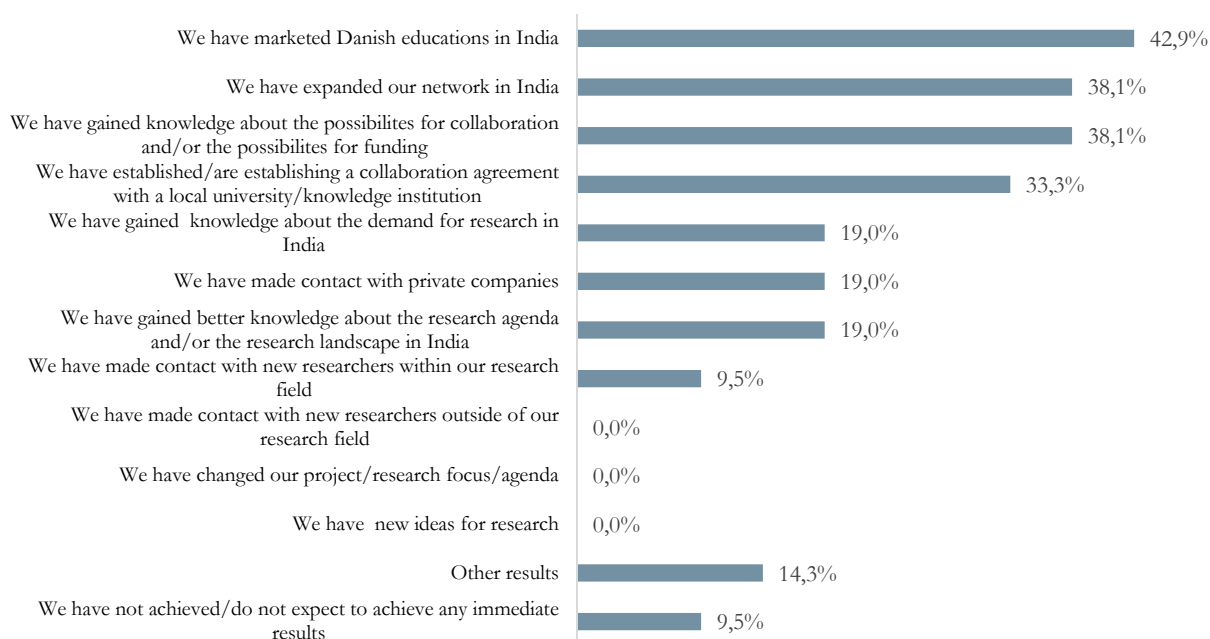
9.1.1 Results on the outcome level

According to the interviews with clients, the two main outcomes for the commercial clients are **more knowledge of the Indian market** and **introduction to local networks and partners** in universities for example. One client has used ICDK New Delhi/Bangalore for several purposes with the goal of getting into the Indian market and to open a new office in New Delhi, including finding a native Indian director for the new Indian office. They also used services in relation to proof-of-concept (POC), getting introduced to different investors in India and Denmark as well as practical issues such as logistics. The support from the ambassador level is highlighted as very important as it has had a great impact in terms of opening doors at the top level. Another client was interested in getting an overview of the landscape of researchers on dairy products and the dairy market in India, China and South Korea. Secondly, the client wanted the three ICDKs to conduct interviews with the researchers. According to the client, it was of great value that all three ICDKs had an existing network of researchers and institutions and could help conduct the interviews with the researchers for the client.

According to employees at ICDK New Delhi/Bangalore, various forms of knowledge-intensive market analyses relating to product and technology development and adjustment, accessing niche opportunities in India, identifying partners and research and technology scouting, to name a few, creates high value for commercial clients.

The survey results show that the main outcomes in the research and educational area are **marketing of Danish educations in India** (43%), **extension of their network in India** (38%) and **knowledge about opportunities for collaboration and funding in India** (see figure 9.1), which is corroborated by the interviews with clients. For example, one client has received services from the innovation attaché and the senior commercial officers which has led to a collaboration on the exchange of students and researchers and internships between the Danish company, a Danish university and Indian partners. Another client attended the Top Talent Denmark event in India, and a third client got introduced to top level individuals at an Indian university and received help in terms of writing research applications to Danish institutes and associations. Among the clients surveyed, 10% have not reached or do not expect to reach any outcome at all.

Figur 9.1: The outcome of using ICDK New Delhi (clients in the research, innovation and education area)

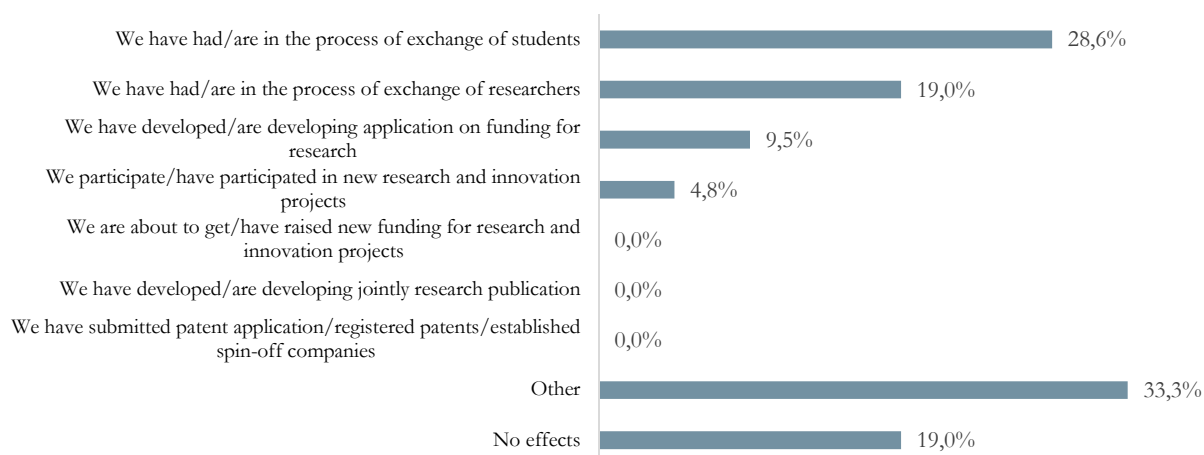


Source: Oxford Research 2015

n = 21

The survey results also show that the main long-term outcome in the research and educational area are exchange of students (29%) and exchange of researchers (19%). In addition, many clients answered other results (30%) as well as no effect (19%), which is an indication that the working process is in an early stage for many clients.

Figur 9.2: The long-term outcome of using ICDK New Delhi (clients on the research and education area)



Source: Oxford Research 2015

n = 21

9.2 VALUE CREATION AND ADDITIONALITY OF ICDK NEW DELHI AND BANGALORE

Most of the clients highlight that ICDK New Delhi/Bangalore’s **in-depth understanding of the Indian culture and society (socially, politically and economically), of Indian business culture and of different aspects of the Indian market** has been of great value because the commercial employees are native Indians and are insightful.

According to the interviews with the clients, it is also of great added value that **ICDK New Delhi/Bangalore is located near major and important actors in India**, including authorities, companies and universities which ICDK New Delhi/Bangalore has **a large network of many relevant contacts**. Given ICDK New Delhi/Bangalore’s network, they are capable of **establishing contacts and arrange meetings** with companies and/or researchers in India much easier and faster than the clients. In addition, an important contribution which has been highlighted by several clients is that **ICDK New Delhi/Bangalore has helped open doors, with assistance from the ambassador**, to powerful and important players, as hierarchy is very important when building important relations in India. According to the survey results, 57% agree that ICDK New Delhi/Bangalore has a sufficient local network in India, and 62% agree that ICDK New Delhi/Bangalore know relevant actors in India.

