Ainamo, Antti; Pikas, Ergo; Mikkelä, Kari

University Ecosystem for Student Startups : A 'Platform of Trust' Perspective

Michael E. Auer
Tiia Rüütmann   *Editors*

Educating Engineers for Future Industrial Revolutions

Proceedings of the 23rd International Conference on Interactive Collaborative Learning (ICL2020), Volume 2

University Ecosystem for Student Startups: A 'Platform of Trust' Perspective

Antti Ainamo[1,2]([✉]) [iD], Ergo Pikas[1,2] [iD], and Kari Mikkelä[3] [iD]

[1] Tallinn University of Technology, Akadeemia tee 3, 12611 Tallinn, Estonia
antti.ainamo@taltech.ee
[2] Aalto University, Box 11000, 00076 Aalto, Finland
ergo.pikas@aalto.fi
[3] Urban Mill, Betonimiehenkuja 3E, 02150 Espoo, Finland
kari.mikkela@urbanmill.fi

Abstract. In many universities, a continuum and a variety of startup pre-accelerators, startup accelerators; entrepreneurs, investors, and other support actors, are in place to facilitate entrepreneurship and that student startups emerge. In this paper, we describe how the entrepreneurial ecosystem in and Aalto University works. We describe how Aalto's students explore and develop ideas that exhibit "radical creativity"; how faculty and staff at Aalto nurture a "platform of trust" whereby such ideas are not only allowed but also expected; and how "outside entrepreneurs and investors" from the outside come in to work with the best ideas and startups thus developed. The paper proposes implications for policy and management practice in terms of possible import of this model into entrepreneurial ecosystems in and around other universities and other kinds of contexts, and makes a call for further research.

Keywords: Platform of trust · Radical creativity · Entrepreneurial ecosystem · Platform ecosystem

1 Introduction

In recent decades, student entrepreneurship programs in leading universities have been moving beyond traditional classroom teaching to experiential learning, a proven way to improve students' employment outcomes (see e.g. Simon 1996; Gosen and Washbush 2004). Programs such as Skylab at Danish Technological University (DTU) include university mechanisms to facilitate student entrepreneurship. These mechanisms are on a continuum of involvement from startup pre-accelerators through to startup accelerators; involvement of a variety of entrepreneurs, support actors and investors; changes in the particular nature of the university environment and the external context; and, thus, an emergence of an ecosystem for student startups over time (Wright et al. 2017). In the last 90 years or so, the above kinds of mechanisms and entrepreneurial ecosystems have evolved in and around U.S., U.K. and other European universities.

Students' ideas coming out of the above kinds of programs may be hugely interesting as such but are often immature and less well articulated than those coming from seasoned entrepreneurs (Nolte et al. 2020). To put it differently, to take inspiration from research on economic geography, the students' ideas can be said to exhibit "radical creativity" (Power 2010): naïve and poorly crystallized ideas but involving real or potential seeds of revolutionary innovation, industry disruption, and market transformation

(Xu and Wang 2019; Venkataramani *et al*. 2014). To take one example of radical creativity tracing to a student startup, Rovio Entertainment broke through with its Angry Birds video game in 2009. What was crucial for the success of Angry Birds and industry, and market transformation that followed from its market introduction, was bringing in an entrepreneur and others from outside the university who expected and drove revolutionary innovation not only nationally in Finland, but globally (Ainamo, Dell'Era and Verganti, *in review*).

In this paper, with the foregoing kind of background, we inquire into student startups. We began our inquiry by asking questions such as: How student startups come into being? How students in such startups interact with each other and with entrepreneurs, investors, and other 'non-students'? Is their interaction more associated with one or another industry disruption, with business breakthroughs in neighboring industries, or with global market transformation? How these processes of evolution and emergence perhaps involve entrepreneurs originally from outside the university? We formulated our research question as: 'How and why the roles of entrepreneurial students and external entrepreneurs coevolve over time in a university's entrepreneurial programs and the entrepreneurial ecosystem in and around the university?

Our framework to approach the above questions is based on the concepts of "platform of trust"[1] (Rose-Anderssen and Allen 2008), "platform ecosystem" (Thomas *et al.* 2020), and "radical creativity"[2] (Power 2010). We inquire in this paper into students' radical creativity in the entrepreneurial ecosystem in and around Aalto University, Finland. Here, we pay special attention to students' Aalto Entrepreneurial Society as a linchpin of social relations and key element.

