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Endorsing Organisations Towards International Business: Insights from Finland

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Abstract: Growth and internationalisation are challenges for SMEs that may lack the necessary resources and networks. For example, in Finland the scope of the companies is often too limited, or the companies are too small to compete for large business with international clients. We propose a solution to this challenge: a systematic way to build research to business networks and agile working models to endorse growth and internationalisation. We present a case study on how Allied ICT Finland (AIF) helps Finnish companies in building projects and capabilities towards internationalisation. AIF supports companies in creating new solutions by combining usually separate areas of special knowledge and expertise, R&D platforms and resources, and using these to create globally attractive products and services. AIF increases Finnish competitive edge by combining business development, shared RDI environments, funding expertise, research and ecosystems. We believe that the experiences can also be adapted and utilised elsewhere.

Keywords: regional development; internationalisation; business; networking; research to business; value co-creation; commercialisation; scaling up; growth.

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Mr. Paavo Kosonen has Lic. Tech. (microelectronics) from Helsinki University of Technology (currently Aalto University) and MBA (international business) degree from University of Turku. He has over 20 years of experience in various R&D, university collaboration and management roles from industry, for example Nokia and Ericsson, and business collaboration roles at universities and cities. Currently he is working as a development manager at University of Turku. His role includes methods for business collaboration and hands on work with

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Pekka Jokitalo has degrees in MSc (Electronics and Computer Technology) and MBA (management of international technology business), has 25 years of industrial experience in ICT communication technology and additionally 16 years of experience in research institutes. Currently Pekka is working in University of Oulu, Finland. He is leading SuperIoT Alliance and Ecosystem. SuperIoT is an officially operating EU Digital Innovation HUB (DIH). This nationwide HUB assists SMEs in digitalisation and seeks international business for the IoT companies. Previously Pekka worked in Nokia Mobile Phones for 17 years and was involved in developing mobile phones for 2G, 3G and 4G cellular phones. Before Nokia Pekka worked 10 years in Technical Research Centre of Finland (VTT) involved in data communication and Digital Signal Processing for industrial applications as well as a research partner in many EU programmes.

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1 Introduction

Small and medium-sized enterprises (SMEs) make significant contributions to both employment and economy, and they are a remarkable factor for Finnish economy, as 98% of Finnish companies are classified as SMEs (Official Statistics of Finland, 2016). Moreover, SMEs are needed in society, as they undertake functions that multinational enterprises do not do (Dana, 2017a). Thus, regional economic wealth and employment are improved with the development of SMEs.

Internationalisation is one strategy for long-term growth and survival for SMEs (Alayo et al., 2017; Chang et al., 2017). Hence, it is not surprising that companies have become increasingly internationalised over the last decades (Olejnik and Swoboda, 2012; Oxelheim et al., 2013). However, internationalisation is not a trivial effort, and there are several challenges to address regardless of considerable research (Jones and Coviello, 2005; Olejnik and Swoboda, 2012), and a need for theories for SMEs internationalisation strategies and processes is identified (Etemad, 2004).

In Finland the scope of the companies is often too limited, or the companies are too small to compete for large business with international clients (Hyysalo et al., 2018). Similar observations have been made in the UK and Europe, e.g., Ruiz (2010) reports that despite the strong research base in the UK its commercialisation results are still poor as it is also in general in Europe.

One solution is to provide support for SMEs to enable them to access the latest knowledge required to make the differentiation of the products in the market, and to compete internationally (Ruiz 2010). In research commercialisation and internationalisation relationships play an important role also. Dana et al. (2008) suggest

that symbiotic entrepreneurships where independent organisations work together and combine their expertise provides an increase in their efficiency and profit. Strong links between research organisations and the industry contribute also to success (Suvinen et al., 2010). When networked organisations become more connected and interdependent, they can better interact within their partner network to adapt and combine their resources. This allows network members to create new knowledge and to develop new products and markets (Johanson and Vahlne, 2009; Leppäaho et al., 2018).

Furthermore, inter-organisational networking increases sales and internationalisation improves profitability (Westerlund et al. 2017). However, the question is how to support and build successful research to business networks that endorse growth and help companies to tackle the challenges of internationalisation. Thus, our research question is: How to endorse growth towards international business?

To address our research question and to provide empirical results to enrich our understanding we study how Allied ICT Finland (AIF) (<https://alliedict.fi/>) helps in building capabilities for growth and internationalisation.

Entrepreneurship and its models are affected by socio-cultural background (Dana, 2017a; Dana and Light, 2011; Lloyd, 2019). For example, Finland is still affected by the Finnish mobile device business crash in 2011-2014, which had a major impact in the ICT sector (Hyysalo et al., 2018): experts were laid-off in thousands, the largest market channel and revenue stream was lost, the ecosystem around mobile devices was lost, Nokia consumer brand benefits were lost, very few internationally savvy ICT companies had their own products, and Nokia devices R&D contribution to Finnish ICT was lost. AIF (actually, its predecessor, HILLA) was originally founded to tackle these challenges.

