

“NO LONGER THE SPARKLING NEW IDEA”

Anchoring university entrepreneurship programmes in academic, entrepreneurial and regional policy networks

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ABSTRACT

This paper is concerned with what makes a good university entrepreneurship programme (UEP), in particular with which features are necessary to allow UEPs to thrive within university settings. The paper begins from the paradox that UEPs are part of university's extended development periphery, and always risk being eliminated because they do not deliver core university outputs, teaching and research. The paper seeks to understand under what conditions UEPs can thrive, using a case study of one UEP, the Temporary Entrepreneurs Scheme (the TOP programme) of the University of Twente in the Netherlands, which has recently celebrated its silver jubilee, and offers a good example of a UEP which has evolved to continue to meet stakeholder needs. The paper identifies three main stakeholder groups whose needs UEPs must meet, university management, regional economic policy makers, and enterprising entrepreneurs. The paper identifies how UEPs can respond to those three groups needs, and concludes by setting out the ways in which UEPs can meet those needs, providing the basis for a more nuanced understanding of what constitutes a good UEP.

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High-technology networks as a second order development periphery for university entrepreneurship programmes

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SUMMARY

Problem definition

This paper seeks to contribute to a debate in university entrepreneurship programmes about what constitutes a ‘good’ UEP. The paper argues that to date, the efficacy of UEPs has been judged purely on output by cohort and provision of entrepreneurship resources, rather than the long-term sustainability of the networks which the UEPs build up to allow firms to access those resources. The paper seeks to understand under what conditions might universities, which are institutions primarily concerned with teaching and research, might be willing to support UEPs and allow them to operate within their institutional boundaries. The paper seeks to contribute to understanding to what makes a good UEP, and lead to better-designed, longer lasting UEPs.

Theoretical framework

The paper uses a resource-based approach to entrepreneurship (Dubini, 1989, Johannisson, 1989) in which the determining factor for rates of entrepreneurship *ceteris paribus* is access to the necessary resources for entrepreneurship (finance, technology, human capital, managerial skills, premises). Resource access is conceptualised in terms of inter-personal networks and social capital which are exploited by potential entrepreneurs to access those resources given limited time frames to create new businesses. University entrepreneurship programmes are conceptualised as assisting entrepreneurs by developing skills and facilitating relationships which allow entrepreneurs to access those resources, rather than providing them directly to the firms. University entrepreneurship programmes are also conceptualised from a public administration perspective as forming part of universities’ extended development peripheries, and requiring continually rebinding to the core university elements to ensure their survival.

Research questions

- What mechanisms and connections anchor a spin-off programme within the university?
- How can these mechanisms be conceptualised in terms of university organisational theory
- What are the policy implications for university entrepreneurial programmes?

Research Design

The research is based on a case study of a single UEP that has recently celebrated its 25 year existence, the Temporary Entrepreneurs Scheme (the TOP programme) of the University of Twente in the Netherlands. The case study involved an ongoing series of interviews with around 70 actors involved in the TOP programme either directly as starters, mentors and advisers, or indirectly, through its involvement in the wider regional mission of the University of Twente.

Empirical context

The case study explores key crisis moments in the evolution of the TOP programme, and traces how its survival was as dependent on meeting the political needs of university managers and regional policy-makers as it was on providing entrepreneurship resources for new starters. The paper identifies nine variables (three for each stakeholder group) which help to anchor the UEP within the university and ensure its longer term viability. These nine variables provide a means to revisit the way that effective UEPs are considered, and the aims of participants in developing new UEPs.

“NO LONGER THE SPARKLING NEW IDEA”

Building an effective and sustainable university entrepreneurship programme: the case of the University of Twente.

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1. SPIN-OFF COMPANIES’ INSTITUTIONAL ENVIRONMENTS

Innovation is increasingly recognised as a critical factor for economic success, driving productivity growth and increases in living standards (*cf.* Temple, 1998). There is increasing interest in the better understanding the mechanisms which bridge between the knowledge and resource inputs which make innovation possible, and the market and institutional factors which reward successful innovations (*cf.* Cooke, 2005). University spin-off companies have entered the canon along with cluster organisations, science parks, technology transfer offices and open innovation centres as one possible solution to exploit existing knowledge capital, and apply it in novel contexts creating wealth and driving economic growth (Massey *et al.*, 192; Jones-Evans *et al.*, 1999; Pirnay *et al.*, 2003; Chesborough, 2003; Benneworth & Henry, 2004).

