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# Strategic ambitions of external RDI funding in Finnish universities of applied sciences

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## ABSTRACT

This article explores the strategic external funding goals and plans of action of Finnish universities of applied sciences (UASs) as articulated in their institutional strategies using the ecology-of-games metaphor. UASs are pressured to expand external funding sources compared to their previous student number-based funding history. The UASs' institutional strategies reveal the objectives and actions to acquire external RDI (research, development and innovation) funding and potential externalities. UASs underscore cooperation, partnerships and expanding RDI and institutional images. Few UASs set goals for specific funding sources; instead, UASs' strategies demonstrate commitment to their public RDI mission. UASs' unique internal features are not prominently reflected in external funding goals and plans of actions. This study suggests that UASs' strategies significantly align with the government's core funding formula and implemented public funding cuts. Global pressures and increased performance competition have even led to new ownership structures, where traditional universities primarily own UASs in five cases. This introduces a new dynamic to Finnish universities and UASs, with implications for both sectors. This study's main contribution is its conceptualisation of multiple strategic external funding goals and plans of action in Finnish UASs' governance and funding contexts.

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## KEYWORDS

External funding; ecology-of-games metaphor; strategy; goals; universities of applied sciences

## Introduction

Finnish higher education institutions (HEIs) possess new legal frameworks for institutional financial autonomy, designed to foster them as strategic and financial players. Through the introduction and execution of national financial autonomy policy reforms in Finland's higher education sectors in 2010 and 2015, HEIs are encouraged and incentivised to secure external funding, and strategically progress towards mixed economies, characterised by a blend of state budget funding and external resources. To secure external funding for HEIs, the literature discusses various revenue diversification strategies. Thoenig and Paradeise (2016) highlighted the importance of strategic capacities and organisational capabilities within this context. Parker (2013) identified high-revenue, market-oriented education programmes to produce external revenues. Teixeira and Koryakina (2013; Teixeira et al. 2014) identified factors that potentially diversify revenues. They highlighted the role of HEIs' financial autonomy and disciplinary composition, particularly in the technological and medical fields. They refer to the impact of institutions' geographic location, size, variations in

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tuition between disciplinary fields and the availability of state funding. Scholars such as Stachowiak-Kudla and Kudla (2017) approach the topic circumspectly, examining legal regulations' implications for revenue diversification. Sharrock (2012) emphasised the multifaceted nature of revenue streams and the critical role played by diverse sources' support, often through stakeholder partnerships. Finland has faithfully followed global higher education policy trends that require reorientation and making external funding a strategic issue inside public HEIs that have a long tradition of operating by governmental core funding allocations.

While the new governance trends and the scope of system-level governance reforms have been given attention in previous research (e.g. Ferlie, Musselin, and Andresani 2008), this article will illuminate post-reform strategic goals and plans of action regarding external RDI funding from the perspective of Finnish UASs (universities of applied sciences). Previous higher education-related strategic management literature focuses on strategy processes (Jarzabkowski and Spee 2009; Lillis and Lynch 2014), the context of a strategy (Benneworth, Pinheiro, and Karlsen 2017; Silander and Haake 2017), functions of strategy (e.g. Fumasoli and Huisman 2013; Stensaker and Fumasoli 2017), and the content of strategies (Arias-Coello, Simon-Martin, and Gonzalo Sanchez-Molero 2020; Luoma, Risikko, and Erkkilä 2016; Seeber et al. 2019).

Scant research explores institutional strategic ambitions regarding external RDI funding. This is surprising, given that HE policies globally generate pressures to increase external funding. Herein, this prominent policy and governance issue is analysed from the perspective of Finnish UASs' institutional strategies. UASs have a strong regional development role but lack prestige as scientific institutions compared to those that have acquired/been given such status via success in securing competitive external research funds (cf. Benneworth, Pinheiro, and Karlsen 2017; Hicks 2012). The Act on Universities of Applied Sciences (2014) and later legislation define research, development and innovation (RDI) as part of UASs' functions. Before the Act of 2003, RDI was voluntary for Finnish UASs (Edilex 2002; Laki ammattikorkeakouluopinnoista 1995).

This article will study external funding profiles (2015–2022) and institutional strategies (2020 onward) of Finnish UASs. *External RDI funding*, in the context of this study, refers to competition-based RDI funding sources beyond UASs' core funding. As Luoma, Risikko, and Erkkilä (2016; Fumasoli and Huisman 2013) indicated, institutional strategies are expected to be valid reflections of HEIs' strategic interests and choices and how HEIs aspire to proceed in dynamic governance and funding environments. On average, 75% of Finnish UASs' turnover originated from core funding in 2022. Core funding decreased approximately 12% during the period of 2015–2022, while total external funding increased over 120% from 2015–2022 (Vipunen 2023). Substantial core funding cuts in recent years and financial autonomy reforms led UASs to reorient their internal strategic development of RDI activities (Kettunen 2015b).

This article offers fresh insights into HEIs' institutional strategies concerning external RDI funding through the lens of ecology-of-games metaphor. This study intends to benefit HE leaders, managers, researchers and policymakers. Furthermore, it is intended to be relevant for the Finnish HEIs and HE organisations beyond Finland that undergo similar strategic transformation processes to increase their competitiveness. We aim to answer the following research question:

What external RDI funding-related goals and plans of action do Finnish UASs articulate in corporate-level strategies?