There were also positive factors facilitating a change—a reboot of the Finnish digital network: Nokia Bridge program supporting new start-up creation is successful, many capable small firms remained, digitalisation was spreading quickly, ICT executive network with understanding about scaling had been built, new technologies and business models entered the arena, and top-notch technology know-how and appetite to succeed remained. Furthermore, in Finland the state plays a facilitative role (Spencer et al. 2005).

Small regional ecosystems operated following their own models, but a strong innovation ecosystem was missing. Furthermore, the practices of commercialisation and internationalisation were insufficient. There was a need and a solid ground for growth and internationalisation in Finnish industry. This called for national programs that increase knowledge on internationalisation (Leppäaho and Pajunen, 2018).

To address the challenges above, and to capitalize on the positive factors, HILLA was set up (cf. Hyysalo et al., 2018). In 2018, HILLA was extended and the name was changed to AIF. AIF serves SMEs through the Runway model that defines the core process from research to markets. This model includes three main AIF functions: Growth Mill (GM) for partnering and setting up consortiums; Shared Research, Development and Innovation Environments (SREs) for providing infrastructures for organisations and companies; and Funding Services (FS) for providing contact point and support services for companies and researchers applying for national and international funding. The AIF ecosystems are alliances arranging networking and other activities for companies interested in each ecosystem's topics.

This article presents AIF with its Runway model, three main functions and company ecosystems. We provide experiences from Finnish companies collaborating with AIF. The rest of this article is organised as follows. The next section provides the

theoretical background. The third section presents the study methods. The fourth section presents AIF and how it works. The fifth section presents the experiences and the sixth section discusses the results. Finally, conclusions, limitations, and recommendations for future research are presented.

2 Theoretical background

International business was earlier for large companies; however, SMEs have entered those realms long since (Dana et al. 1999; Dana and Wright 2009; Dana 2017b) due to technological advancements among other factors (Dar, 2019). SMEs are at the same time pushed to and pulled by international markets (Etemad, 2004), especially in knowledge-intensive industries (Nummela et al., 2005). Short product life cycles strive for innovation and technology transfer, and rapid development of information and communications technology all spur knowledge-intensive organisations into international markets (Jones, 1999). In addition, internationalisation is seen as a competitive necessity (Etemad et al., 2001; Dana, 2017b; Etemad, 2020) and used as an organisational growth strategy (Chang et al., 2017).

There is a need for internationalisation research as well (Chetty and Campbell-Hunt, 1999), especially the SME point of view is rather neglected in the literature (Nummela et al., 2005). Studies suggest that there is no single way to internationalisation (Nummela et al., 2005). In addition, international entrepreneurship research is criticised as being too narrowly focused (Young et al. 2003). Thus, a holistic, broad perspective studying the phenomena is recommended (Coviello and McAuley, 1999; Young et al. 2003).

We present our model of operation and empirical results, with a focus on supporting the internationalisation and creating opportunities for SMEs scaling up their operations in order to become successful international actors. Furthermore, we show

how to address the common challenges, like resource limitations and the capability to acquire and manage resources (cf. Malo and Norus, 2009; Penrose, 2009; Sui and Baum, 2014; Chang et al., 2017).

The importance of the networks in internationalisation is recognised (Dana et al., 1999), and networks facilitate the internationalisation process, e.g., through information exchange (cf. Mitgwe, 2006; Johanson and Vahlne, 2009; Paul et al., 2017). The importance of information is also emphasized e.g., in Etemad et al. (2010) and Etemad (2020). If the company or a group of companies together operate in diverse markets, they may acquire rich knowledge and strong technological capabilities (Barkema and Vermeulen, 1998). Having a network of companies will increase the capabilities of an organisation (Chetty and Campbell-Hunt, 1999). Another factor encouraging networking is resources – resources are instrumental to organisational growth and internationalisation, and organisations depend on external resources to fill in the resource gaps (Chang et al., 2017). By pooling their resources, a network of companies stands a better chance for success and through networks SMEs can expedite their internationalisation and increase their success rate (Coviello and McAuley, 1999). Especially for smaller companies, networks are a fundamental for internationalisation (Felzensztein et al., 2015; Guimón and Paraskevopoulou, 2017). The role of regional clusters is also emphasized (Felzensztein et al., 2019). Through networking, companies can benefit from their contacts to find the most promising international market opportunities (Ellis, 2011). The network perspective is proposed as one of the most important aspects in internationalisation (Johanson and Vahlne, 1990), as it reduces risks and overcomes internationalisation obstacles and contributes to SMEs international growth in general (Coviello and Munro, 1997).