Based on the interviews with clients, **many clients could not have gotten in contact with specific companies or institutions without the help of ICDK New Delhi/Bangalore**, while others say they could, but not as fast and/or with fewer resources. According to the survey, 24% would not have reached the same outcome without the assistance of ICDK New Delhi/Bangalore, while 43% would have reached the same outcome, but not to the same extent.

9.2.1 Collaboration with clients and partners

The employees at ICDK New Delhi/Bangalore are generally highly rated by clients and collaborators as well as by employees from the embassy and TC in New Delhi. ICDK New Delhi/Bangalore employees are described as professional, competent and having great knowledge of the Indian market, society and culture. Furthermore, they are described as flexible, accessible and helpful. Most clients also agree that the employees have good insight and knowledge of the customers' needs and of their market. According to the survey results, only one respondent did not think that ICDK New Delhi/Bangalore had sufficient knowledge of his/her research area.

However, even though the interviewed clients in general have been very positive and appreciative of the services ICDK New Delhi/Bangalore employees provided, some have delivered a few critical comments such as slow response time and lack of insight into the client's target group.

9.3 ORGANISATIONAL SETUP AND SYNERGIES

Since mid-November 2014, ICDK New Delhi/Bangalore has been operating without an executive director. Furthermore, the two senior commercial officers were recruited in March and April 2014 - one for the Bangalore office and one for the New Delhi office - which means that ICDK New Delhi/Bangalore has **only been fully staffed for 7-8 months**. Therefore, the innovation attaché has spent much time supporting the senior commercial officers, which of course means he has had less time to work on his own tasks such as the innovation projects. The employees managed to achieve most of their objectives in 2014. However, the employees all agree that ICDK New Delhi/Bangalore has suffered from missing an executive director especially in terms of marketing ICDK New Delhi/Bangalore in Denmark.

From the interviews with the employees at ICDK New Delhi/Bangalore and the TC at the Danish Embassy in New Delhi, it is clear that there is a **grey zone** between the innovation services delivered by ICDK New Delhi/Bangalore and services delivered by the TC. Historically, TC employees in India have sold some of the same services as what the ICDK sells now, which has created confusion on who is supposed to do what. With help from the Ministry of Foreign Affairs of Denmark, the ICDK and TC in India have designed a **'spider web'** to rate how well different activities build on the common core-story of the ICDK and the four common ICDK services. What is important about the spider web is that it specifies the core activities of the ICDKs which can then be benchmarked up against the tasks of the TC. The understanding the ICDK has with the TC is that whenever there is a borderline case, they will sit down together and run through the spider web for that case to reach an agreement.

ICDK New Delhi is located at the Embassy of Denmark in New Delhi, but also has an office with two employees at the Danish Trade Commission in Bangalore where the Invest in Denmark country manager in India is also situated. The ICDK employees in New Delhi are therefore located in the same building as the TC employees and embassy employees. On a daily basis, the Danish ambassador is in charge. The co-location with TC and embassy employees at the Danish Embassy in New Delhi has pros and cons. One of the benefits of this setup is that there are possible synergies when working in the same building as TC and embassy employees, as it is easier to communicate and coordinate on a daily basis and to make use of each other's resources and competencies. The innovation attaché also participates in three weekly meetings at the embassy to coordinate, share knowledge and create synergies. In addition, hierarchy and relationship building are im-

portant factors of the Indian (business) culture. ICDK New Delhi's ability to bring the ambassador to meetings and events with powerful and important persons is regarded as an important addition by many ICDK clients as the ambassador's esteem and position can help open doors and build relations.

Facilitation of a new collaboration between an Indian university, a Danish university and a large Danish company

At a conference, the Innovation Attaché met representatives from the Institute of Food Science from an Indian university, who wanted to find a Danish partner. The Innovation Attaché identified an equivalent department in a Danish university. At the same time, one of the Innovation Officers met with a large Danish company which was interested in having a technology tested on the Indian market. The company agreed to sponsor a PhD-project to an Indian student to do the testing of the technology.

With the help from ICDK New Delhi/Bangalore, representatives from the Danish company and the Danish university were introduced to each other, and the Danish university agreed to host the PhD-student. Both parties went on a comprehensive and intensive visit programme to India planned by the Innovation Attaché and the Innovation Officer. The visit led to agreements on student exchange and research collaboration between the two universities and the content and the scope of the PhD-project was agreed with the Danish company.

On the other hand, a disadvantage of this setup is that when the ambassador wants ICDK employees to do a certain task, for instance to do a presentation at a conference or in relation to an official visit from a Danish minister, they are expected to participate, even though it is often not a success criteria in their performance contract or is not recognised as part of the overall ICDK strategy. In addition, the original plan was to locate ICDK in Bangalore to become part of the Indian ICT hub. Being located at the embassy, ICDK New Delhi is not in proximity to a strong innovation/R&D environment.

Based on the interviews with the employees at ICDK New Delhi/Bangalore, there are positive and negative aspects regarding the **cooperation across the three ICDK pillars**. The collaboration between the innovation attaché, the former executive director and the senior commercial officers has worked and still works very well according to the employees, and they have been working very closely together to achieve their targets. The fact that the employees work from both New Delhi and Bangalore has not been a problem as they coordinate and work closely together on a weekly and often on a daily basis (via a video conference every Monday, e-mail, phone and face-to-face meetings). On the negative side, one of the main challenges regarding the organisational setup has been to link investment promotion to the two other pillars. Before October 2014, there has not been much cooperation between the ICDK and the Invest in Denmark employee who is based in

Bangalore. However, in October 2014, one of the senior commercial officers and the Invest in Denmark employee in Bangalore built a joint road map on how to work closer together in the future.

9.4 ASSESSMENT OF ICDK NEW DELHI AND BANGALORE

Since the opening of ICDK New Delhi/Bangalore in September 2013, the ICDK employees have gained useful experience in offering innovation services to Danish companies and research/educational institutions. Furthermore, they have established valuable networks and relations in India and they are on track in finding value propositions for Danish actors.

In 2014, the primary focus of ICDK New Delhi/Bangalore - including the innovation projects -has been on enhancing market access for the Danish clients in India by providing valuable knowledge of the Indian market and help in terms of creating new networks and relations between Danish and Indian actors. Many clients

would not have reached the same outcome without the assistance of ICDK New Delhi/Bangalore, while others would have reached the same outcome, but not to the same extent. Most of the clients highlight that ICDK New Delhi/Bangalore's in-depth understanding of the Indian culture and society (socially, politically and economically), of Indian business culture and of different aspects of the Indian market has been of great value.

Taking into account the lack of staff resources in much of the relatively short lifespan of ICDK New Delhi/Bangalore and the fact that there has been no executive director since mid-November 2014, the ICDK has been successful in achieving most of its objectives. However, a challenge voiced internally is that there is a grey zone between the innovation services that ICDK New Delhi/Bangalore provides and the export and market-oriented services which the TC offers. Historically, TC employees in India have sold some of the same services as what the ICDK sells now, which has created confusion as to who is supposed to do what. A general notion is that the earning targets set up for ICDK Delhi/Bangalore enhance the grey zone. Another side effect of the earning targets is that the objectives of the commercial area are pushed towards reaching commercially oriented targets. One effect of the earning targets is that the innovation projects have been underprioritised.

10. Innovation Centre Denmark in São Paulo

Brazil is undergoing rapid economic development, and with more than 200 million inhabitants, it represents a large market. Brazil is also investing heavily in higher education, science and technology, and is therefore also an interesting partner for Danish universities and other educational institutions.