This article is structured into seven sections: 1) Introduction 2) Finnish UAS and performance-based state funding 3) Theoretical approach (EGM, ecology-of-games metaphor) 4) Data and analysis 5) Findings 6) Discussion of findings and 7) Conclusions.

## **Characters of Finnish UASs and their performance-based state funding**

Finland employs a dual model for HE in which universities and UASs have separate functions and legislation. Perspicuously, characteristic differences between a traditional science university and a

UAS are the latter's educating for the professions and business and conducting applied research and development (unlike basic research) that serve working life, businesses, and local/regional development. UASs offer bachelor's and master's degrees, not doctoral degrees. Cities, universities, or municipalities co-own most UASs, while a few are owned either entirely or partially by private actors, such as foundations. All UAS' are legally required to be limited liability companies, and they are subject to the same UAS-legislation and state funding mechanism, irrespective of their ownership background. They are required to be non-profit in that they are legally not allowed to distribute dividends to shareholders, have financial profit as their primary purpose, nor generate any other type of financial gain for the shareholders or actors involved in the UASs' activities. (Ministry of Education and Culture 2021; University of Applied Sciences Act 2014). Table 1 outlines the main characteristics of Finnish UASs.

A performance-based funding model (PBF) was introduced in 2014, where a given year's core funding is based on the average of the three previous years' performance in a defined set of weighted indicators. The 2014 legislation positioned RDI activities among the core activities of UASs and teaching. Between 2012–2018, core funding (state budget funding) for UASs was cut from €1.02 billion to €811 million (adjusted for inflation to 2020 euros) – an approximately 20% decrease (Ministry of Finance 2020). These state budget cuts led to significant internal budget cuts at UASs and generated cooperation negotiations, new consortia and institutional mergers (Nenonen 2020, 15–16, 20–21, 138).<sup>1</sup> In 2018, the Ministry of Education and Culture launched a campaign with financial incentives for UASs to fundraise through private donations. For every euro raised, the ministry provided an additional euro (up to €4 million).

The PBF's current design is essentially a zero-sum game: UASs are allocated core funding from a pool (the state budget determines its volume in euros yearly) based on their relative performance in funding model indicators, adjusted for the UAS's size. The yearly core funding for a UAS is based on the average performance of the previous three years. Additionally, the funding model has a cap for funding based on the number of graduated students (with a 56% indicator weight). The number of graduated students that exceeds this cap does not increase state funding. Hence, as external RDI funding is a significant indicator in the model (8% weight during 2017–2021, 11% weight from

**Table 1.** Key characteristics of UASs.

UAS (Codes)	Region	Ownership type: Main shareholding	Number of students (2022)	Person work years, total (2022)	The share of external RDI funding (2022)
Arcada (U1)	Southern Finland	Foundation	2 412	167.5	12.7
Centria (U2)	Western Finland	Various*	3 699	319.7	21.4
Diak (U3)	Southern Finland	Foundation	3 027	247.9	15.2
Haaga-Helia (U4)	Southern Finland	Foundation	8 709	681.3	9.1
Humak (U5)	Southern Finland	Various*	1 971	152.6	15.3
Häme (U6)	Western Finland	Various*	8 190	619.7	11.3
Jyväskylä (U7)	Middle Finland	Local authority	6 969	793.8	20.4
XAMK (U8)	Eastern Finland	Various*	9 681	862.4	20.2
Kajaani (U9)	Northern Finland	Local authority	2 859	257.2	25.5
Karelia (U10)	Eastern Finland	Local authority	3 828	309.2	15
LAB (U11)	Western Finland	University	8 133	534.6	15
Lappi (U12)	Northern Finland	University	5 418	416.6	22
Laurea (U13)	Southern Finland	Various*	8 259	617.0	16.7
Metropolia (U14)	Southern Finland	Various*	14 958	972.3	9.9
Novia (U15)	Western Finland	University	4 227	311.3	18.7
Oulu (U16)	Northern Finland	University	8 334	441.2	13.4
Satakunta (U17)	Western Finland	Local authority	6 006	394.7	13.4
Savonia (U18)	Eastern Finland	Municipal	7 007	528.9	16.2
Seinäjäki (U19)	Western Finland	Municipal	5 100	370.5	18.3
Tampere (U20)	Western Finland	University	9 873	746.5	10.5
Turku (U21)	Western Finland	Local authority	10 365	710.6	13.7
Vaasa (U22)	Western Finland	Local authority	3 231	168.0	13.1