Moreover, research commercialisation is a challenge. For example, in the UK the amount of research and the number of published scientific papers is high, but the commercialisation results are poor, as is the case also in Europe in general (Ruiz, 2010). Likewise, in Finland, the number of engineers, researchers and R&D investments is high, but there have not been considerable export-driven ICT efforts in the last 10-15 years to replace the now dismantled Nokia mobile phone cluster (Hyysalo et al., 2018). Despite the innovations, there have been only a few commercial success stories. One of the issues is also that only 7% of the firms are growth-oriented in Finland (Miettinen, 2008). Thus, a real need to support research commercialisation and internationalisation is identified.

In sum, in order to build capabilities for internationalisation, there is a need for a strong network of companies and research organisations to foster technology transfer and to provide a wide area of expertise. Furthermore, the help of support organisations is needed.

3 Methodology

This research is a case study that is qualitative in nature, as the aim was to gain a practical view of the topic. The motivation for selecting this approach was that the researchers had access to experienced industrial experts and their views. A participatory observation method was utilised, which is a qualitative method in nature (Saunders et al., 2009). The qualitative approach answers the questions of ‘why’ and ‘how’, which are critical and practical for both the researchers and the industrial organisations. The qualitative approach is useful for interpreting information within real life context (Yin, 2010), and it is an open and flexible investigation to conduct with the aim of providing new insights. With the qualitative approach, the researchers are able to encourage the

participants to express their viewpoints, opinions, and experiences freely, as much as possible and without limitations.

3.1 Data collection and analysis

The empirical data has been collected 1) by observing Finnish ICT companies and research projects, research organisations and AIF managers working with the system, 2) via archival the material and studies of documents and texts, and 3) other empirical results (e.g., interviews and discussions). The case focused on logistics with one large company and several SMEs.

The selected organisations represent a variety of attempts at scaling up. Mostly SMEs were chosen as they represent a large part of the Finnish companies, and they also make significant contributions to both employment and economy (Official Statistics of Finland, 2016). Due to their small size, they often have more barriers to internationalisation than large companies and they also have fewer resources to invest in growth, network building, internationalisation etc., hence, they may gain the most benefits out of this study.

Participatory observation involves observation, describing the actions, analysis and interpretation, allowing the researchers to immerse themselves in the research setting and understand the context and nuances of their study (Delbridge and Kirkpatrick, 1994; Saunders et al., 2009)

The researchers participated in activities and their role was clear for all: their role can be described as ‘participant as observer’ (Saunders et al., 2009). They collected five types of data:

- (1) Primary observations: What happened and what was said.

- (2) Secondary observations: Observers' interpretations on what happened and what was said.
- (3) Experiential data: Perceptions and feelings.
- (4) Archival data: Meeting minutes, documents from different development phases, financial records and other previously measurements in the organisation.
- (5) Metrics: Measurements and other empirical results.

The material was then analysed following the recommendations for thematic analysis suggested by Cruzes and Dybå (2011a), and generalising conclusions were drawn based on the analysis. Thematic analysis is a theoretically flexible approach for identifying, analysing, and reporting themes in qualitative research. In thematic analysis, the data is organised and described in rich detail and interprets various aspects of the research topic. It can be used within various theoretical frameworks to report on the experiences, meanings, and realities of the participants. (Braun and Clarke, 2006; Cruzes and Dybå, 2011a; Cruzes and Dybå, 2011b).

4 AIF model

AIF was established to help organisations to be in the vanguard of new technologies and business opportunities – to help companies and research organisations by providing approaches, models and tools for networking, and gathering expertise, resources and knowledge for supporting growth and internationalisation. Today, AIF is a national ICT network facilitating support to further economic growth in Finland. AIF provides the Runway model, three main functions, company ecosystems, and a toolset to support scaling up and asserting organisations for further internationalisation. The proven and piloted models and tools have been taken into nationwide use.

The main aim of AIF is to significantly improve the competitiveness of Finnish companies though the experiences can also be adapted and utilised elsewhere. AIF applies agile working models for projectisation, sparring project ideas and preparing projects. AIF supports companies to create new solutions by combining usually separate areas of special knowledge and expertise, R&D platforms and resources, and uses these to create products and services for global markets. The aim is to increase Finnish competitive edge with business development, shared RDI environments, funding services, research and ecosystems. AIF Runway is the core process from research to markets, see Figure 1.

Insert Figure 1 about here

The Runway model has three phases: activation, planning and execution. In the activation phase, Growth Mill builds networks, specifies and coaches project ideas towards spearhead projects and scalable business. The activation phase connects the companies and creates groups interested in specific business possibilities. The planning phase evolves the potential business ideas to spearhead projects, which are carefully designed and well-prepared collaborative investments. Spearhead projects are roadmapped with companies and tailored to support for each joint business case. They are in the strategic core of the company and aim for rapid market entry. The second phase also includes SRE planning and allocation. The execution phase executes the projects and supports other activities triggered by smart partnering and business case development, such as building a shared R&D environment and ecosystems.

One main challenge in internationalisation is insufficient knowledge and the lack of information (Costa et al., 2016) and SMEs are encouraged to find information

and learn from experiences of previous internationalisation processes. Collaboration with national organisations with international experience can compensate SMEs lack of their own skills and experience, and helps them to facilitate internationalisation, as proposed by Leppäaho et al. (2018). To gather the expertise required for internationalisation, AIF builds a peak expertise network, a ‘talent diamond’, on the interface between universities, companies, customers and society, see Figure 2.