ICDK São Paulo is the smallest ICDK, and it is also one of the newest. The innovation attaché arrived in 2011, but the ICDK did not open until 2013 when the consul general also became executive director of ICDK São Paulo.

The centre is located in São Paulo where it shares the same premises with the Danish Consulate General. São Paulo is the economic engine of Brazil and home to some of the country's leading research institutions. It is therefore a natural home for an innovation centre. Areas of common strategic interest include agriculture and food science, biotechnology and life science, renewable energy, nanoscience and ICT.

Since the innovation attaché arrived prior to the opening of ICDK São Paulo, the activities in the area of research, innovation and education have the longest history and have achieved the most significant concrete results. Today, ICDK São Paulo has an executive director, an innovation attaché, an employee at the Top Talent Denmark programme and an innovation officer. The executive director of ICDK São Paulo is also consul general and therefore has a number of tasks in addition to leading ICDK São Paulo.

ICDK São Paulo operates under the tagline **'we guide you to research and technology with high impact in Brazil'**.

10.1 DELIVERABLES AND SERVICES

On the innovation side, ICDK São Paulo is the smallest of the ICDKs measured in size. The first innovation officer, who specialises in the food industry, was employed in the summer of 2013 but stopped after about half a year. In the summer of 2014, a new innovation officer, who specialises in life science, was employed. Given the change in area of expertise, the new innovation officer had to start from scratch in terms of building a pipeline of potential clients. In 2013, ICDK São Paulo had five unique paying clients which increased to nine in 2014. In total, ICDK São Paulo has solved 23 tasks for commercial clients.

In addition to the change of staff, the development of the innovation services has taken some time since it is less obvious in Brazil than in other ICDKs like Silicon Valley what kind of innovation services Danish companies would be interested in and what portfolio of services the centre should offer. The centre has therefore spent both time and resources since its opening on defining and developing its portfolio of services.

The services provided by ICDK São Paulo have mainly focused on three types of services so far. **Partner search and matchmaking** between Danish clients and local companies and education institutions is the service the centre has provided most often. Almost two out of five services are of this nature.

Facilitation of Networks and Communities, where the centre provides Danish companies and organisations access to local networks and communities, is the service provided second most often. This is followed by **Intelligence, Tech Scouting, Analysis and Mapping**, where the centre identifies emerging local technologies and analyses and maps the latest trends within different aspects of innovation, research, education and technology in Brazil.

ICDK São Paulo also provides **incubation services** where Danish companies can either have a physical or virtual office at the innovation centre. ICDK São Paulo can also represent the companies physically in Brazil, if relevant. The centre does not provide a unique innovation programme or services that the other ICDKs do not provide.

On the research side, the overall framework for the work is a **MoU on collaboration in science, technology, innovation and higher education** from 2011. The MoU is signed by the Ministry of Higher Education and Science and the Brazilian counterparts, and the objective is to encourage, develop and facilitate cooperation between Danish and Brazilian actors in fields of common interests. The MoU has since been followed by several specific and targeted agreements between funding organisations and institutions of higher education and research in Denmark and Brazil.

Brazil is a relatively new market for Danish universities and other higher education institutions, and most of them have not traditionally been present in Brazil. However, the interest in building networks and setting up collaboration and partnerships in Brazil has been high. The innovation attaché has been assisting universities who are interested in establishing partnerships in Brazil at an institutional level, individual faculties or schools and individual professors looking for partnerships in Brazil.

The service provided typically includes discussing the goals and needs of the clients, identifying relevant local universities, professors and researchers within the relevant field, putting together a programme for the visit to Brazil, accompanying clients to meetings and conferences, following up to facilitate further collaboration and keeping the dialogue alive and moving the process forward. Like the innovation attachés at the other ICDKs, the innovation attaché in São Paulo can apply for funding from DASTI to bring local and Danish scientists together at workshops and research conventions to explore common interests and possibilities for further cooperation.

Danish and Brazilian maritime students sailing to the Olympics in 2016

A concrete example of cooperation at the institutional level between Denmark and Brazil is found within the maritime sector. In 2012 the innovation centre organised a tour to Brazil for the Danish Maritime Authority, companies and education institutions. One of the results of the tour was an agreement on collaboration on maritime education between Denmark and Brazil. One of the concrete outcomes of the agreement is that a Danish maritime educational institution wishing to internationalise has initiated formal cooperation with two large Brazilian maritime institutions.

An initial result of the agreement is that the Danish Training Ship *DANMARK* had four Brazilian students on board the 2014 expedition. Danish maritime students will also be sent to Brazil in internships and as exchange students. The Training Ship *DANMARK* will also be used for promotional activities during the Olympics in Rio de Janeiro in 2016. Brazil has great interest in Danish maritime knowledge, particularly in the offshore area, where the country has major oil interests.

ICDK São Paulo is also part of the Top Talent Denmark programme and promotes Danish education and career paths for talented young Brazilians. As part of the programme, ICDK São Paulo has organised Top Talent Denmark events in Brazil with participation from several Danish universities and companies.

10.1.1 Results on the outcome level

In general, the interviewed clients have achieved the results they were hoping for when contacting ICDK São Paulo. On a more immediate level the clients have built a **valuable network with local companies, research institutions and experts**. Also, most companies have been able to build a good **overview of relevant companies** and potential partners in São Paulo and have been able to establish a relationship with companies and potential partners and customers.

Danish company seeking local partners to introduce new products

A concrete example of a company that the innovation center has helped includes a Danish company, which the innovation center has assisted in developing new innovative products targeted at the Brazilian market. Based on meetings and discussions with potential local partners organized by the innovation center the Danish company has developed a go-to-market strategy for how to approach the Brazilian market and identified the most relevant potential Brazilian companies to do business with. Based on the meetings new products have been defined and the Danish company is negotiating a contract to produce the new products for two local companies who are interested in introducing them on the Brazilian market.

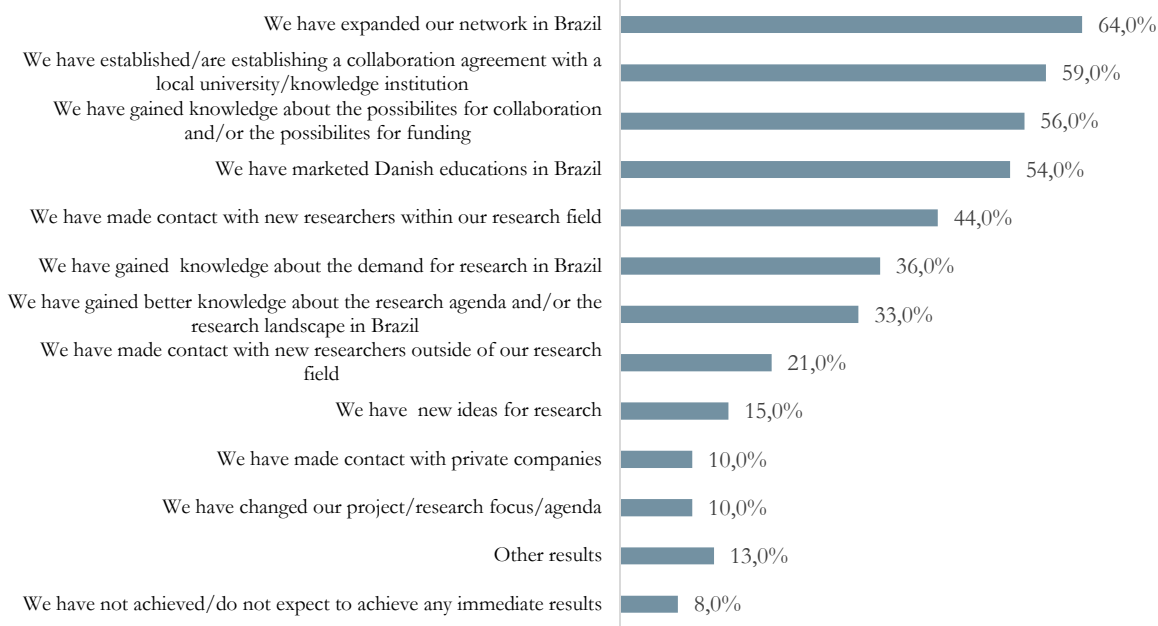
ICDK São Paulo has provided the clients with valuable **knowledge of the Brazilian market**, innovation system and understanding of key drivers and trends. One of the important factors that the centre has informed the clients, looking at the Brazilian market, about is the time it takes to establish a new entity. The Brazilian market is large and the potential reward big if one is successful. However, it often takes two to three years before one starts getting return on an investment.