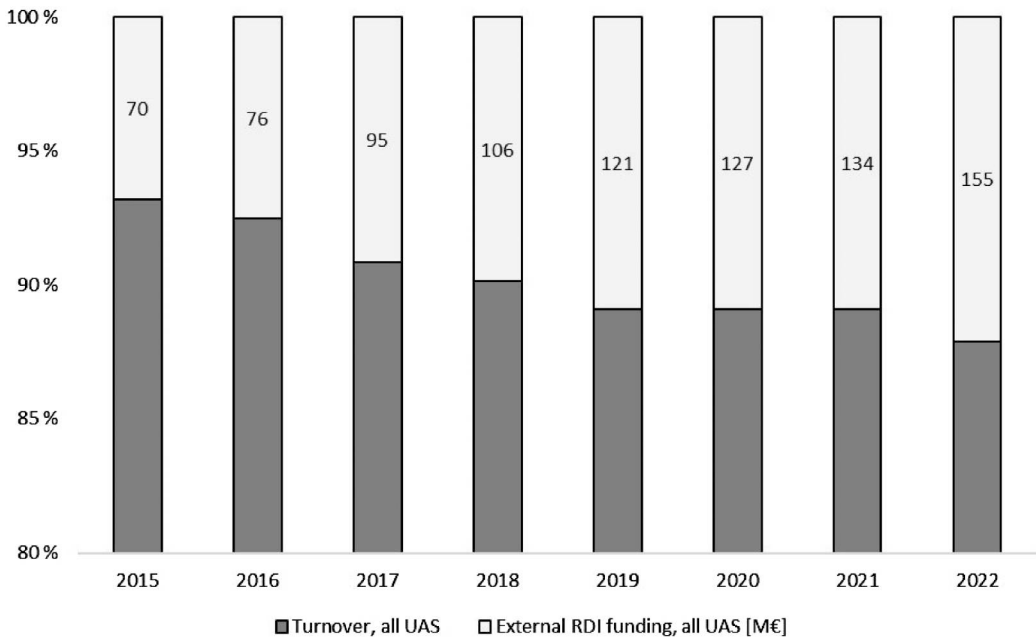
\*UAS does not have a single majority shareholder

2021 onwards), poor success in the model, including securing external funding, (in relation to other UASs) harms a UAS's core funding for three years. Combined, this model's features heavily incentivise the pursuit of external RDI funding, as outperforming competitors in this indicator several years in a row leads to a positive financial feedback loop (again, assuming other indicator outcomes remain stable). For further discussion, see Seuri and Vartiainen (2018).

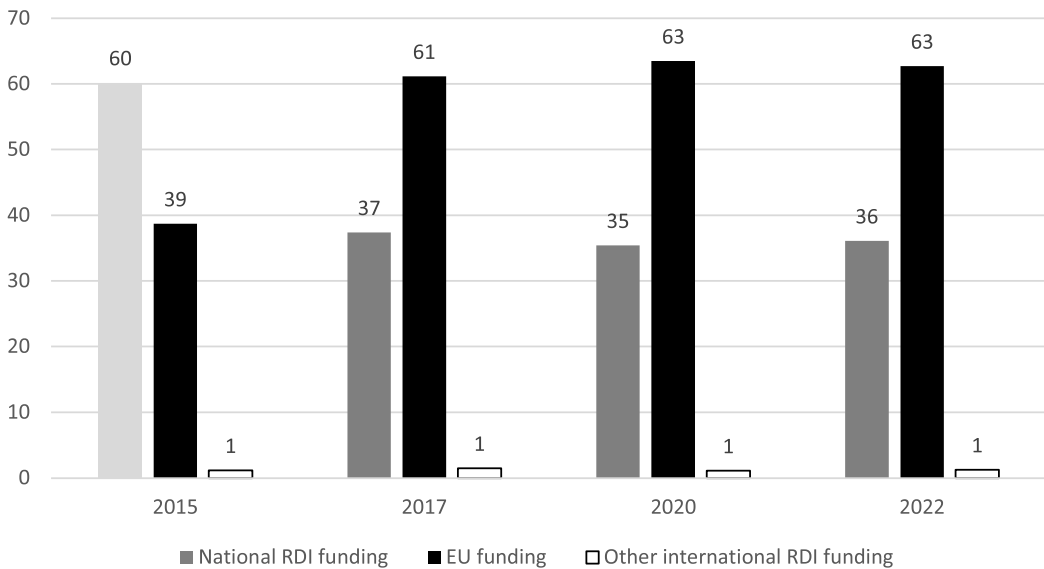
The increased importance of external RDI funds is reflected in their volumes (RDI costs covered by external funding) in relation to UASs' total turnover during 2015–2022 (Figure 1). Because external funding applications are not always approved, the almost doubling of the ratio – 8.6% in 2015 to 15.1% in 2022 – reveals UASs' significantly increased efforts to secure external RDI funding. Five UASs had over 20% external RDI funding for their turnover in 2022; eight UASs had 15% or more but below 20%. The rest, nine UASs, had below 15%, from 9.1%–13.7% per institution. The overall ratio remained unchanged during 2019–2021, presumably because the COVID-19 pandemic limited RDI activities and projects. This assumption is supported because the ratio increased substantially for 2022 when these restrictions relaxed globally.

Since 2017, primary sources of RDI funding have stemmed from EU funding instruments (approximately 60%, Figure 2). National funding (ministries, companies, municipalities, private foundations and other private bodies) displayed a noticeable relative decline during 2015–2017. On average, domestic RDI funding constituted approximately 35% of the total external RDI funding, of which private sources accounted for a 10% share between 2017–2022. Besides external RDI funding, UASs have diversified funding through business activities, including the provision of education and consulting services. In 2022, the average ratio of revenue derived from business activities was 5% of UASs' total turnover (Vipunen 2023).

Kyvik and Lepori (2010) point out that Finnish UASs are explicitly recognised as research actors at the national level, with applied research being integrated into the UASs' institutional strategies. However, RDI was not as explicitly outlined in their core funding designs before 2014. Consequently, RDI and external RDI funding became a strategic priority for each Finnish UAS to enhance success in



**Figure 1.** The relative shares of external RDI funding of UASs' turnover between 2015–2022. The relation is indicated by the stacked columns (left axis). External RDI funding is indicated in the column in M€ (Vipunen 2023).