Insert Figure 2 about here

AIF talent diamond is built in the crossroads of the learning triangle (knowledge creation) and competitive business triangle (competitiveness). For example, in the area of ICT, it requires that the ICT core and ecosystems are streamlined and interoperate on 1) the continuous renewal of the ICT expertise agenda and capabilities, and 2) ecosystems cooperate on business R&D and innovation processes. This way AIF expedites regional, national and international competitiveness through:

- Joint understanding and decisions on ICT investments, e.g., test networks, laboratories and tools.
- Technology transfer and sharing knowledge.
- Offering best expertise for the purpose.
- Resourcing grand and small challenges from the network.

The aim is to accelerate the creation of Return of Investment (ROI). For this purpose, AIF Runway provides a continuously evolving ‘as-a-service’ package to research and companies. The nationwide partnership network provides structured ICT access to research organisations, companies, cities and public authorities. Partners operate as a group of agile networks in strategy, SRE and customer solutions utilising

ICT through ecosystems and support functions. Execution advances with innovative infrastructures, experts, funding services and facilities with efficient models from high-tech concepts, joint business cases for long-term research. AIF Core competences provide the best Finnish experts from different universities who work together in coordination and execute the agreed AIF activities. This approach provides the expertise and competence profile to be used in ecosystems and solving problems that are identified in applied ecosystems.

4.1 AIF functions

The main AIF functions¹ are Growth Mill, Shared RDI environments and Funding services. In addition, AIF operates several company ecosystems. GM helps companies in finding the right partners, to acquire the right expertise, get sparring in consortium, honing the value chain and much more. GM covers partnering and the creation of the joint business case in the AIF Runway process – the part where a lot of hard work gets done before the actual development. The idea is to build and maximise joint business case for the companies who are planning to start a joint R&D effort. Combination of state-of-the-art technology knowhow from specialised companies and latest research breakthroughs opens new opportunities. Especially in case of disruptive technologies, new business models and open new markets are required, addressing the emphasis of “*crafting and selecting business models*” suggested by Rexhepi et al. (2016).

SRE offers companies access to the environments owned by other organisations through low barrier services. Be it public or privately operated, a national list of RDI environments is maintained with an investment roadmap to ensure that needs from the

¹ <https://alliedict.fi/functions/>

industry are met through cutting edge infrastructures built through joint effort and respecting regional competence profiles.

FS has good knowledge of national and international funding instruments, application processes, the strengths and competences of the AIF network, and it provides an easily accessible contact point for companies, researchers and other interest groups. FS is a network of funding experts from different organisations to share expertise, knowledge and best practices to maximise the gathering of national and international external funding. FS assists in finding the correct funding sources and helps in producing a strong and convincing funding application. FS team can also apply resources helping in project execution, coordination and management. The aim is to increase the amount of received funding, especially from the EU.

AIF has also developed a novel research to business (R2B) ecosystem model to establish an entirely new kind of customer and market interface, to make Finnish businesses known in the marketplace, especially in businesses that are now starting to go through digital transformation. This creates momentum for Finnish SME businesses and enables companies to compete in international markets in a new deep partnership model. In short, AIF ecosystems arrange networking for companies that are interested in shared topics. Ecosystems are alliances that support in development, marketing and transferring knowledge, products and services. Ecosystems are complemented with capable research teams and lead companies to build company-research ecosystems where organisations can better complement each other and utilise the outcomes of research in a more market-focused way.

5 Empirical results

Finnish companies and research are globally top tier, but in order to develop market-successful solutions new kinds of partnerships and specifically tailored and integrated

technologies are needed. AIF helps to find the best actors, visions and ideas, and develop them into globally desirable products and services. Apart from new technologies, AIF creates improvements in existing business.

The benefit of the AIF network is in finding the best experts to work in the projects. Project topics can originate from various needs (company, city, research etc.). Topical workshops are organised to find out the needs of companies and researchers. In addition, workshops and seminars are used to deliver information for companies of currently active project preparations. Co-creation of the problem-solution fit in the workshop is in the key role to find successful project cases. Experts with different backgrounds are included in those workshops. FS then assists in finding the most suitable funding instrument. FS will also help in finding partners and expertise in the international scale (e.g., EU programs like Horizon 2020).

5.1 Case description

The Logistics case was set up to create a new smart solution for Posti (Finnish postal service) for parcel delivery. Posti made the first contact with AIF management and told shortly about their needs and problems. AIF management forwarded the request to SuperIoT ecosystem leader. Posti sent more information, e.g., a visionary diagram of the next generation logistics service concept including a parcel automat with connectivity and IoT feature requirements. The goal was to create a new kind of automatic service concept, which brings the mail service closer to the customer and enhances the customer experience. Consumers' needs have changed drastically through the rise of digitalisation, huge reduction in paper mail and heavy competition. On the other hand, the volume of shipped packages has grown due to the popularity of online shopping. This drives the need for Postal service scale up and to invest in building consumer-friendly, country-wide automated package network. However, Posti did not

have all the needed ICT expertise inhouse and they wanted to find research and company partners with specific ICT expertise.