Some clients have been able to take their results a step further and have or are about to introduce products or services to the Brazilian market. An example is a Danish technology company, which ICDK São Paulo introduced to potential Brazilian partners - research institutions and companies - and which was included in an application for funding for a large research project led by a Brazilian university.

For the clients in the research and education area, the most common immediate outcome is expansion of network in Brazil (64%). In addition, the clients mainly establish collaboration agreements with a local university or knowledge institution (59%), gain knowledge about the possibilities for collaboration and/or the possibilities for funding (56%) and market Danish educations in Brazil (54%). It is remarkable that 59% have established or are establishing a collaboration agreement with a local university/knowledge institution since this is often something that takes longer to establish.

As illustrated by figure 10.1, only 8% of the clients have not achieved or do not expect to achieve any immediate results.

Figure 10.1: The outcome of using ICDK São Paulo (clients in the research, innovation and education area)

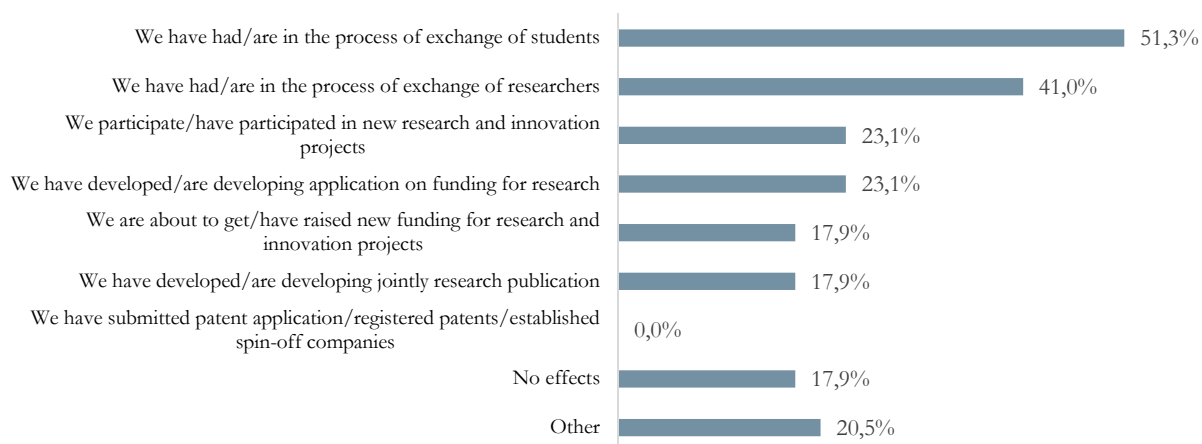


Source: Oxford Research 2015

n = 39

The survey about the long-term outcome also shows that 51% of the clients have established or are establishing student exchange programmes, 41% of the clients have established or are establishing exchange programmes for scientific personnel and 23% has participated in or are participating in new research and innovation projects. Thus, the outcome from participating in the research activities under ICDK São Paulo is very high.

Figur 10.2: The long-term outcome of using ICDK São Paulo (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 39

10.1.1.1 Collaboration with clients and partners

The paying clients interviewed by the evaluator are highly satisfied with the collaboration with ICDK São Paulo. They see the employees as competent and dedicated and would all use ICDK São Paulo again, if relevant.

For the clients in the research and education area, the overall satisfaction with ICDK São Paulo is also very high. 92% of the customers are either highly satisfied or satisfied with the service they have received from ICDK São Paulo. The remaining 8% are neutral and not a single client is dissatisfied.

A Danish professor who has collaborated with ICDK São Paulo says,

In São Paulo, I also experienced also a very competent team, with a good network and cultural understanding, which is crucial when it comes to building networks and relationships in South America’.

The survey also shows that the respondents find that ICDK São Paulo has a good understanding of the clients’ needs and challenges, knowledge of their area of research, commercialisation and innovation as well as a sufficient network and good knowledge of relevant local actors.

Even if ICDK São Paulo has collaborated with a large number of education institutions, the main criticism during the interviews has been that many researchers and research institutions in Denmark are not aware of ICDK São Paulo and the services they offer. This is supported by the responses to the survey. Thus, only 7% responded that they feel that researchers and research institutions in Denmark ‘to a large degree’ are aware of the ICDKs and the services they offer. On the other hand, 40% responded ‘to some degree’ and 33% said ‘to a low degree’.

10.2 VALUE CREATION AND ADDITIONALITY OF ICDK SÃO PAULO

As mentioned, the sample of companies from the innovation area is fairly small for São Paulo, but the ones who have been interviewed have received significant value from using ICDK São Paulo and could not have received the same results without the services provided by ICDK São Paulo.

ICDK São Paulo helps **the clients understand the local culture, overcome language barriers and handle local transportation**. In terms of cultural difference and language barriers, Brazil is placed in between Silicon Valley and Munich, where the differences are smallest, and Korea, China and India, where the barriers are the biggest. Several clients have pointed out that it has been useful for them to have local employees from ICDK São Paulo assist them during their tour to São Paulo or other parts of Brazil.

ICDK São Paulo also uses its **local knowledge to identify the most relevant companies and research institutes to open doors and set up meetings at a high level**. This is also an important value provided by ICDK São Paulo. One of the Danish companies that have used ICDK São Paulo to plan a weeklong visit to potential partners in the São Paulo area highlights,

It was very relevant companies they had found for us. It was definitely the top ones among the ones we could imagine to get in touch with. We managed to become part of a joint research proposal for funding with a university in São Paulo and this was only possible because they had found people who sat very high up in their organisation dealing with research applications. When they see the Danish Coat of Arms it opens doors. It is an important and essential feature and something you cannot do yourself. If we hadn't had the option of going through an innovation centre or a consulate we would not have gone to Brazil'.

For the clients in the research and education area, responses to the survey show that the additionality is very high. Only 13% of the respondents estimate that they could have received the same results without ICDK São Paulo. On the other hand, 54% estimate they could not have received the same results, and 26% estimate they could have achieved the same but to a lesser extent. During the interviews, clients have also highlighted that the value of the services in Brazil have been extra high because they have no prior experience with building partnerships in Brazil and little knowledge of the academic landscape in the country.

10.3 ORGANISATIONAL SETUP AND SYNERGIES

The organisational setup in São Paulo differs a little from the standard ICDK model because the executive director, who is also consul general, is in charge of the TC as well. Invest in Denmark does not have any employees in São Paulo, so the executive director is the head of all the employees in São Paulo.