**Figure 2.** Relative shares of national RDI funding, EU funding and other international RDI funding of UASs' turnover, 2015–2022 (Vipunen 2023).

the competition for external funding. UASs' strategic priorities are also visible in statistical follow-up data: The total volume of external RDI funding grew from roughly €70 million in 2015 to €155 million in 2022 (Arene 2020; Vipunen 2023), indicating increasing competition for funds among UASs and between individual UASs and universities – which international audit panels noticed (Palmér et al. 2018; Vuori 2016).

Success in international funding presupposes participation in international RDI teams and networks, access to which requires a UAS to be visible and display sufficient academic credibility and prestige. Benner (2018) discussed the global perspective of this development. The total international external funding secured by UASs has increased by 250%, from €28 million in 2015 to €98 million in 2022 (Vipunen 2023). However, the amount of international RDI funding secured by a particular UAS may vary sharply from year to year, creating an incentive for these UASs to systematise processes for securing such funding to improve their competitiveness in the PBF.

During 2016–2022, four UASs were frequently among the top-five performers in securing external RDI funding (performance adjusted for UAS size<sup>2</sup>, Vipunen 2023). One reason could be the European Regional Development Fund, the funding opportunities of which prioritise certain regions over others, in Finland's case at the expense of the metropolitan area of Helsinki: From 2016 onwards, the top five UASs in both absolute funding and when adjusted for size are all outside<sup>3</sup> the Helsinki metropolitan area.

## Theoretical approach

This study employs the EGM to provide a theoretical lens for understanding and conceptualising the strategies of UASs. The institutional strategy integrates the UAS's operations and long-term plans across the entire institution. It crystallises what a HEI aims to accomplish within its specific operational, cooperative, and competitive environment (Frølich, Stensaker, and Huisman 2017; Luoma, Risikko, and Erkkilä 2016). As *strategy* can be defined in multiple ways, for the purposes of this article, we define it as long-term goals complemented by actions (or subgoals) to reach these goals. Furthermore, strategies inherently involve trade-offs; they set priorities – what actions and goals are to be prioritised and which ones to be set aside? (Porter 1996.)

The EGM applies to various policy systems wherein multiple simultaneous issues, actors, uncertainty, and policy arenas exist (Long 1958; Lubell 2013). Its utility extends to the field of HE policy as well, as exhibited in works by Firestone (1989), Nisar (2015), and (Kohtamäki 2023; 2019). In this article, the EGM guides the exploration of what strategic goals and plans of action UASs have outlined in their institutional strategies. EGM is helpful to delve deeper into the nuances and particularities of UASs functioning as strategic actors (goals and actions to perform). While metaphors have been utilised in organisational analyses, their application in organisational research holds potential for expansion. As Cornelissen (2005) suggests, metaphors can unfold greater understanding and enhance the conceptualisation of organisational behaviour. A metaphorical approach is typically qualitative in nature as is the case in this study (e.g. Gibson and Zellmer-Bruhn 2002).

The key idea of the EGM deals with the games and ecology metaphor, including players, interests, preferences, policy issues and numerous interrelationships in the operating environment. These relationships function like games, deal with specific policy issues and have certain game-specific rules pertaining to the patterns of relationships. While various games are played out concurrently, they maintain their separateness, yet frequently hold connections with each other (Lubell 2013). In this landscape, the players (UASs) require inputs from one game to achieve the goals set in another. As Firestone (1989) indicates, it is worth noting that most interactions in this context occur within individual games, rather than between them (see Lubell 2013; Nisar 2015). From this perspective, a single game can serve as a valuable window into an exploration of goals and interests. Moreover, through these discerned goals and interests, it is possible to identify other games running in parallel.

This study explores external funding and related games nested within each other. Together they form the *game ecology*. The term 'game ecology' is used here as a metaphor to describe a series of games in which UASs are involved in (Firestone 1989). The term *External funding game* refers in this study to the strategic interactions and various dynamics involved in securing external RDI funding for the UASs.

The EGM was chosen because it helps reveal how UASs adapt strategies and approaches in response to the challenges of securing external RDI funding. The EGM acknowledges that external funding games, influenced by a myriad of factors and actors, do not exist in isolation. It suggests UASs must consider the impact and interests of diverse stakeholders, implying a complex web of interconnectedness in these games. External stakeholders' interests also conflict with each other (Kettunen 2015c; Pinheiro 2015; Pinheiro, Charles, and Jones 2017), which further adds to the complexity of UASs' game ecology. The EGM acknowledges the described complexity and emphasises that players need to compete for limited resources to survive. UASs must strategically position themselves to secure necessary resources. The significance of these institutions as strategic and financial players was underscored in the 2014 national UAS autonomy reform. The reform not only spotlighted their adaptivity to the external environment but their capacity to tailor their actions to fulfil regional needs (Act on Universities of Applied Sciences 2014). We limit the EGM's application to the articulated goals and plans of action of UASs and will not analyse how UASs execute individual strategic goals in practice. Studying the execution of institutional strategies would demand a distinct research approach and timeframe within the design of this study.

## Data and analysis

The data include institutional strategies from 22 Finnish UASs. Strategies were acquired through institutions' websites. Two UAS provided access to the strategy when requested because it was not available online. The public online database Vipunen provided financial and other information on UASs.