The request was discussed in the SuperIoT Steering Group meeting. The steering group meets biweekly and consists of members from research institutes, commercial ICT companies and national funding institute Business Finland. AIF Ecosystem leader and steering group listed the potential research organisations and companies which together have all the competences to accomplish the goals. AIF Ecosystem leader invited them to a half a day session to present their interest and competences. Posti accepted ten companies and two research institutes to form a consortium.

One-day facilitated “Design Studio” was arranged between Runway model phases 1 and 2 to identify the requirements for the proof-of-concept phase, understanding the potential research topics and to make a roadmap and schedule the next actions. During the day, long term goals and the common goals for the research and development program were identified. Detailed steps towards the financing application were listed and a business plan was sketched. FS helped the consortium to identify the best financing sources and Business Finland Co-Innovation instrument was selected.

The project plan and business plans of companies were presented to the AIF steering group that gave further mentoring and advice for the final plans, which were then submitted to Business Finland.

The project plan was so detailed that the consortium could start the project immediately after the financing decision. In addition to the next generation parcel automat, Posti also financed a parallel product development project to get the first product variation to the international markets even before the research program finishes.

The product development project consortium was a subset of the whole consortium having only industrial companies. The projects' financing was exceptionally diverse but also optimal for Posti and consortium members: Posti, research institutes and three companies got Business Finland financing, five companies got direct subcontracting agreements from Posti and five companies were making in-kind work because the projects were very synergic to their own strategy and product portfolios.

In the execution phase of the Runway model, immediately after the project kick-off, a five-day Design Sprint was arranged. Business development mentoring people from FS and GM participated, too. Design Sprint is a framework, which allows people to focus on a single task for five days, leaving their daily tasks behind. The goal of each sprint is to achieve concrete results on how the idea would look in real-life, and then test the hypothesis with live users and proper prototypes. In the end, this investment saves time and money, while allowing it to gain fidelity to the market demand.

The Design Sprint started with the definition of the long-term goal. It was discussed what this project wants to achieve; both the reasons why the consortium is doing this project and goals for 6, 12 and 60 months. A long-term goal method was used to build a common understanding among team members about what to achieve.

Project practises were normal: workshops, technical meetings, steering group meetings and document reviews. Posti had separate one-to-one status meetings with partners. AIF/SuperIoT ecosystem leader was a member of the steering group.

Both the research and product development projects progressed according to the plans. The research project ended in June 2020. Posti told that as a result of the faster parallel product development project they have already delivered extensive systems to international markets. Additionally, Posti started with selected consortium partners a

fast, parallel product development project to make a modification for a specific customer segment.

According to participants, SRE gave good support for these projects. All feedback from companies was positive, especially concerning the fast project set-up and Design Studios. These projects helped Posti in scaling-up their business to international level. In addition to concepts and prototypes, the main outcomes were a business model canvas about the parcel automat concept, high-level architecture requirements, and risk assessment analysis. According to participating companies, AIF was chosen, as it could provide all the research expertise needed and a strong network of companies.

Participants expressed that AIF provided good methods of approaching the new business ideas, and they got valuable feedback from the users and learned a lot from parcel delivery business. The team worked very closely together, creating a team spirit among participants. Feedback also suggested that AIF “*scouted for the best companies to participate in the project*”.

5.2 Feedback from the case

According to feedback, AIF Ecosystem model was efficient and enabled to involve research experts with the needed expertise and identify correct companies. The consortium stepped to the planning phase of the Runway process and workshops continued with discussion about business targets and business models. Discussions with GM experts helped companies to develop new revenue models and create a plan for their R&D projects. New business opportunities were identified in the workshops. Thanks to people with different expertise, trustworthy atmosphere and real interest to co-develop new solutions and start to do business together, some of the companies’ original ideas were developed for the next level and the companies developed an attractive business plan for them. During the planning phase, SuperIoT and GM experts

helped companies to identify areas where expertise of selected research teams was needed, and research questions were identified with companies. AIF supported companies and research teams in discussions with Business Finland. Also, the planning phase was effective and negotiations with Business Finland progressed well. Funding application to Business Finland was filed within six weeks from the first contact. Partnering and project planning was much more effective than in a typical project where it takes six to ten months to find company and research partners and finalise the application. Business Finland granted funding for the project and the projects progressed well. The companies evaluated the Runway process to be useful and input received from AIF valuable. The key partners started discussions about new projects with the AIF team.