This has been paralleled by a rash of research into spin-off companies, seeking to identify under what conditions high-technology businesses can thrive when emerging from universities, evaluating programmes promoting those spin-offs, and developing new ideal-type models for successful high-technology entrepreneurship (*inter alia* Dahlstrand & Jacobsson, 2003; Di Gregario & Shane, 2003; Benneworth & Charles, 2005; Yenken, 2005). Much emphasis has been placed on the evolving relationships between those spin-offs and their parent institutions, observing the development of clusters and networks around universities that create more munificent entrepreneurial environments for future spin-off activities (Rappert *et al.*, 1999; Dahlstrand, 1999; Wicksteed, 2000; Lawton Smith *et al.*, 2003; Elgen *et al.*, 2004; Benneworth, 2007; Zomer, 2010). There is likewise a huge amount of effort within universities to promote entrepreneurship and high-technology venturing activities, creating pathways to help new start-up companies better access resources for entrepreneurship (Potter, 2008).

At the same time, there is a disjuncture between the knowledge about USOs and the policy measures which exist to promote them. The European Commission in particular regularly produces best-practice briefs on regional development programmes, and university spin-off activities are frequently mentioned as something worth promoting. However, the shelf-life of these projects is typically very low, and they have real issues with long-term sustainability, even where they have meticulously followed the recipe for supporting high-technology entrepreneurship around universities. As Dahlstrand (2008) argues “there is as yet no common consensus on the critical ingredients of a well-functioning spin-offs policy” (p. 237), despite a good understanding of what elements a good programme should provide. To begin to identify some of these critical ingredients, this paper takes an alternative perspective, looking at what makes a spin-off programme valuable to a university and therefore likely to continue it.

Obviously one element of that value lies in its creation of spin-off companies, but spin-off creation is a highly politicised notion that creates other kinds of potential value for a university.

The research question we ask in this paper is therefore what are the factors that make a (successful) spin-off programme valuable to a university, and more likely to support its survival? To address this research question, we consider the institutional setting of university spin-off programmes. Clark (1998) placed university spin-off activities within what he called the 'extended development periphery', a set of activities at the edge of the university, which are sufficiently loosely coupled to the core university businesses of teaching and research to acquire their own momentum.

Our hypothesis in this paper is that this 'peripherality' offers both the aforementioned strength, in terms of allowing a parallel set of valorisation knowledges to develop, but also a fundamental weakness, in that the activities are never seen as core university business, and therefore in the long-term, always expendable. Building long-term sustainability therefore requires anchoring those peripheral activities more solidly within the university *without* undermining the flexibility of the peripherality. This is tested with reference to a long-term case study of the TOP programme of the University of Twente, which has recently celebrated its 25th anniversary, and provides a means to empirically explore this concept of institutional anchoring. The paper then concludes by reflecting on the three main research questions.

2. THE PERIPHERY PARADOX IN UNIVERSITY ENTREPRENEURSHIP

This paper is concerned with the long-term survival and evolution of university entrepreneurship programmes (UEPs), and critically an apparent failure of many programmes to thrive despite following the well-understood best-practice recipe for providing necessary entrepreneurship resources. We characterise this as an administration issue, that it is not enough for entrepreneurship programmes to be successful in terms of creating new businesses, but rather those programmes have to support the core missions of universities. Despite increasing emphasis placed on the supposed rise of a third mission of societal relevance and business engagement, universities' core funding remains dependent on two primary processes, teaching and research, and on managing their physical and staff bases. Even in the UK, which has introduced a dedicated third-stream funding mechanism total allocations under this rarely account for more than a few percent of overall income (HEFCE, 2010).

The issue for UEPs is that they are at best tangentially related to these core mechanisms and certainly do not provide enough in the way of income to justify university effort in this area (Potter, 2008). At the same time, Feldman & Desrochers (2003) demonstrate how even where universities seek to prevent spin-offs, universities cannot completely suppress this process. The reality is that universities retain a range of linkages back to their spin-off activities that influence the way that they regard these activities (*inter alia* Dahlstrand & Jacobsson, 2003; Di Gregario & Shane, 2003; Benneworth & Charles, 2005; Yenken, 2005; Zomer, 2010). So our argument is not that spin-offs do not contribute to these core university missions, rather that this contribution is not systematic enough for universities to be able to exploit it with certainty. This therefore makes universities unwilling to support entrepreneurship programmes except where there are external resources made available, and unwilling to continue extant programmes where that funding expires.