Institutional strategies (strategic behaviour) and volumes of past external funding (funding context of action) based on data from Vipunen from 2015–2022 formed the empirical data. A content analysis was conducted in which data-driven and theory-driven analysis circulated (Schreier

2012). The research question was a linkage between different cycles guiding what is included in the analysis. In the first phase of the analysis, the authors read the institutional strategies and identified the external funding-related strategic goals and interests of the UAS players, established a common Excel-table to categorise findings, and in this phase, authors also discussed preliminary findings. In the second round, the authors continued the intensive reading of the strategies, specified articulated goals, interests and actions related to external funding, and again interacted to discuss findings to gain a common understanding. The third-round analysis concerned categorising – it was carried out in mutual interaction – the identified strategic goals and interests and tactics as external funding games. When presenting quotes, each UAS is identified by a code within brackets (see also Table 1 in Section Characters of Finnish UASs and their performance-based state funding).

## Findings

Strategy statements portrayed UASs' external RDI funding goals and corresponding plans of action, organised in this section into four groups of games. The games are subsequently explored in greater detail to address the UAS players' behavioural patterns they intend to cultivate.

### *Financial volume game*

The financial volume game encompassed financial goals aimed at winning funds from both national and international RDI funding games. UAS players established strategic performance metrics, including targets and milestones, for the financial volume game. The financial volume game featured goals akin to securing specific amounts or a portion of external RDI funding, aligning with the dynamics of competitive funding games. The quotes 'The volume of RDI 6.1 million euros (U18)' and '30 million external RDI funding by 2026 (U11)' concerned setting a clear game goal for RDI funding, serving as a concrete benchmark for a UAS player's RDI funding games. This target mirrors a gaming scenario, aiming for both a specific percentage and yearly growth: 'Achieve 50% of external funding with an annual growth target of 1 million euros (U9). Another example is a 'metro map' outlining sought-after levels of external RDI funding with annual objectives and targets extending up to 2030 (U10).

Increasing financial volumes required winning RDI funding from diverse sources and players' active participation in collaborative RDI projects on the international, regional, and local scales. The emphasis on enhancing the efficacy of RDI operations while engaging in RDI funding games both domestically and internationally underscores the growing significance of these games, as indicated by the following quotes:

We will significantly increase the amount of international RDI funding (U10).

We actively seek and initiate direct EU-funded projects, including those under Horizon, Celtic, and Excel (U3).

The quality and impact of UASs' RDI activities are strengthened by focusing on content and expanding the funding base, particularly through competitive domestic and international funding (U16).

Through collaboration in international networks, we are broadening the funding base for RDI activities (U16).

UAS's research units operate in substantial international innovation ecosystems and secure corporate and international funding for research (U6).

UASs treated performance in the national core funding game as a crucial indicator of success in external RDI funding. Another distinctive strategy pinpointed external RDI funding as a key signal of operational success.

The most critical measures are the indicators of the UASs' funding model (U12).

External funding serves as a measurement criterion for the success of all three [institutional] strategic goals: 1) Global orientation, 2) Digital learning and 3) Flexible education (U15).



### **External stakeholder game**

The external stakeholder game mirrored the strategic moves of UAS players in their RDI ecology. UASs' strategies emphasised relationships, cooperation and networking on RDI with private and public sectors, regional partners, national agencies, and international collaborators. Aligning with the EGM, collaboration serves as a method to secure financial and other resources, aiming for wins and avoidance of losses in external RDI funding games.

External RDI stakeholder games included various tactics and strategies. Firstly, the identification of key external stakeholders and stakeholder groups serves as a strategic move, with UAS players expressing the intent to interact with a spectrum of stakeholders, including international partners, regional small and medium-sized companies, universities, alumni, students, and stakeholders beyond the operational region.

We will strengthen research, development and innovation activities, learning environments and digitalisation in collaboration with the University of Vaasa (U22).

Alumni students contribute to an extensive cooperation network and serve as key contact points in applied research (U6).

In the future, we will pursue our goals in an even more networked manner with companies and communities in the region as well as with partner universities (U19).

We actively pursue collaborations that bring additional value and opportunities, fostering alliances with national and international higher education institutions and strategic partners (U13).

The following quote depicts a UAS as an intentional stakeholder player, strategically manoeuvring through the complex landscape of international collaborations: 'In RDI activities, we make an international strategy and establish strategic partnerships with foreign universities and research institutions (U3).' The term 'international strategy' suggests the adoption of a distinct gaming approach in the global arena.

Secondly, external RDI stakeholder game tactics emphasised the region, as evidenced by the following two quotes: 'Deepening cooperation with the working life of the region (U22).' and 'All collaborative RDI projects are interconnected with international networks and local partnerships (U1)'.

The third set of stakeholder game actions underscored the significance of extending and organising regular, long-term relationships, and stakeholder interactions: 'We adopt a strategy akin to playing the long game, fostering extensive and enduring collaboration with our partners. Our approach involves seeking financing for ambitious projects in a balanced manner, drawing from various funding sources (U13).'

The measures imply that UASs aspire to foster continuous engagement, moving beyond isolated interactions typically associated with externally funded RDI initiatives. Internationalisation, including international RDI cooperation with stakeholders and cooperation concerning teaching and RDI, mirrored the Finnish government's policies for the future of the Finnish HEI sector in 2017–2025 (Kokko et al. 2020).