Feedback on GM function was asked from the university members and development organisations of cities in March-April 2019. A Web based survey was emailed to people who were involved in GM activities or worked as an ecosystem leader. Nine anonymous answers were received. GM events and other networking activities organised with companies were seen as valuable. Based on the survey there was still a need to develop GM activities and cooperation with other functions of AIF. Workshops with networking companies with need to develop new solutions, companies providing solutions and research expertise were evaluated as useful. Examples of GM helped to start closer cooperation with research partners. Local activities were effective, however there was a need to develop transparency in national level activity.

Feedback from FS operation was collected in a workshop in November 2018, where mostly AIF ecosystem leaders and function leaders participated. Nine responses highlighted the benefits of FS: the easy way to find a local contact point for project preparation; expertise about funding instruments; sparring of project ideas in relation to

the call/instrument requirements; sharing information about open calls and thematic areas/topics; and collaboration with ecosystems and companies helps to find challenges for the basis of joint projects.

Finally, feedback on SRE highlights the importance of providing companies with easy access to RDI assets. Linking companies to these provided valuable help for companies. The way SRE offers low barrier, service-based access to the infrastructures of research organisations, including their equipment and help in the coordination of investments, was regarded as very useful. This allowed the alignment of regional competence profiles and focus areas within themes, like 5G, gaming, IoT or data-analytics.

5.3 AIF in numbers

AIF was publicly launched on May 21st, 2018 with 11 universities and research parties joining and 5 cities with their economic entity. AIF operations are expanding continuously as negotiations have started with more partners and regions. AIF uses various tools, processes, services and methods (see Hyysalo et al., 2018). AIF Digital Runway – Fenix business contacting tool – has had 845 business cases since its launch. The total number of users is 511 from 237 organisations. The initiated ecosystems are growing steadily with more company members and expanding international contact base, events and joint project proposals.

Since the launch, AIF has grown. Currently, AIF is the largest R2B ICT network in the Nordic countries consisting of 18 research institutes, 10 cities, 13 business ecosystems, thousands of researchers and more than 1300 companies, see Figure 3.

Insert Figure 3 about here

The AIF collaboration network aims to achieve a permanent boost in R&D investments and to establish positive leverage to face increasing global competition. With new tools and methods, AIF creates possibilities to combine and utilise the latest technologies in varied industries and for private and public sector collaboration.

The level of the participants in AIF is a combination of unique infrastructure (5G, industrial Internet, big data, printed electronics, health labs) and know-how fitted for ICT business leverage. The partners are actively collaborating nationally and internationally, including the key hubs in Germany, China and US. An important feature of AIF model is that projects aim for ambitious, scalable and global businesses. Top-level research is supporting the company projects and research topics originate from the company needs.

6 Discussion

International entrepreneurship is largely concerned on resource-based view and the network perspective (Young et al. 2003). However, AIF and its' Runway model aims at taking a broader view on the topic. AIF benefits are the utilisation of Runway model possibilities, smart partnerships with company and research specialisation, joint forces in business model sparring and development, fast adoption and leverage of new ICT technologies to multiple business sectors, new business growth and competitive edge otherwise not achievable (things that no party can implement alone) and instant international sales/market channel creations. Next the results are discussed phase by phase and then the overall view is taken with further insights.

6.1 Activation phase

Inter-firm cooperation is not always easy to build (Felzensztein et al., 2019), thus AIF experts help in finding right partners and prepares and spars the research partners

towards focused projects. The importance of networks has been shown in our cases and in literature. Both national and international networks are valuable, as business networks drive internationalisation (Torkkeli et al., 2016). Utilising already existing network ties is important (Coviello, 2006), thus, having a partner with already established ties is significant. For this purpose, AIF provides help, both by being such a partner, and by connecting companies and research institutions together with the aim of having at least one large enough partner with already established international connections.

In addition, common ecosystems are regarded as useful. The AIF ecosystems provide a unified interface to the market leads, partnership, top knowledge and sales. Evolved from AIF projects, ecosystems form a concentrated pool of smart specialisation, high technology assets and the latest knowledge for companies to co-operate and develop with each other and the other key players of the industry. The main goal of AIF ecosystems is to enable business growth and internationalisation for Finnish companies; however, others can also learn from our experiences. AIF ecosystems focus on offering the best expertise in their respective industries for not only their own companies and research facilities, but for the needs of other ecosystems. For instance, analytics and AI are growing in significance across industries, and IoT and drone technology offers answers in new ways, e.g., for forestry or construction maintenance.

6.2 Planning phase

In the planning phase GM brings the experts together and provides tools relying on value co-creation and open innovation approaches. Direct interaction in GM workshops between companies looking for a spearhead project enables value co-creation in a joint development process, as suggested by Grönroos (2011). Integration of specialised resources relevant to the common goal enables value co-creation. Parallel business

model design targets provide attractive value propositions for all firms participating in the joint projects, as proposed by Storbacka et al. (2012). It was also found that larger companies gained benefits from the agility and innovativeness of SME partners and in return, they provided sales and marketing channels for them, both benefiting this “multi-polar collaboration” as presented in Wright and Dana (2010) and Jang et al. (2017). With the help from AIF, organisations were able to find and develop relationships without spending too many resources on their own – distributing the efforts and utilising existing advantages. Our experiences showed that utilising the help of an alliance, organisations could pool their investments together to maximise ROI, control the risks and establish delivery driven partnership networks.