2   Platform of Trust as Departure Point to Study Student Startups

Platform of trust is a concept tracing to sociology and management (Lewis and Weigert 1985; Etzioni 2019). In sociology, research on trust long focused on emotional and cognitive functions and as a deep assumption underwriting social order (Skyrms 2014). Other concepts and topics of interest similarly legitimate included reciprocal exchange, lying, litigation, and monetary attitudes (Lewis and Weigert 1985; Eiteneyer et al. 2019). Based on these foundations in sociology, a 'platform of trust' refers to how human individuals and social groups, as they interact and share experiences in a given context, learn about each other's potential needs, which, in turn, changes their assumptions, and may eventually create a robust foundation for interaction, exchange, and social order (Rose-Anderssen and Allen 2008).

Of late, the concept of platform of trust has diffused also into relative latecomer fields such as the various intersections of civil engineering, management and entrepreneurship research literatures (Singh and Singh 2013; Thomas *et al*. 2017; Laine

---

[1] We thank prof. Olli Seppänen of Aalto University for suggesting this framework as our approach to study the phenomenon of student startups in the Aalto entrepreneurial ecosystem.

[2] We thank dean Tuomas Auvinen for the idea of complementing the platform of trust perspective with attention to Aalto students' "radical creativity".

et al. 2017). When participants in civil engineering construction projects have shared understanding, there is mutual loyalty, employees and managers can rely on one another, a sense of ownership by all prevails, there is collaboration, there is flexibility, proactive participation, and there is willingness to work long hours when needed (Singh and Singh 2013).

Management and entrepreneurial research literatures have found why and how any "platform ecosystem" is "an architecturally open system, orchestrating external resources as providers, producers, and customers" (Thomas *et al.* 2014; cf. Thomas and Autio 2020; cf. Valkokari 2015). In this view, there are three general types of "leverage methods" (ibid.) that any platform ecosystem can employ for purposes of having greater outputs from available inputs than otherwise. The first of the three kinds of leverage methods is "production leverage"; that is, capabilities to access and even recombine shared assets, designs and standards (cf. Nolte et al. 2020).

The second kind of leverage is "innovation leverage"; that is, capabilities to facilitate the creation of new goods and services. Finally, the third kind of leverage is "transaction leverage"; that is, capabilities to access and to manipulate market-pricing mechanism so as to reduce costs of transaction, search, access, and/or friction (Thomas *et al.* 2014; cf. Thomas and Autio 2020).

In the framework of this paper, trust is one key point of departure and foundation for a platform ecosystem. In an ecosystem with a platform of trust, it is possible to transparently share and manage information across process stages and organizational boundaries. There is sense of security and safe reliance so as to assure character, ability and strength, and to assume truthfulness and sincerity of actors in the industries or other fields involved.

3 Radical Creativity – A Complementary Approach

In the Silicon Valley, Kleiner Perkins is a private equity firm that acts investors in the Silicon Valley with a quite different position in the overall ecosystem than does Kohlbert, Kravis and Roberts, another such firm of investors. Kleiner Perkins is specialized to work closely with radically creative entrepreneurs, while Kohlberg, Kravis and Roberts focuses on continuous trading or transaction (Foster and Kaplan 2001).

Within the more general level of Thomas and Autio's leverage methods, at the transaction end of investors in a platform ecosystem, an ecosystem of roles at a more specific level of analysis can thus be imagined: an "architecture of create, operate, and trade" (Foster and Kaplan 2001). Just as each individual, group or legal entity in an innovation ecosystem has innovation based on knowledge outside and inside, as well as possibly cross-pollinating between the two (Hacklin et al. 2009; Valkokari 2015), similar outside and inside roles can be identified when it comes to platforms of trust: a platform of trust inside (Singh and Singh 2013), as well as one outside (e.g. Business Finland 2018). Internal and external interdependent platforms of trust in terms of production, innovation and transaction provide advantage within each platform and across more than one platform.

Power (2010) argues that in an ecosystem with requisite variety in roles spanning across various actors and their various leverage methods, it is more likely than

otherwise that expectations will emerge that allow and promote radical creativity. What matters is the extent that managers of legal entities such as the various kinds of organizations involved in innovation and entrepreneurship have expectations that allow and promote that employees or other individuals and groups engage in radical creativity. In contrast, other researchers than Power have noted that, should diversity be low, the likelihood is that expectations will be in favor of control rather than creativity so that the result at best will be "incremental creativity" at best (Xu and Wang 2019; Venkataramani *et al.* 2017), or more likely, there will be nothing creative or innovative but only "business as usual" (Kaplan and Foster 2001).