### **RDI impact game**

The RDI impact game strategies were intricately designed to build a strong regional foundation, and commitment to the regional context of UAS players and their presence in multiple cities or municipalities. Given that UASs, on average, operate in three cities or municipalities, the regional and local RDI impact goals were articulated to fit their operating region(s) as pointed out in the following statements:

The bedrock of our operations centers around advancing the working life and business life of the region (U10).

All our activities strive to create quality and effectiveness in the regions in which we operate (U 8).

International and high-level RDI activities are a central component of our UAS's regional and societal impacts. Through these activities, solutions are crafted to meet the needs of businesses and the working life (U8).

Of the aforementioned quotes, RDI impacts were not only highlighted for their regional influence but also emphasised a societal impact. UAS players sought to strategically define the RDI activities as high-level and powerful tools to enhance the interests of business and working life. Strategies highlighted the outcomes of RDI operations while outlining steps to amplify RDI impacts.

[Our RDI activities] promote well-being through our operations, renew our working life and actively support the creation of new business (U20).

We collectively develop solutions that renew operations and elevate competitiveness (U7).

The goal is to level up the growth in partner companies (U11).

As the players chartered their course, the content of strategies emphasised the potential mutual benefits between UASs and their stakeholders: '[I]nternational networks produce added value for students and partner networks, renew competence and strengthen the content of UASs' education and RDI activities (U13).'

UAS players enhanced RDI impacts by focusing on the interaction of RDI and teaching through various means. These involved promoting intricate connections between RDI and education, intensifying external engagements by leveraging students as strategic assets, setting goals akin to recruiting tenure-track and fixed-term researchers to enhance research capacities, educating teachers to operate as teacher-researchers, closing the gap between research and teaching, and strategically recruiting international students and staff to inject diversity and global perspectives into the UAS operations. The following quotes exemplify the means above:

We integrate research into our teaching and aspire to be a highly connected higher education institution both nationally and internationally (U4).

The technical degree programmes and RDI support/interact with all other educational programmes offered (U1).

In a characteristic manner for a UAS, RDI activities are tightly integrated with education and learning, as well as collaboration in projects and continuous learning with the working life (U16).

UAS's research career path is internationally attractive. Researcher-teachers lead genuinely multidisciplinary research groups, bolstering the research capacity of the UAS (U6).

The strategies outlined a spectrum of tactics to optimise the advancement of targeted RDI efforts and bolster the winning of RDI funding. Strategies articulated the actions reorganising research, research teams and RDI programmes. They included creating multidisciplinary RDI programmes and platforms to encourage collaboration across disciplines, specifying focus areas for RDI and developing plans to incorporate new technologies.

UASs will strengthen and expand RDI and service activities in a sustainable and manageable manner as part of national and international networks (U22).

We form our RDI activities based on research areas that enhance the visibility and impact of UASs' RDI efforts (U16).

The role of companies in research activities is growing considerably. The increasing research work is guided by profiled research programmes that are open to working life and are built together (U6).

### ***Institutional image game***

UASs establish goals to promote their images, employing measures to enhance institutional visibility, secure strategic positions, and attract new RDI collaborations and partnerships. Examples of these

image-enhancing strategies included positioning as ‘the most international UAS (U3),’ recognised as a ‘pioneer and brave developer of working life (U4),’ striving to become an ‘interesting and socially sustainable partner (U22),’ and aiming to be ‘Finland’s leading, multidisciplinary, municipal, and international (U16)’ institution in the competitive landscape.

The following quotes represent strategic image statements that depict the subject as an impactful player within a complex and interconnected RDI ecosystem.

UAS is known for its innovative solutions to societal and global challenges and as an impactful ecosystem player (U14).

UAS is important to society and at the forefront of its operational region’s development (U6).

Below are strategic tactics from three Finnish UASs belonging to university–UAS consortia. They aspire to achieve research player recognition at national and international levels.

The Lapland University Consortium is a nationally and internationally leading actor and pioneer in Arctic research and expertise. It is a community of two universities with specialised competence in Arctic global responsibility, sustainable tourism and future services and distance management (U12).

The UAS profiles itself within the Tampere higher education consortium as an internationally oriented university of applied sciences that serves business and industry. Its profile includes learning in working life and international networks, utilising new technologies, ecological innovations, and socio-cultural challenges (U20).

UAS, in collaboration with the University of Oulu, forms the core structure of the regional common ecosystem, closely connected to other key education and RDI actors. The RDI and artistic activities of the ecosystem, along with the research infrastructure, strongly support the development of the local workforce and provide opportunities for lifelong learning (U16).

Institutional RDI player image tactics highlighted local and regional RDI and the labour market’s needs to drive new partnerships and new RDI cooperation, as depicted below.

The UAS is a new, active and sought-after partner between higher education and working life (U22).

The UAS is a significant development partner for the entire region (U21).

The UAS is an internationally and nationally networked, partnership-committed institution (U6).

The above quotes reveal a strategic image game where the UAS situates its role as a sought-after partner, a significant player in regional development, and a well-connected institution in the complex game ecology. The quotations also indicate UASs aim to shape external perceptions of their organisation and RDI functions, engaging in funding games primarily among UASs while including universities. UASs highlighted their institutional distinctiveness and visibility among all Finnish HEIs. They aspired to attain a prominent status and profile within the HE system, explicitly stating their competition for the RDI player image in their strategies.