Clark (1998) argues that university entrepreneurship forms part of the extended development periphery of the entrepreneurial university. The extended development periphery provides a secure institutional space which allows activities to be encouraged and their benefits harvested in the field of entrepreneurship and business engagement. Peripherality provides an advantage in allowing a decoupling of those transferring knowledge from those generating it, and allowing knowledge to be created which does not have immediate scientific value. Clark's extended development periphery is a solution to the problem of encouraging non-core university activities, giving the universities the certainty that they are not wasting resources on non-core missions, but allowing those that wish to behave entrepreneurially the opportunity to exploit their ideas commercially.

The weakness of this arrangement is that the decoupling process necessary to allow entrepreneurship activities freedom to innovate also runs the risk of detaching the business development office from the university. We argue that the problem of projectisation of entrepreneurship reflects this peripherality – universities naturally support projects as long as there is no direct cost to the institution, but once direct costs accrue, universities no longer provide that support. Therefore universities do not drive entrepreneurship support activities, but react to subsidy opportunities, with the result that there are relatively few long-term spin-off programmes, despite a range of evidence that the interpersonal networks that build up around spin-offs and programmes are a critical part of the resources which programmes provide to potential entrepreneurs (e.g. Cooke, 2007).

Rather than consider spin-off policies and programmes as objective activities seeking to provide resources to allow spin-offs to form, we therefore look at how spin-off programmes fit with the logics of university organisations. Drawing on higher education institutional management literatures, we firstly note the increasing managerialism in higher education in recent years, with increasing marketisation, payment by results and a shift from collegial institutional to top-down managerial forms of decision-making in universities (Slaughter and Leslie 1997, 2001; Barnett, 2003; Bridgman and Wilmott 2007). The issue for universities can be reframed not as whether particular entrepreneurship programmes are better or worse at creating spin-off numbers, but rather how far they help university managers to achieve their particular goals.

This paper therefore seeks to shed some light on the conditions under which spin-off programmes can align themselves with institutional managers' goals, without at the same time undermining the flexibility which peripherality brings, to allow individuals to exploit knowledge in non-academic ways to create valuable new businesses. This raises the question of how can peripheral activities such as spin-off programmes, which create indirect benefits for universities, become anchored within universities, despite not directly contributing to universities' immediate targets. To address this issue, we pose three main research questions:-

- What mechanisms and connections anchor a spin-off programme within the university?
- How can these mechanisms be conceptualised in terms of university organisational theory
- What are the policy implications for university entrepreneurial programmes?

3. METHODOLOGY

To answer these research questions, this paper draws on a long-term case study developed at the University of Twente since 2004, using open interviews undertaken in four waves. The first wave took place in the summer of 2004, and encompassed around thirty actors involved in spin-off activity around the university, including senior university managers, representatives of regional support organisations, spin-off entrepreneurs themselves as well as other companies working with UT. Subsequent waves of interviews were more focused on addressing questions which were not adequately answered in the first round of interviews, as well as keeping the case study of the programme up-to-date. A snowball methodology was used throughout the development of the case study, undertaking repeat interviews and new interviews to address the questions which were raised in the course of the study.

Alongside this primary research, an analysis of local, regional and national economic development strategies, policies and legislation was conducted to explore how successful UT were in persuading others of the value of the TOP process, alongside the extent to which these external supporters provided moral, financial, institutional and other kinds of support. Beyond that, a range of published material about the University of Twente itself, including anniversary books commissioned by UT itself and the reports of the university newspaper, *UT Nieuws*, have been used to prepare the case study. A full list of the secondary material used in this case study is presented in Benneworth & Hospers (2007). The case study itself finishes in 2006, with TOP securing its future by acquiring SKE funding (*qv*). Although there have been other significant developments since then, we do not consider these in a belief that those events are too recent to reasonably interpret, which will in part be a judgement made on the basis of future consequences which are not yet evident.

This paper is rooted in critical realist methodologies which accept that whilst perfect knowledge of a situation is never possible, it is nevertheless possible to develop imperfect understandings which can be used to answer questions posed (Yin, 1994). Moreover, by seeking out regularities and similarities between situations, it is possible to produce 'stylised facts' which are imperfect abstractions but which nevertheless convey sufficient essence of the situation to allow their logical conjunction. This allows larger structural narrative representations of situations to be produced, which can then be interpreted within the developed theoretical framework. In this paper, particular care has been taken in developing the stylised facts and structural narrative to avoid over-imposing authorial structure. The three critical moments in the life of TOP have been chosen on the basis on the balance of both what interviewees reported as well as what seemed reasonable in terms of their arguments and what was known about the situation at that time.