4   Data, Methodology, and Research Team

Our phenomenon of interest and data trace to the entrepreneurial ecosystem that has evolved in and around Aalto University since this university was established a decade ago. Our focus is on student startups that have emerged over time; how their processes of emergence and co-evolution have involved entrepreneurs in many cases originally from outside the university; working towards understanding of how and why interaction of startups and entrepreneurs in a particular context may associate with one or another industry disruption, business breakthrough, global market transformation (see e.g. Ståhle and Ainamo 2012; *Valtioneuvosto* 2016), or two or all of the above.

In our data gathering and description of our focal phenomenon, we have begun to document the entrepreneurial programs at Aalto University as multiple cases at more than one level of analysis. These cases will over time be analyzed and compared. But at this stage of inquiry, in this paper, only our intent to do so is flagged.

Our methodology is ethnological and pragmatist. We study the practices and processes of how student startups and the ecosystem that they enter resembles practices and ceremonies particular to how studies in the field of anthropology have found young boys or men or young girls or women go through before they can enter their 'tribe' as more or less fully fledged members.

The cross-disciplinary research team behind this paper makes us well prepared to deliver. Antti Ainamo is professor of international business at Tallinn University of Technology, as well as adjunct professor at Aalto BIZ and adjunct professor at Aalto ARTS, as well as, earlier, a visiting scholar at Stanford University, also working with e.g. prof. Ray Levitt of the Dept of Civil Engineering there, is how he knows Olli Seppänen at Aalto and e.g. Lauri Koskela at University of Huddersfield, as well as in positions at, for example, Swedish School of Textiles near Gothenburg, Peter the Great ST. Petersburg Polytechnic University, etc. He has published in world-class journals. He has also been a visiting professor at Tongji University School of Architecture and Urban Planning. He has ongoing research work with professors Roberto Verganti and Claudio Dell'Era of Politecnico Milan on Angry Birds.

With a Ph.D. from Aalto civil engineering, Ergo Pikas is currently post-doc, working with professor Olli Seppänen at this same department of civil engineering, as well as with prof. Lauri Koskela at University of Huddersfield.

Kari Mikkelä is director of Urban Mill and has a multitude or projects involving Startup Sauna and other elements in the Aalto entrepreneurial ecosystem. He is also a

doctoral student at Aalto SCI Dept of Industrial Engineering and Management. Kari knows the Aalto entrepreneurial ecosystem inside out: the different associations, firms, other organizations, etc., as well as very many of the entrepreneurs involved. A key idea is here to leverage on Kari's experience and data, putting it to new use – that of scientific articles in journals such as *Entrepreneurial Theory* and Practice and *Journal of Technology Transfer* in management.

5   Platform Ecosystem in and Around Aalto University

Student startups in the Aalto entrepreneurial ecosystem have over the years involved not only video games such as Angry Birds (as well as to some extent also Hay Day and Clash of the Clans) (Lehtonen et al. 2019) but also in less obvious industries such as construction start-ups in the field of civil engineering. The latter are representative of rather late blooming in comparison to startups in many other industries and fields, but have expanded not less explosively over the last few years. A lot of start-up money is now poured into startups in the construction industry, too.

According to our seminal findings, the physical campus of Aalto University serves as a space and forum for attracting, pooling, deconstructing, cross-pollinating and recombining shared assets, designs and standards (production leverage). Aalto University has developed an international reputation for innovation and mobilization of students and their ideation and co-creation: Aalto's reputation for these is well recognized all around Europe. The Massachusetts Institute of Technology recognized in 2014 Aalto University as a rising star among universities internationally. By extension and the rules of invisible colleges by which the reputation of a university matters, Aalto is clearly an interesting university not only in terms of startups but how students learn by doing about entrepreneurship. Students and researchers at Aalto learn an entrepreneurial mindset, for purposes of corporate entrepreneurship or social entrepreneurship, should they ever need to do anything entrepreneurial, even if they never even try to start up a new venture. Like primordial hunters, the students are "cool hunters" in chase of "where is the beef?".