At the same time, ICDK São Paulo and the TC are both quite small, and combined, they only have one person specialised in life science, one in ICT and one in agriculture and fisheries. To allow both the ICDK and the TC to have specialists in more areas, the model for cooperation applied in Brazil is more flexible. Where some of the ICDKs make an effort to distinguish between the tasks solved by the TC and ICDK, the distinction is more blurred in São Paulo. If ICDK São Paulo gets a request for a service within life science which would normally be handled by an employee from the TC, it will still be handled by the life science expert even if he/she is from the ICDK. The same goes the other way around.. Since the employees have the same boss, this model functions smoothly and creates synergies between the TC and ICDK São Paulo. Coopera-

tion is not challenged by the fact that the employees in ICDK São Paulo has a director that wants them to focus on reaching their earning target and the employees in the TC has another director that wants them to focus on reaching their earning target.

Cooperation with the innovation attaché is also working well, and the innovation attaché assists with tasks outside his/her own area and receives assistance from other employees when relevant. It can sometimes be a little unclear how much the innovation attaché can be assisted by the innovation officers and the commercial advisors - who would normally charge for their services - but this is not only unclear in São Paulo but a challenge the innovation attachés share across all the ICDKs.

10.4 ASSESSMENT OF ICDK SÃO PAULO

ICDK São Paulo is the smallest ICDK, and it is also one of the newest. Cooperation between the innovation officer, the innovation attaché, the employee on the Top Talent Denmark programme and the commercial advisors from the TC is smooth. One of the main reasons for this is that the director of ICDK São Paulo is also the head of the TC. This differs from some of the other ICDKs where the head of the TC and the director of the ICDK are different and therefore have different goals. **The setup in São Paulo thereby creates an incentive structure which to a larger degree than elsewhere encourages cooperation because it is the same director responsible for both the ICDK and the TC goals.**

The interviews and the survey show that there is a large interest from Danish educational institutions and among researchers to explore opportunities in Brazil, especially in the São Paulo area. Brazil and São Paulo are, for most universities, a new country and city where they previously have had no collaboration. The needs of the education institutions are therefore different from the needs in Germany or the United States where some of the universities have been present for many years and already have some collaboration and experience. **In Brazil, collaboration must often be built from scratch, and the educational institutions have no prior experience or contacts.** The need for the innovation attaché to point out the right universities and the right faculties and researchers to meet with and how to establish cooperation is therefore high.

Also, there is often a need to help understanding local culture, customs, language and transportation. Local employees therefore often accompany visitors on their tour of Brazil.

The innovation services are less well-established than the research area. This is partly because the innovation services were established later, partly because the first innovation advisor left her job within the first year and partly because it has taken some time to define what kind of innovation services ICDK São Paulo should offer to potential clients. The process of building a pipeline of potential customers, defining what constitutes innovation services in Brazil and what ICDK São Paulo should offer is therefore still ongoing. In 2014, ICDK São Paulo had nine unique companies buying innovation services.

A challenge which has been pointed out by both the staff at ICDK São Paulo and the clients is that it takes a long time -three years in general - and many resources to enter the Brazilian market. This fact makes the Brazilian market a difficult market to enter for SMEs and startups that cannot devote too many resources to something that might not succeed and often does not have the financial resources to finance activities that take three years to start generating return on investment even if they succeed.

It therefore still remains to be seen how large the market for innovation services is in Brazil. The employees at ICDK São Paulo and clients are confident that there are opportunities, but currently, ICDK São Paulo only has one innovation advisor and had nine unique commercial customers in 2014. More employees would provide an opportunity to do more outreach to potential clients and increase the number of customers, but currently it remains to be seen if there is a significant amount of Danish companies that are interested in innovation services in Brazil.

11. Innovation Centre Denmark in Seoul

ICDK Seoul is located at the Danish Embassy in Seoul, South Korea and opened in 2013 as one of the three new Danish ICDKs. ICDK Seoul has only existed for a short period of time, and is still in a development stage in establishing network and relations in South Korea. The purpose of ICDK Seoul is to create innovation and business opportunities, and build up relations between Korean and Danish R&D intensive companies, research institutes and universities. The tagline of ICDK Seoul is ‘**We give you access to the Asian powerhouse of applied research and technology**’.

South Korea is not in the same economic scale as China, but some of the most globalised and innovative companies in the world are located in South Korea. However, it is important to be aware that few major companies such as Samsung Electronics, Hyundai Motors, POSCO and LG, govern the industry, making it a challenge to gain access to the highest levels in these companies. A key to the South Korean success is determined investment in education, research and new technologies over the last decades. The number of students who completes a higher education has exploded and the quality of universities is excellent. Five universities are among the 25 most patent-active universities in the world. Furthermore, the government of South Korea spends more than any other OECD-country in research and development (approximately 5% of GDP), leading to results such as South Korea topping this year’s overall ranking of the Bloomberg Innovative Index⁹. South Korea increasingly plays an important role in the global economy focus areas, such as in energy and environmental technology, ICT, nanotechnology, life science and biotechnology, which creates good opportunities for synergy between Korean and Danish authorities, research institutions and business, especially in the area of green energy. South Korea also has a proactive policy of free trade; EU and South Korea have signed a free trade agreement, which came into force in July 2011.

11.1 DELIVERABLES AND SERVICES

The Korean market is new and it needs to be cultivated. Therefore, it is a premise for ICDK Seoul’s deliverables and services to Danish business and research institutions to employ time and resources in activities that help expand their network and build relationships. These types of activities may not be in line with earning targets; however, they are crucial in order to maintain qualitative deliverables and service because the primary purpose of ICDK Seoul is to provide access to the ‘Asian powerhouse’ of applied research and technology’.

In 2014, ICDK Seoul initiated and carried out two **innovation projects**, which is a joint action between the three areas of the ICDKs. The two innovation projects, Chaebols & Innovation and Medtech & Robotics, included project goals and value for all the three areas of ICDK Seoul. From the interviews with ICDK Seoul employees, there is a good understanding of the joint innovation projects, and it is clear that they have good opportunities to collaborate, thus complementing their skills and contacts in the areas of research, commercial and investment. Despite their good experiences with innovation projects, there is an issue concerning the amount of time and resources that are used on these deliverables.

⁹ <https://bloomberg.com/graphics/2015-innovative-countries>

Another activity that ICDK Seoul offers to its clients is the **Entrepreneurship/Innovation Camp and workshop/conferences**. These kinds of deliverables have the purpose of sharing knowledge between Danish and Korean businesses and research institutions, and thus matchmaking and identifying potential partnerships in the innovation and research environment. Because of the inherent differences between the Danish and South Korean market and innovation systems, it is important for businesses, researchers and students to experience an authentic understanding of being in South Korea. An example of an Entrepreneurship Camp is the Chaebols Camp that was arranged in March 2014 and was a pre-result of the innovation projects mentioned earlier about Chaebols & Innovation. Furthermore, the camp was a part of the Danish prime minister's visit to South Korea. Five startup SME companies participated, and three of them are in continuous dialogue with Samsung Electronics as a direct outcome of the camp.

In relation to these camps, workshops and conferences, ICDK Seoul also assists Danish businesses, authorities and research institutions by organising **delegation/study tours** to South Korea. The purpose of these activities is to target the specific needs of the Danish clients and partners in the best possible way, thereby securing a setup where relevant Korean actors participate. It is considered an important way to highlight Danish competences in certain fields of science and to give Danish partners insight into the South Korean innovation system.