6.3 Execution phase

Our experiences prove that the AIF collaboration significantly improves the competitiveness of Finnish companies regionally, nationally and internationally. AIF creates new solutions in spearhead projects by combining usually separate areas of special knowledge, R&D platforms and resources, and uses these to create globally wanted products and services. The potential for company and research institute collaboration and competition requirements are taken to a new level by providing the critical mass and knowledge from the partner talent pool and experience in a business-minded manner. Partners and companies participate in projects with their own talent, tools and R&D environments.

According to our findings, AIF spearhead projects were planned and implemented as rapid actions in a condensed timeframe. AIF supported the joint executions of projects by timely and solid preparatory work, and thus the time from idea to the start of major projects could be shortened significantly. AIF supported the market access also with its Go-To-Market work by establishing a high-performance and visible

piloting environment, including a national network of RDI assets for the proof-of-concept of the spearhead projects and customer highlighting at the earliest feasible moment. Thus, the pilots offered an environment, where key findings and concepts could be tested and shown to interested customer prospects.

6.4 Partnership with AIF produces internationally sought solutions

Currently, AIF is the largest Nordic R2B network in the ICT sector. It offers a new model of action and investment, which aims to create a billion euro R&D leap. The aim is that AIF will become the junction of a large number of research and business partners, all utilising latest models of network economics. AIF helps to create the critical mass for international technology and service production and offers international contacts with partners and clients in order to create effective project portfolios. With its methods, AIF creates the combinations of the latest technologies for agile use in various industries for both public and private partners and creates unforeseen global solutions in collaboration projects between companies of different sizes and industries.

AIF provides benefits for the industry and society at several levels. The direct impacts include several company driven ecosystems in Finland in new growing spearhead industry themes, world class shared RDI environments, the proven implementation of smart specialisation in cooperation between industry, research partners and other stakeholders, and a proven efficient model of commercialisation to get research results and applications connected with business cases including market trials. AIF increases Finnish competitive edge, and international companies and partners are also welcomed to collaborate.

The goal of the AIF collaboration is to establish a permanent increase in R&D investments, which is necessary to achieve advantage to face increasing global competition. A model is built between the AIF partners, where research, cities and

companies will gain from the platform economics and growth networks. The identified essential growth positive principles are:

- Shared and combined investments, roadmaps and infrastructures.
- Business development and best practice availability.
- New partnerships between actors and platform economics model.
- Creating business-driven ecosystems.
- Cross-pollination of talent and digital meeting places.

AIF packages its functions and activities into a Runway model, which provides a shortened time-to-market from research to commercial availability. However, with AIF the network is the main thing while the development model is a supporting function. This is in line with, e.g., Chang et al. (2017) who propose that industry networks are a practical link to resources, and Leppäaho and Pajunen (2018) who state that building proper network ties are the first step towards internationalisation. Networking as a growth and internationalisation strategy is also proposed by Torkkeli et al. (2016). Literature also suggests that various forms of partnerships between universities, governments and industries are successful (Salamzadeh et al., 2015), and these networks help organisations to acquire new knowledge (Wilkinson et al, 2000).

7 Conclusions

Economic environment in Finland is still in the midst of a large-scale transition. Large numbers of new ICT companies have been established in recent years. Most of these companies are highly innovative but lack many market-critical assets in their business, e.g. channels, technology differentiation, delivery capability, credibility and market history. Success of Finnish companies is broadly depending on critical mass, differentiation and delivery capability enabling them to compete in fierce global

markets. Agile co-operation and partnering complemented with smart specialisation and new business models are needed to give birth to new growing and transforming business ecosystems in ICT dependent sectors. Thus, our research question: How to endorse growth towards international business.

To address the research question, we have presented AIF with its functions and Runway model, and examples on how organisations have successfully utilised the AIF R2B model. The primary target of AIF model is to establish an entirely new kind of customer and market interface, to make Finnish businesses known in the marketplace and enable companies to compete also in international markets in a new deep partnership model. The AIF network is a testbed for a national renewal process.

Our findings suggest that the proposed AIF model successfully prepares organisations towards growth and international business, thus, also benefiting regional and national economies. As a summary, AIF 1) attracts international talents, investments and various partnerships within and to Finland, 2) connects customer needs to the expertise of ICT R&D in ecosystems with universities and companies, 3) builds solution motivated projects and offer venues of execution with efficient models, and 4) provides commitment and resources arranging expertise, funding, infrastructure and partners.

The spearhead project models using AIF Runway have proven successful. AIF improved the R2B partnerships in order to craft a higher customer value and revenue creation from the joint offerings with new key enabling technologies and business models. Hence, we can suggest the AIF model as an approach for endorsing growth and international business. AIF enables business-related research in separate spearhead projects, which will give added value for the projects and companies. The AIF model

facilitates the longer time span development of companies, where developed technology supports the continuous growth of new business of several companies.