4. THE UNIVERSITY OF TWENTE AS AN ENTREPRENEURIAL INSTITUTION

This paper uses the University of Twente (UT) case because since 1984, UT has developed and promoted an entrepreneurship promotion programme which has been acknowledged as successful both in its own terms but also in securing the longer-term survival and development of the university. UT is located in Twente, in the east of the Netherlands; the region of Twente was relatively remote from the Netherlands' main economic centres and Twente's industrialisation did not begin until the formation of the Kingdom of the Netherlands in 1830 (Brouwer, 2005). In the wake of WWII, Twente's textiles industry faced the full brunt of international competition

from low-wage cost producers, and began a long-term sectoral decline from which it never recovered.

In 1951, a Foundation formed led by the largest textiles firm's CEO (Ten Cate) to lobby national government for a regional university to help them adapt to the demands of post-war markets, whilst the Twente textiles industry went into decline, steadily shedding around 1,200 jobs a year (from a 1950 level of 80,000). By 1957, the Dutch government decided to create a third technical university, in 1961 in the city of Enschede. The *Technische Hogeschool Twente* (THT) opened its doors in September 1964 with a clear mission to revitalise the ailing textiles industry and reverse the region's general economic stagnation.

Creating THT failed to address textiles' deep-seated structural problems, which continued its steady decline (Van Lambooy, 1995), whilst failing to recruit a sustainable level of students for its innovative course. In 1977, a parliamentary question asked whether THT's government grant would not better be spent on other more successful universities, and so THT began a decade of reinvention to avoid its closure, creating a more visible profile for its education, and improving its contribution to regional industry. A transfer office was created in 1978 to help businesses seeking advice of information from their professors. In 1984, THT launched the Temporary Entrepreneurs' Position (TOP, *qv*) funding, mentoring and supporting graduates to develop a business idea. The programme exists today and continues to result in around 20 new companies a year, as part of a wider portfolio of programmes exploiting university IP.

4.1 TOP and UT: the entrepreneurial university

The conventional story told of TOP is as an entrepreneurship programme providing key resources to potential entrepreneurs interested in establishing a high technology business linked to a UT research group (*cf.* Van der Sijde *et al.*, 2002a, 2002b). Its origins lay in one particular professor's interests in commercialisation. Harry van den Kroonenberg was active in energy research and noted in the late 1970s that a number of his masters' students had formed businesses after graduation using ideas developed through their masters' research. Van den Kroonenberg became UTs' Rector Magnificus in 1979, but remained fascinated in these graduate businesses, recognising that they could contribute to strengthening UT's regional economic contribution and media/ government profile.

In the early 1980s, the then-president of the university saw a story in the regional newspaper, concerning a new business consultancy (Van der Meer and Van Tilburg or VVT), realising that consultancies had a potentially greater regional contribution than manufacturing businesses, because they were selling university knowledge about business to their clients, and directed these consultants to Van den Kroonenberg, who subsequently commissioned VVT to study UT's graduate businesses. This study which caught the Ministry of Economic Affairs's attention, and they commissioned two further national level spin-off studies of universities and public laboratories respectively from VVT.

These two studies identified the support pillars necessary to support university entrepreneurship, namely a single university contact point for entrepreneurs, funds for writing a business plan, mentoring for the new entrepreneur, a meaningful link with a research group and university-level business training. MinEZ funded all 14 Dutch universities to establish experimental spin-off programmes; UT used the funds as a personal loan to the entrepreneurs, with repayments

creating a revolving fund. Since its inception in 1984, TOP has produced around 15 companies per year (see table 1 below).

Table 1 The rate of formation of TOP companies by Rector Magnificus 1984-Apr 2008

Rector Magnificus	Duration of term	TOP companies per year
W. Draaijer	1984-85	9.5
Harry van den Kroonenburg (II)	1986-88	17.7
Jos de Smit	1989-1992	14.7
Theo Popma	1992-96	18.2
Frans van Vught	1996-2004	16.6
Henk Zijm	2005-	13.9**

Source: authors' own calculations

TOP provides the other elements of the support pillars as well as the funds, with applicants proposing to establish a new company to work with a university professor: that proposal is evaluated by a committee. Approved proposals are entitled to a loan (currently €20,000) guaranteed by the entrepreneur to fund their first year in business, to develop a business plan for their idea, prove the concept, and begin generating revenue phase. The scheme provides physical space (within the research group), a business mentor (often a former TOP alumnus) and formal business training through UT's Business faculty.