Along the same lines, ICDK Seoul delivers a large number of tailor-made services that fit the client's specific needs. These activities include **Innovation Package**, which typically helps SMEs identify their potential for growth and readiness in relation to the South Korean market. The deliverables and services are precommercial oriented, and the purpose is to identify the client's needs and challenges in order to make a valuable assessment. The output is often a tailor-made action plan for internationalisation through innovation. An example is the collaboration with a Danish software company. As part of an Innovation Camp in Copenhagen, an employee from ICDK Seoul contacted the manager in order to identify if there were precommercial reasons to get involved in the South Korean market. In the interview with the client, it is clear that the deliverable from ICDK Seoul was valuable in bridging the research area with the commercial area:

'They have a good knowledge about the research and education system and the business in Korea. They understand the organisational setup at universities and know that it is important to have other arguments than economics when you are in collaboration with universities.'

In addition to these types of deliverables and services, ICDK Seoul also works in the area of **science and technology scouting**. For example, they identify relevant conferences in South Korea for Danish clients and partners and identify competition in the market, as well as potential collaboration partnerships.

Danish and South Korean students meeting up to come up with innovative solutions

ICDK Seoul facilitated a 'Student Innovation Camp' with the operational focus of bringing talented students from Denmark and South Korea together for a weeklong intense camp to come up with new innovative ideas. Ten Danish students and 10 Korean students in the field of engineering were selected from leading universities for the camp. Besides coming up with answers to concrete challenges, the camp sowed the seeds for future cooperation between young minds in Denmark and South Korea.

The camp was arranged in a close cooperation with Korean universities, Danish universities and a large Danish company, strengthening the industry-academia connections between South Korea and Denmark.

Finally, ICDK Seoul works within the education sector in order to **strengthen the link between Danish and South Korean educational institutions**. The aim is to foster exchange agreements, for example in Master programs in higher education or PhD degree programs. In this context, ICDK Seoul has made a special effort to introduce Danish maritime educational institutions to selected Korean universities, which has led to two new student exchange agreements.

11.1.1 Results on the outcome level

According to the interviews with the clients in the commercial area, there are two main outcomes: **Firstly, by using ICDK Seoul, they were introduced to potential collaboration partners. Secondly, they gained an insight into the South Korean precommercial market and innovation system.**

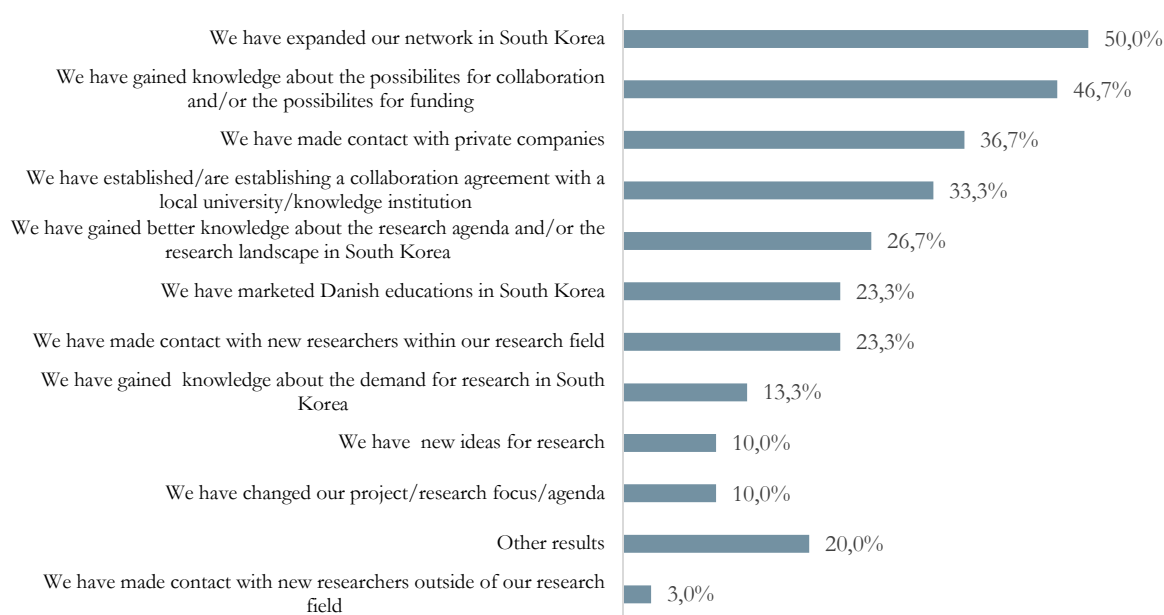
In one interview with a client, ICDK Seoul assisted them in exploring the South Korean market, and eventually to find a partner for gaining access to the market. ICDK Seoul conducted a relevant screening of the market and found potential for establishing contact to the South Korean market. The client highlighted that one of the main outcomes beside the precommercial analysis is **an access through the ICDK, which has reduced the amount of unnecessary cost and risk**. Furthermore, the Danish client has hired an employee from ICDK Seoul, which today represents the company and therefore, provides an opportunity for more direct links to South Korean research institutions, business and other relevant collaboration partners. The Danish client is clear on what he has gained from the cooperation with ICDK Seoul:

'I think we wouldn't been able to have created relationships ourselves. We do not know the Korean market, so they screened the partners and translate our value opportunities for the Korean market'.

Overall, **clients on the commercial side value ICDK Seoul's knowledge about the South Korean market and innovation system**. Even though the cultural gap between the South Korean market and Europe has closed over the last few decades, it is still necessary to gain an understanding of the South Korean business market in order to gain access to it. A client highlighted that it is valuable that ICDK Seoul has hired local employees because through them, it is easier to create contact and collaboration opportunities with local companies. In particular, the local employees give the clients a platform to negotiate and speak on behalf of the client.

From the clients in the research and education area, the primary outcome has been **student exchange agreements and relation building with research institutions in South Korea**. In figure 11.1, the outcomes from the survey are illustrated, which support the findings in the interviews. The interviews elaborate the outcome and point out that ICDK Seoul has established a joint stand for research institutions at conferences and workshops and facilitated in establishing the Student Innovation Camp.

Figure 11.1: The outcome of using ICDK Seoul (clients in the research, innovation and education area)



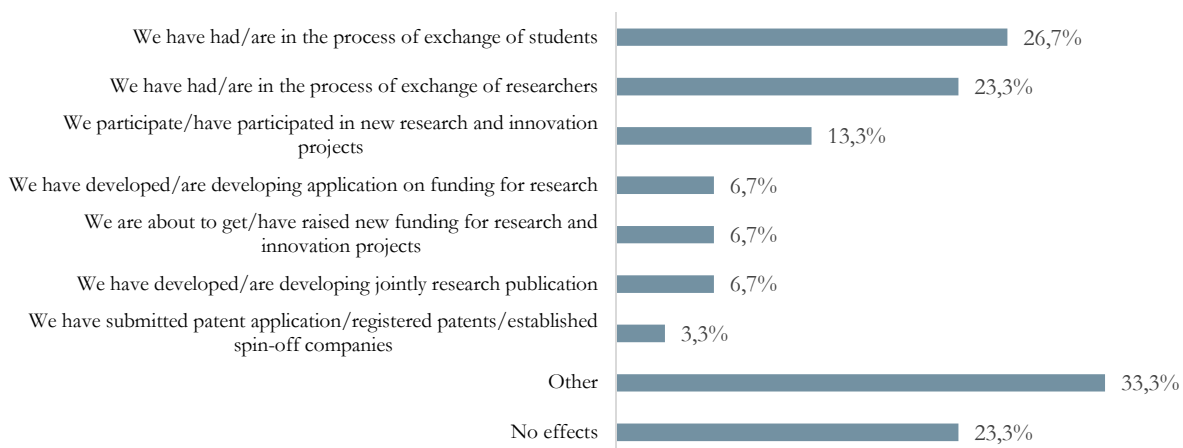
Source: Oxford Research 2015

n = 30

Besides concrete agreements with South Korean universities, the interviews clarify that these activities **contribute to create good relation in South Korea**. The survey data supports this outcome, thus the primary outcome of using ICDK Seoul is that the clients expand their network in South Korea (50%). The next three findings outlines that the main outcome of using ICDK Seoul are to gain knowledge about possible collaboration/funding (47%), to make contact with private companies (37%) and to establish agreements, for example student exchange agreements, with a South Korean research institution (33%). From the interview with the innovation attaché, an example of an outcome in regard to student exchange agreements is illustrated. The innovation attaché noticed that the internationalisation of the Danish maritime education system was low, and because South Korea is a strong maritime nation, he mapped opportunities in South Korea for Danish research institutions which eventually led to strengthening a link for student exchange and further collaboration between Korea Maritime and Ocean University and a Danish Maritime Academy. According to the innovation attaché, the next step is to develop joint education programs between the partners.