## Discussion

As external RDI funding becomes indispensable for UASs’ strategic development, competition among them for funding questions how much they influence UAS players’ and their internal academic players’ behaviour and whether UASs accept divergent externally driven interests (Kettunen 2015c; Pinheiro 2015). For example, in practice, institutional consortia applying for RDI funds through some governmental instruments, such as Business Finland, must include private-sector partners. As UASs intensify their pursuit of external funding and it potentially becomes an end unto itself, inherent game risks must be considered.

The accumulation of external funding to specific HEIs is common (e.g. Teixeira and Koryakina 2013). Statistical data (Vipunen 2023) illustrate four UASs outperformed competitors during the past five years when measuring external funding performance as the volume of external RDI funding per FTE bachelor’s student. A share of 95% of core funding is based on the UAS’ results

in the funding model, and 11% of this funding is determined by the volume of external competition based RDI funding. Thus, UASs' core funding and external funding are closely entwined. This interplay becomes evident in UASs' tactical games, where cooperation and partnerships are strengthened to mobilise RDI activities to generate external funding and additional core funding. A better external funding capacity may also yield various additional externalities, although these externalities are not always quantifiable or readily observable (Kettunen 2015a; Sharrock 2012; Stachowiak-Kudla and Kudla 2017).

UASs demonstrate strategic commitment to their public RDI function. Conversely, the relationship between RDI and teaching remains a strategic challenge within UASs. RDI can become too distant from teaching activities. Another example is evident in staff recruitment. Success in securing external RDI funding has become an increasingly important hiring criterion. An illustration is the establishment of tenure track-type research positions in Finnish UASs. Doctoral and post-doctoral researchers in such positions may prioritise research while viewing teaching as secondary. This individualistic approach to learning among UAS teachers has been observed (Töytäri et al. 2017). Maintaining the reciprocity between RDI and teaching should be a priority for RDI management.

The RDI mission encompasses responsibility for external engagements and contributions to regional development. The unique characteristics of individual UASs are not clearly reflected in their external funding strategies. This critical feature of strategies may stem from several factors, one of which is the prevalent public performance-based funding system. It provides strong incentives to respond to its funding-earning logic. Another reason for a lacking RDI profile could be UASs' young history as HEIs and RDI actors. Finland's oldest UASs were established only under 35 years ago, and RDI activities have been a core task for even less time. Consequently, RDI is still in a developmental stage. Since strategic decisions often involve limited information, benchmarking becomes highly valuable. International cooperation becomes an attractive option for UASs, as it helps identify and strengthen national and regional RDI specialisations. This learning process from other players is considered a fundamental aspect of EGM (Lubell 2013).

Finnish UASs increasingly compete for institutional image and position alongside and against universities. UASs, including those operating under UAS–university governance structures, competitively threaten other universities in securing external RDI funding. In 2022, 12 of 22 UAS institutions reported funding from the Research Council of Finland (known as Academy of Finland until August 2023) a primary external funder of university research. UASs have also been relatively successful in securing funding through EU programmes.

If external funding keeps contributing to core funding, UASs may not have immediate incentives to proactively enhance their identity as RDI players. Correspondingly, a potential externality and future scenario could involve a clearer differentiation between 'winners' and 'losers' in the funding model, where the availability of external funding influences UASs' strategic plans of action and manoeuvrability.

While UASs' operating environments differ, their strategic ambitions for external RDI funding do not deviate significantly. Accordingly, the pressure to respond to and secure funding based on pre-defined performance metrics may encourage players' image conformity, not strategic distinctiveness (Luoma, Risikko, and Erkkilä 2016; Seeber et al. 2019; Teixeira et al. 2014). Minor differences are observable in their goals and plans of action highlighting international funding sources.

## Conclusion

This article is the first to explore which strategic external RDI funding goals and plans of action Finnish UASs articulate in their institutional strategies. As such, this article analyses UASs' strategic ambitions in their dynamic environments that are shaped by national, regional and local policy interests and their competitive funding environments. Consequently, the objectives and action plans incorporated into the strategies are derived from diverse sources, as exemplified in prior research (Firestone 1989). When viewing strategies through the EGM, they mirror funding competition

game (monetary targets) and tactical games (inputs to competition games), while these games are played within the core funding game (Kohtamäki 2023). In this section, we provide concluding remarks based on our findings and analysis.

First, UASs pursued various strategic goals and activities, indicating their game ecologies and UASs' natures as multi-goal players and multi-function institutions (Kettunen 2015b; Kohtamäki 2015; Kyvik and Lepori 2010; Pinheiro, Charles, and Jones 2017; Vuori 2016). External funding stimulates strategic ambitions for various reasons. It is important for gaining financial rewards and minimising potential losses within the core funding game while the UAS players have a strong inter-dependence in this game ecology. This implies that financial success or failure of one player affects the financial outcomes of other players involved in the core funding game. External RDI funding is also a strategic frame of reference of its own. The proportions of UASs' RDI funds have significantly risen, from both public and private sources. UASs design game goals and tactics without external RDI funding portfolio preferences. In the core funding game, all categories of RDI funding contributes to an increase in core funding. Some UASs specify international funding instruments.