Aalto University's strong and growing reputation has been a platform for its entrepreneurship programs in and around its campus. In particular, the role of Aalto Entrepreneurial Society (AaltoES), the student body that is responsible for organizing and staffing the world-famous annual Slush event, has been pivotal. AaltoES has been related not so much to the student startups outside itself as such or to the University itself, but to Startup Sauna, to Design Factory, to Urban Mill, to Maria1.0 and to other units for entrepreneurial startups at the boundary or even outside Aalto University. The communities and organizations at the boundary of outside Aalto are concrete proof of "innovation leverage" by which student startups are crystallized and their creation of new goods and services is provided with momentum by professors, other researchers and lecturer, as well as startup-unit managers, as well as by external funders in and around in the Helsinki metropolitan area innovation policy makers (cf. e.g. Business Finland 2018; cf. Valtioneuvosto 2016). Like primordial gatherers, the professors and other innovation-policy implementors are caretakers of students' ideas, "precious babies" that otherwise might not survive from one semester to the next, when students

come and go, go on skiing trips, party and experience rapid turnover in their relationships in business and social life.

The third kind of leverage in the Aalto platform of trust ecosystem is "transaction leverage". The entrepreneurs at the boundary and/or outside the university manipulate market pricing mechanism, access ways how to reduce friction such as transaction and search costs. To put it concretely, external entrepreneurs 'buy' student startups cheap from the university and sell them 'dear' to investors more distant to the Aalto platform of trust ecosystem than are these entrepreneurs. When an entrepreneur identifies something of value in a start he or has mentored purportedly on a *pro bono* basis, he or she will swoop down and snatch that startup, an individual student or an idea like a mighty eagle from the skies, and carry the startup, student or idea outside campus. In this way, the student or students originally in the role of hunter or predator of cool ideas becomes prey for predators higher in the food chain. It here is worth mention that Peter Vesterbacka, the Aalto-non-student founder in Rovio Entertainment, had "Mighty Eagle" in place of Marketing Director in his business card. But the key is that the student who is preyed upon is a also a winner: he may become entrepreneur or investor himself or herself. The difference between entrepreneur and investors here can be said to be is that investors are more socially and culturally distant to the university and to the student startups than are the trusted-advisor entrepreneurs at the boundary of the university and its external ecosystem context.

6 Conclusion

This paper has outlined research to specify within and beyond the case of student startups in the Aalto platform-of-trust ecosystem three kinds of leverage methods: production leverage, innovation leverage, and transaction leverage. Production leverage is represented by the university campus and the university's students; innovation leverage represented by professor and entrepreneurs at the boundary of the university and its outside, and transaction leverage represented by outside enterepreneurs and investors. These intertwine in the ecosystem. Such an ecosystem requires both radical creativity and a platform of trust. In between, it is expected that "design thinking" is in a key role, including personal and social linkages between human beings and not only e.g. human-computer interaction.

Implications for practice from this paper for civil engineering, entrepreneurship and university-based ecosystems practice include: understand before digitalize; as well as learn to analyze, codify and even to digitalize before you transfer to another industry, location and/or culture for superior returns. Implications for innovation policy and policy research include understanding what may be equivalent roles to e.g. Business Finland in Finland as providers of funding for entrepreneurial ecosystems in other.

A proposition for further research coming out this paper is to study to what extent and why, in the field of higher education, modeling, codification and export of programs for student startups will benefit from unpacking and being understood in terms of their social relations before exported, and from whose perspective. How and why context matters? A more theoretical call for further research is to take relatively good times in and around Helsinki industrial ecology (such as the one in which Aalto

University is embedded) and compare this kind of university-environment dyad with relatively bad times (such as those recently in and around the Detroit industrial ecology in which University of Michigan is embedded) (Huang-Saad *et al*. 2017; wihurinrahasto.fi). When times are bad rather than good, to what extent may a platform of trust be more or less important in producing radically creative ideas and student startups (see Stutz et al., in print)?