The survey to clients in the research and education area also include questions about the longer term outcome and it illustrates that the main effects from the clients are exchange of students (27%) and exchange of researchers (23%). Furthermore, there is a large number of clients who answer other results (33%) and no effects (23%), which indicates that the clients are on an early stage and cannot evaluate the long-term outcome.

Figure 11.2: The long-term outcome of using ICDK Seoul (clients in the research, innovation and education area)



Source: Oxford Research 2015

n = 30

11.1.1.1 Collaboration with clients and partners

From all the interviews with clients and partners, it is clear that ICDK Seoul’s ability to collaborate is positive. Generally, the clients highlight that employees are flexible and responsive. For example, a Korean collaboration partner explains:

‘Last year there was a big accident, and we had to change the programme, but without any complaints from the Danish side. After we finished the programme, ICDK Seoul is still helping us, which is different from other representations. ICDK Seoul follows up compared to the Finnish embassy and American embassy - they don’t follow up, but just use it for marketing’.

Overall, the clients and partners perceive that ICDK Seoul has a sufficient local network and qualified understanding of the business and innovation system, both in Denmark and South Korea. An example of a collaboration is a large Danish manufacturing company who collaborated with ICDK Seoul in order to establish an Innovation Camp to attract relevant and skilled engineering students. In the interview, they highlight that the collaboration with ICDK Seoul was very fruitful because the employees had an understanding of how to identify relevant research institutions with a similar qualification and focus. Here, it is important for the client that the employees at ICDK Seoul are technically proficient in their field of expertise in order to create effective results, which is what differentiates the ICDKs from the TC. However, interviews with the employees indicate that the distinction between the ICDKs and the rest of the export system can be unclear. It is therefore essential to ensure that the employees at ICDK Seoul have an expertise, for example, hold a PhD, in order to maintain their distinction from the TC and give the innovation process a technical understanding.

11.2 VALUE CREATION AND ADDITIONALITY OF ICDK SEOUL

In order to clarify the value creation and additionality of ICDK Seoul, three main contributions are identified which are special to ICDK Seoul.

First, **ICDK Seoul has insight and understanding of South Korea's innovation system, including the cultural and behavioural differences between Denmark and South Korea.** Even though the South Korean market has moved towards the European market, for example through the free trade agreement, there is still a large geographical distance. Hence, the EU agreement creates opportunities for doing business in South Korea; the cultural differences make it important to support both South Korean and Danish clients and partners in this process. As a collaboration partner points out, it is a challenge that Denmark is a small market,

Creating a Danish interest for the opportunities in South Korea

A smaller Danish software company realised that South Korea could be an interesting market for them. To begin with, they had not thought of South Korea as a market at all, but as ICDK Seoul presented the possibilities in the South Korean market at a meeting, the company could see a potential. In a close collaboration with ICDK Seoul, they started to investigate the networking opportunities in South Korea.

The first reason for going to South Korea was a conference held in Seoul that seemed relevant for the company. ICDK Seoul helped the company in gaining the best possible outcome of the conference by screening relevant South Korean companies and matching them with the Danish company.

This effort made the company realise that there were great opportunities in South Korea, and it therefore adapted a strategy of being a strong player in South Korea.

and South Koreans do not look into Denmark for opportunities because of the amount of energy and time needed. However, it is clear from the interview with clients and partners that ICDK Seoul plays a role in linking the South Korean research and business environment, such as in translating and mailing across the two countries. As a partner elaborates, with the support of ICDK Seoul, Denmark could be a hub for the European innovation system and potentially export market. Furthermore, it is clear that the local employees at ICDK Seoul support this value creation. The local innovation officers speak Korean and can help the Danish clients translate and speak with South Korean business and research partners.

Secondly, **the connection between the commercial area and the research and education area has been a factor for many clients to create the additionality of using ICDK Seoul.** According to the interviews, there is a consensus that what differentiates ICDK Seoul from the TC is that they understand both sides of the innovation and precommercial process. Particularly, the added value appears when ICDK Seoul supports the process of Innovation Camps. For example, a Danish collaboration partner highlights that the linkage between research and business makes sense. They were a Danish partner for the recently completed Innovation Camp for sound companies in January 2015. As the Danish partner put it, there is an exclusive opportunity for Danish SMEs to pitch ideas and at the same time, achieve qualified feedback from South Korean experts in a specific field of science within the

South Korean R&D environment and conglomerates.

Finally, **the additionality of ICDK Seoul is clear in regard to their network with South Korean partners.** Generally, all of the Danish clients and partners interviewed highlight that they would not have been able to achieve the same results without the assistance of ICDK Seoul. The South Korean market is relatively

new to many Danish clients, and it is therefore essential for access that ICDK Seoul have sufficient networks within Korean businesses and research institutions. ICDK Seoul has also put in an effort to make ties to governmental institutions as the political agenda is closely tied to the trends in the R&D and innovation system. According to the survey, 67% agree that ICDK Seoul has a sufficient local network and 70% agree that ICDK Seoul knows about actors who could be relevant collaboration partners. Compared to other ICDKs, the result could be better, which illustrates the fact that ICDK Seoul has challenges in building and maintaining a sufficient network because they are still relatively new, and it takes time and resources to follow up on all South Korean actors at the same time. In other words, there is potential for extending the network because it would benefit and be an added value for Danish clients and partners.

11.3 ORGANISATIONAL SETUP AND SYNERGIES

According to the interviews with ICDK Seoul, there is an understanding that the co-location with the Danish Embassy in Seoul is an important factor for their unique deliverables and services. In general, there is an understanding that the embassy supports ICDK Seoul. The co-location allows them to best exploit the interaction and learn from each other. Ongoing coordination and management meetings support these processes, where it is possible to share knowledge and develop ideas for joint projects. For example, a client from the commercial area explains that it was very fruitful to have a meeting with the ambassador because he could outline the macroeconomic challenges and conditions in South Korea.

However, the interviews also revealed that there is a challenge in constantly adjusting and coordinating the deliverables between the TC and ICDK Seoul because there is a weak distinction between the precommercial area and the trade perspective. The adjustment concerns mainly the orientation towards the client. The grey zone is not a singular challenge, but in the case of ICDK Seoul, the distinction was more blurred because of a turbulent beginning of ICDK Seoul. However, the interviews also clarify that today, there is a better understanding of the distinction and role of ICDK Seoul compared to the TC.

Another challenge in the organisational setup has been to link the three areas. It is clear that there is a challenge in incorporating the third area, Invest in Denmark, in the organisational setup. The employees highlight the question of whether it is necessary to use Invest in Denmark because in practice, they are not part of the setup. However, it is also clear that ICDK Seoul's focus is on integrating Invest in Denmark through initiatives like Innovation Camps.