Second, UASs operate within a web of interconnected relationships and interactions, aligning with EGM principles (Firestone 1989; Nisar 2015). UASs and their counterplayers compete and cooperate, requiring behavioural heuristics on how to act in these circumstances. UASs strongly emphasise alliance and partnership building (Vuori 2016). Potential externalities originate from such collaborations (Sharrock 2012). Corroborating EGM concepts, players in the system, including UASs, recognise the value of collaborating and engaging with other successful players to enhance their advantages and relative status in funding games (Long 1958; Lubell 2013; Nisar 2015). UASs highlighted the importance of companies, municipalities, universities and international partners to maximise overall opportunities for achieving goals (Benneworth, Pinheiro, and Karlsen 2017; Fumasoli and Huisman 2013; Seeber et al. 2019; Vuori 2016).

Third, no Finnish UASs pursued institutional RDI profiles as their primary external funding goal. Instead, their strategies aimed to gain external funding from various sources, guiding the selection of their measures. Similar to EGM, players make choices based on their stakes in the game. UASs' commitment to regional development mirrored measures integrating teaching and RDI in some UASs such as engaging students with working life projects, creating research career paths and roles for teachers, collaborating with external partners for RDI initiatives and fostering interactive development. Not all UASs prioritise regional development. Instead, their mission may be national or aligned with a role within Finland's HE landscape.

Fourth, five UASs under university ownership, structures which have been established since 2018, highlighted RDI collaboration with universities and the potential access to university research networks which can be leveraged for mutual advantage. Collaboration can provide different disciplinary compositions and additional volumes for RDI efforts to support the acquisition of external RDI funding (Teixeira and Koryakina 2013). It is important to explore universities' potential to cultivate the RDI player capacity of UASs to meet regional and business sector needs. Universities may not necessarily have high strategic interests in regional development (Benneworth, Pinheiro, and Karlsen 2017). A sensible method would be to minimise competitive overlap and foster collaboration between UASs and universities (Seeber et al. 2019).

Fifth, external funding games and related methods are not manageable, with predictable outcomes. However, UASs have designed actions to augment their institutional images to attract RDI partners (and vice versa, utilising partners to enhance one's institutional images). UASs engage in collaborative efforts with partners to expand their RDI initiatives while actively competing for RDI funding and the enhancement of RDI capabilities. Consequently, their approach is not characterised by a singular, unidirectional input strategy. Instead, UASs employ a set of interconnected and multifaceted game strategies and tactics. Linkages between games are loose, with discontinuities between them. Potential impacts eventually accumulate. The literature extensively discusses, for example, the complexity of research impacts (cf. Pedersen, Grønvd, and Hvidtfeldt 2020).

Articulated strategy contents represent the external RDI funding game heuristics of UAS players. UASs' strategies obviously have different meanings and are written for different purposes (Firestone 1989). Each UAS's management prioritises the implementation of strategic measures differently. Thus, the four identified game categories are interlinked diversely for divergent UASs. Further, the UAS' RDI activities need to be both regionally relevant due to their given national mission and legislation, and internationally relevant in order to maximise their potential success in the funding game. UAS' vary in how they handle the balancing of the regional and the global. The EGM metaphor capture these circumstances by explaining how identified game categories are interlinked distinctly for each UAS and by mapping how they ascertained the most fruitful strategic moves based on their positioning in funding games.

Further research is necessary. It is important to investigate whether an 'elite' group of UASs receives substantial external funding, while the remaining UASs struggle without a strong external funding base. When competition is fierce, funding distinctions among HEIs relative to size can increase (cf. Teixeira and Koryakina 2013). Additionally, it is crucial to explore how UASs will address the internal fragmentation or 'siloing' of RDI activities due to more externally funded RDI projects. While strategies are vital, they cannot fully address the multifaceted external funding realities that UASs face.

EGM offers valuable insights into UASs' strategic ambitions and the significance of external funding games for RDI operations. The EGM was helpful in addressing how UASs consider multifocal actions, adapt to different environments and how the core funding system broadly impacts UASs and keep UASs upon interdependent each other. However, it is important to be critical regarding EGM and how much strategies articulate games' nuances and interconnections.

This article recognises its limitations. The UASs' strategies themselves should also be recognised as part of UASs' branding and positioning. While discussing central aims and goals, they cannot be read as decision-making manuals; key game tactics are withheld as trade secrets. Accordingly, strategies do not offer information on how goals will be fulfilled or on the organisational capabilities to operate as strategic actors (cf. Thoenig and Paradeise 2016). This article did not, for example analyse department-level strategies and behaviours in which actual academic work and environmental interactions are conducted.

## Notes

1. Cf. Arene (2019) for mentions of co-operation negotiations (downsizing). Examples of UAS consortia and mergers since 2011 are Lapland UAS (a merger of Rovaniemi UAS and Kemi–Tornio UAS) and LAB UAS (a merger of Lahti UAS and Saimaa UAS). In 2019, the new Tampere University, a merger of Tampere University and Tampere University of Technology, acquired UAS (87% of shares).
2. The number of students (FTE) was taken as a proxy variable for a UAS's size.
3. HUMAK UAS, frequently among these more successful recipients of external RDI funding when adjusted for size, have two campuses in the metropolitan area, and three campuses outside – in Jyväskylä, Kuopio, and Turku.

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No potential conflict of interest was reported by the author(s).

## Data availability statement

Strategy documents are available on request.

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