References

Business Finland: Platform of trust (2018). https://www.businessfinland.fi/49f090/globalassets/finnish-customers/news/cases/2018/kasvumoottori_info-14122018-lars_alback_tilaajavastuu.pdf. Accessed August 2020

Eiteneyer, N., Bendig, D., Brettel, M. Social capital and the digital crowd: involving backers to promote new product innovativeness. Res. Policy **48**(8) (2019). https://doi.org/10.1016/j.respol.2019.01.017

Etzioni, A.: Cyber trust. J. Bus. Ethics **156**(1), 1–1 (2019)

Foster, R., Kaplan, S.: Creative Destruction: Why Companies That Are Built to Last Underperform the Market – and How to Successfully Transform Them. Currency/Doubleday, New York (2001)

Gosen, J., Washbush, J.: A review of scholarship on assessing experiential learning effectiveness. Simul. Gaming **35**, 270–293 (2004)

Hacklin, F., Marxt, C., Fahrni, F.: Coevolutionary cycles of convergence: an extrapolation from the ICT industry. Technol. Forecast. Soc. Change **76**(6), 723–736 (2009)

Huang-Saad, A., Fay, J., Sheridan, L.: Closing the divide: accelerating technology commercialization by catalyzing the university entrepreneurial ecosystem with I-Corps. J. Technol. Transf. **42**, 1466–1486 (2017)

Laine, E., Alhava, O., Peltokorpi, A., Seppänen, O.: Platform ecosystems: unlocking the subcontractors' business model opportunities. In: Walsh, K., Sacks, R., Brilakis, I. (eds.) LC3 2017 Volume II – Proceedings of the 25th Annual Conference of the International Group for Lean Construction (IGLC), Heraklion, Greece, pp. 177–184 (2017). https://doi.org/10.24928/2017/0325

Lewis, D., Weigert, A.: Trust as a social reality. Soc. Forces **63**, 967–985 (1985)

Nolte, A., Chounta, I.A, Herbsleb, J.D.: What happens to all these hackathon projects? – identifying factors to promote hackathon project continuation. Hum. Comput. Interact. **4**(CSCW2), Article 145 (2020)

Power, D.: The difference principle? Shaping competitive advantage in the cultural product industries. Geogr. Ann. **92**(2), 145–158 (2010)

Rose-Anderssen, C., Allen, P.M.: Diversity and learning for innovation: dialogue for collaboration. J. Manage. Dev. **27**(3), 307–327 (2008)

Simon, H.: The Sciences of the Artificial, 3rd edn. MIT University Press, Cambridge (1996)

Singh, D.K., Singh, S.: Working with JIT requires a flexible approach. IOSR J. Mech. Civ. Eng. (IOSR-JMCE) **5**(6), 24–28 (2013). e-ISSN: 2278-1684

Skyrms, B.: Evolution of the Social Contract. Cambridge University Press, Cambridge (2014)

Ståhle, P., Ainamo, A. (eds.): Innostava yliopisto: kohti uudistavaa yliopistojohtamista. Gaudeamus Helsinki University Press, Helsinki (2012)

Stutz, C., Ainamo, A., Lamberg, J-A.: Counter-clock world: how planning backwards helps in moving forward in collapsing environments. M@n@gement (accepted for publication, in print)

Thomas, L.D., Autio, E., Gann, D.M.: Architectural leverage: putting platforms in context. Acad. Manage. Perspect. **28**(2), 198–219 (2014). https://doi.org/10.5465/amp.2011.0105

Thomas, L.D., Autio, E.: Innovation ecosystems. In: Aldag, R. (ed.) Oxford Research Encyclopaedia of Business and Management. Oxford University Press, UK (2020)

Valkokari, K.: Business, innovation, and knowledge ecosystems: how they differ and how to survive and thrive within them. Technol. Innov. Manage. Rev. **5**(8), 17–24 (2015)

Valtioneuvosto: Startup-yritysten kasvun ajurit ja pullonkaulat. Valtioneuvoston selvitys- ja tutkimustoiminnan julkaisusarja, 30/2016 (2016)

Venkataramani, V., Richter, A.W., Clarke, R.: Creative benefits from well-connected leaders: Leader social network ties as facilitators of employee radical creativity. J. Appl. Psychol. **99** (5), 966–975 (2014)

wihurinrahasto.fi: Testimaasto tulevaisuudelle: tieteiskirjallisuus on ollut Jani Ylä Selle rakas kirjallisuuden laji nuoruusvuosista: tieteiskirjallisuus kuvaa mahdollisia maailmoja. wihurin-rahasto.fi, 24. Maaliskuuta, 2020 (2020)

Wright, M., Siegel, D.S., Mustar, P.: An emerging ecosystem for student start-ups. J. Technol. Transf. **42**(4), 909–922 (2017)

Xu, F., Wang, X.: Leader creativity expectations and follower radical creativity based on the perspective of creative process. Chin. Manage. Stud. **13**(1), 214–234 (2019)