The interviews also highlight that there is a need for further coordination and collaboration across the ICDKs. There is an understanding that they are typically struggling for the same clients; however, this also adds potential for greater collaboration in further joint projects, as an employee explains: *'We need more joint projects with the other ICDKs. Last time we met, we initiated an interdisciplinary cooperation on mega hubs/cities'*.

11.4 ASSESSMENT OF ICDK SEOUL

ICDK Seoul has only existed for a short period and has experienced a difficult beginning, as the distinction between the TC and the commercial activities within ICDK was not clear. However, the data collected from the evaluation demonstrates that ICDK Seoul is on the right track overall. Feedback from the clients is generally positive. It is clear that ICDK Seoul creates value by helping clients in understanding how to access South Korea and by finding relevant partners for further collaboration, funding opportunities and concluding

MoUs. As an example, ICDK Seoul has been very successful in delivering Innovation Camps, especially because these camps clearly differs from the TC and give a good opportunity for the three areas -the commercial, research and investment areas- to cooperate. The experience is that Innovation Camps provide added value in the form of extending networks, sharing knowledge and prospective and joint projects.

Even though the cultural gap between South Korea and Europe has closed quickly in the last two decades, there are some inherent differences, especially in regard to the political, economical and cultural environment. This means that there are some obvious challenges for ICDK Seoul to operate in South Korea. For example, relationship-building is more formal, thus the access to networks and contacts is time-consuming and resource-intensive. In 2014, ICDK Seoul had a goal achievement of 42%, which is well below the average of other ICDKs. Overall, the main challenge is that South Korea is a new market to the ICDKs. However, the data provided for this evaluation demonstrates that ICDK Seoul is on the right track in creating value for Danish and South Korean partners and clients. Today, ICDK Seoul continues to build experience in offering innovation services to companies and researchers, they are still working with establishing networks and relation, and they are on track in creating value. However, from the Oxford Research perspective, the evaluation of ICDK Seoul shows that there is still potential for improvement.

Overall, the clients and partners perceive that ICDK Seoul has a sufficient local network and qualified understanding of the business and innovation system, both in Denmark and South Korea. At the same time, ICDK Seoul has experienced that it is a **challenge to cultivate new contacts and maintain existing relations and networks in South Korea**. ICDK Seoul has only existed for a short period and they are still building their networks. Furthermore, South Korea has a high concentration of SMEs in a favourable innovative environment; however, a few major players control the majority of the industry in South Korea, making it a challenge to gain access to the highest levels in these companies.

In the case of ICDK Seoul, there are **challenges in achieving the earning targets**. In 2014, the target achievement was 42%, which is well below the average of other ICDKs. However, the interviews show that the employees are aware of the underperformance and have extended the focus on achieving the targets in 2015.

A challenge in the organisational setup is the **grey zone** between the commercial area and the TC. Besides the awareness and the ongoing adjustments expressed internally, there is a challenge to make the distinction clearer in order to keep their deliverables and services from overlapping with the trade and market-orientated focus. A finding is that the earning targets for ICDK Seoul maintain the grey zone because the focus in achieving the targets push deliverables towards a more commercial and trade orientation.

South Korea is a new market, and **there is a need to extend the focus in cultivating and attracting potential clients and partners**. As an employer highlights, there is a need to be more structured when ICDK Seoul approaches potential clients, especially in regard to having a clearer outline of resources and time spent in different phases.

12. Methodology

The data collection consists of **five parts**:

1. **Desk research and systematic review of written material**
2. **Personal interviews with key stakeholders in Denmark**
3. **Field visits to all the ICDKs and follow-up interviews with ICDK employees**
4. **Interviews with Danish clients and collaborators**
5. **Online survey with Danish clients in the research and education area**

Three main sources of data have been used throughout the evaluation: **desk research, qualitative interviews and surveys**. In combination with the broad scope of informants and respondents, these methods constitute a methodological triangulation that has the benefit of minimising the impact of idiosyncratic opinions and views of the different groups involved and, as such, strengthen the validity of the data.

In addition, the evaluation team has conducted several meetings with representatives of the Ministry of Foreign Affairs of Denmark and the Ministry of Higher Education and Science. Thus, Oxford Research has kept a close dialogue with the contractors throughout the data collection and maintained an ongoing assessment of the data.

Part 1: Desk research and systematic review of written material

Oxford Research has systematically carried out **desk research** to understand the organisation, strategy and activities of the ICDKs. The desk research has consisted of thorough reading and analysis of written material such as strategy and action plans, performance contracts, activity overviews, evaluations and summaries. This has established background knowledge about the ICDKs and the different stakeholders. It has also qualified Oxford Research to further point out relevant informants among clients, collaborators and employees and to produce meaningful drafts for the interview guides for the qualitative interviews and for the survey.

Part 2: Interviews with key stakeholders in Denmark

Oxford Research has conducted **13 qualitative interviews** with key stakeholders chosen on the basis of criteria developed by the Ministry of Foreign Affairs of Denmark and the Ministry of Higher Education and Science. These interviewees are high-ranking government officials of the Ministry of Foreign Affairs of Denmark and of the Ministry of Higher Education and Science who are responsible for the overall operation and political management of the ICDKs. In addition, interviews have been conducted with former innovation attachés of the ICDKs of Shanghai and Munich.

Part 3: Field visits and follow-up interviews with ICDK employees

A central element of the data collection has been the **field visits** to the ICDKs, each lasting for approximately two days. Through **64 personal and focus group interviews** with management, employees, local foreign collaborators, consuls, consul generals, ambassadors and employees from Invest in Denmark, Oxford Research has gained a deeper understanding of each ICDK, its activities, its internal dynamics and the local en-

vironment. The face-to-face approach has been valuable to the data collection by providing Oxford Research a confidential platform for interviewing employees from every segment of the staff. At the same time, by being physically present in the ICDKs, Oxford Research has been able to observe and participate in less formal interaction and hereby recognise unsaid values and opinions and gather inspiration for the follow-up interviews.

In preparing for the field visits, Oxford Research developed a collection of **ethnographic reflections** as complements to the interview guides, which prepared the evaluation team for the diverse cultural and political contexts of the ICDKs. These proved useful especially during the field visits to the ICDKs in China, South Korea and India, since the social hierarchies and traditional values in these countries have a much more fundamental impact on both the internal and external workings of the ICDKs.

Part 4: Interviews with Danish clients and collaborators

After the completion of the interviews with clients and collaborators and the survey with the clients in the research and education area, Oxford Research presented the results to the executive director and innovation attaché at the ICDKs. By doing this, Oxford Research has been able to nuance the results of the evaluation and to create an ownership of the evaluation.

In the last phase of the data collection, Oxford Research conducted **37 qualitative interviews** with Danish clients and collaborators of the ICDKs by phone—approximately six from each ICDK. The interviewees were selected by the ICDKs themselves based on criteria presented by Oxford Research. In general, the interviewees represented the diversity of the services and deliverables of the ICDKs and the diversity of the sizes of client companies, which meant that they had been in contact with all the three areas.

Part 5: Online survey

The survey was set up with the online survey software Enalyzer and sent out by e-mail to 454 respondents in the research and education area chosen by the Ministry of Higher Education and Science. In total, **153 respondents** or **34%** filled out the questionnaire during its run time between the 5th and the 24th of March. In case the respondents had used more than one ICDK, they would answer the same questions for each. The survey has given Oxford Research a statistical insight into the respondents' assessment of

- the process of the service/deliverable, the competencies of the ICDK and the satisfaction with the service/deliverable;
- the achieved outcomes; and
- the expected outcomes and/or impacts.



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