From the managerial point of view, companies and organisations aiming at building capabilities for internationalisation are advised to utilise AIF. This will save them resources on creating their network alone. AIF can facilitate the growth and internationalisation process of SMEs, e.g., by helping in finding sources of funding and providing existing networks, tools, processes and ecosystems to be utilised. AIF provides a European-wide network for companies and organisations, which is significant, as co-operating with partners with extensive networks is recommended for SMEs (cf. Leppäaho and Pajunen, 2018; Ahuja, 2000). From a practical perspective, our findings help SMEs to find ways for growth and internationalisation through network utilisation. SMEs can also better understand their position related to growth and internationalisation, and find ways to support their future activities, reducing risks and facilitating decisions.

7.1 Limitations and future work

There are also limitations to our study. First, not all SMEs or business areas are similar, which limits the generalisability of our findings without further studies among larger number and variety of companies. Furthermore, as the participating companies were mostly SMEs, no generalisability over large companies can be achieved. However, this kind of generalisation has not been the target of this study. Third, in participatory observation, there is always a possibility of observer bias. This can't be fully avoided, and it must be acknowledged and controlled through careful considerations such as: Is this really what she meant; can this be interpreted in another way; and confirming the interpretations through triangulation with the study subjects. Finally, AIF promotes value co-creation and R2B activities. The actual effect on the export performance of the

SMEs can be measured after the product or service is launched in international markets and data of the success is available. Before that the ROI is based on estimates.

For future studies, several avenues have already been mentioned, the most important one in our opinion is the continuation of the study in wider geographical settings and in other industrial domains to improve the generalisability.

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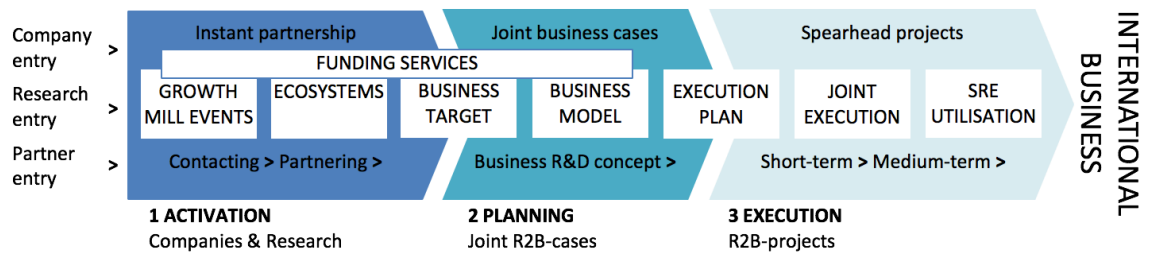


Figure 1. AIF Runway model as a catalyst for new business.

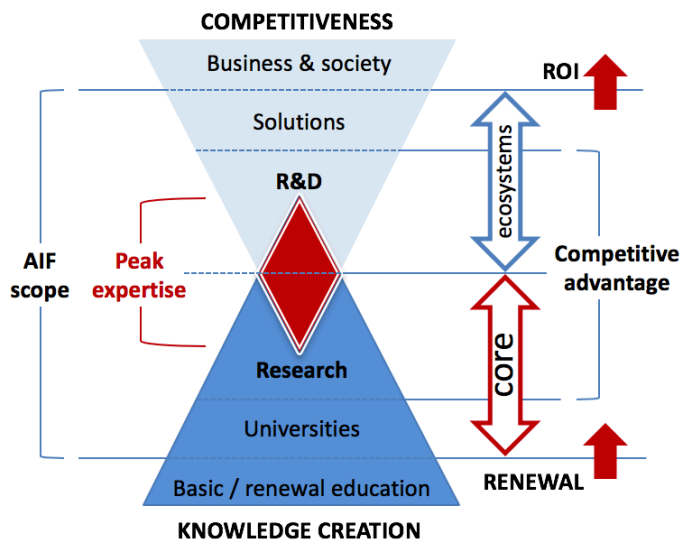


Figure 2. AIF talent diamond.

WHY

Modern digital solutions require combinations of deep expertise from several ICT and business areas.

13 growth partnership ecosystems

1300+ ICT companies

AIF mission is to ensure that partners get the best expertise, resources and infrastructure to execute.

WHAT

Largest Nordic ICT network of universities, digital innovation hubs and company ecosystems.

18 universities, research orgs. and 10 cities

50+ ICT projects per annum

AIF invests to efficient use of thousands of experts, technologies, platforms and ROI-driven project models.

HOW

Growth networks approach utilize tested Growth Mill, Runway and Ecosystem model.

3000+ researchers

50+ shared R&D and test environments

AIF equips each case with sparring, partnering, funding services, tailored expertise and execution.

Figure 3. AIF network.