5. THE SHIFTING SANDS OF TOP

The story of TOP given above has been widely published and disseminated, and its apparent simplicity has led to many unsuccessful attempts to copy the programme; indeed, of the 14 Dutch universities who received spin-out funding, all but UT abandoned the idea after exhausting those funds. In the intervening quarter-century, a number of institutions have created and abandoned other spin-off promotion activities. Despite celebrating its silver jubilee in 2009, TOP has faced a number of serious challenges to its survival; responding to those challenges has forced changes to TOP better. Those challenges, UT's responses, and the evolving TOP programme allow better understanding what constitutes a 'good' entrepreneurship promotion programme from a (university institutional perspective).

TOP was created at a time of general academic hostility to university commercialisation, but its early demonstrable success convinced many of its wider potential applications. Part of its success has been this allure promising greater future returns, and there has been a continual tension between extending the concept in some manner, and ensuring that the programme continues to deliver a steady stream of companies. These tensions have become particularly acute at three moments in the life of the programme, and in the following section, we set out how those problems emerged, how they were resolved, and the impacts that this had on the nature of TOP:-

- The end of the Ministry of Trade & Industry subsidy
- Cost-cutting, internationalisation & the *Transferpunt* crisis
- The end of ERDF subsidies and a recalcitrant Province

5.1 The end of the MinTI subsidy

The first crisis that the programme faced was the exhaustion of the initial subsidy provided to run the programme. In 1984, the Dutch government made a five year, *f*.2.5m grant to all universities to establish Industrial Liaison Offices (ILO) and promote spin-off activity¹. UT began by providing one year grants of *f*.36,000 (€18,000) to the entrepreneurs, but the MinTI funding reduced by 20% each year, so the fund rapidly exhausted. UT switched from a grant to a loan, with loan repayments going back to the university, providing TOP with financial stability. There were 74 companies formed in these five years (one below target) and the establishment of the revolving fund meant that there were resources available to invest in the next wave of companies. The ILO manager bid for follow-up European Social Fund subsidies to top-up this revolving fund², and its financial as well as project success made its continuation relatively straightforward.

It could be argued that the decision to develop the revolving fund was the reason that the project outlived the grant period. When the government grant expired, all 14 Dutch universities considered whether subsidising graduate entrepreneurship was a sensible use of their core grant; 13 universities, with the exception of UT, decided to close their technology transfer offices. This was underlined by a national decision not to renew the grants to universities, following a very poor programme final evaluation. Following that evaluation, the government instead opted to create a national network of small firm innovation brokers (Syntens) to help firms access university knowledge.

That argument obscures the programme overhead and running costs, considerable sum in the context of an annual *f*. 500,000 grant. Each programme pillar incurred costs, including Transfer Office staff, the entrepreneurs' laboratory bench fees and administrative services, and educational costs. Whilst the other universities had to create their office from scratch, UT's *Transferpunt* had already been operational for five years on a very limited budget, building close links to the professors and developing a database of regional companies interested in innovation. The extra MinTI funds for an ILO and hence TOP consolidated existing infrastructure, whilst other universities were both trying to build new infrastructure and deliver commercialisation services from the single grant.

The overhead was a consequence of the commitment of university senior managers to TOP, who positively decide to retain the *Transferpunt* and TOP when the MinTI funds expired in 1987. By this point, Van den Kroonenberg had retired as Rector but in 1985, a new board member assumed the responsibility for engagement activity, and believed TOP to be attractive device for policy-makers which could help win other funding streams which would both serve UT's regional mission. Schutte was highly supportive of the *Transferpunt* and helped to ensure that the ILO and TOP survived, whilst the university as a whole never made a financial loss in this period.

5.2 Cost cutting and the end of Transferpunt

Although the Board were supportive of the activities, they were also insistant that UT was not willing to subsidise the *Transferpunt* in the long term. TOP offered a means to win further subsidies cover *Transferpunt*'s fixed cost base. As an extended development periphery *pur sang*, *Transferpunt* was extremely vulnerable position, as not all professors accepted the validity of commercialisation. Budget pressures in the early 1990s forced managers and the board to

closely scrutinise *Transferpunt* costs, and in particular to eliminate costs which were not directly contributing to core university missions. At this time, the university was forced to react to a government commitment to concentrate funding on excellent institutions, and the board of 1992 expended much energy in developing an institutional response to this challenge.

At this time, TOP's success was becoming internationally acknowledged, with Van der Meer & Van Tilburg undertaking an increasing amount of paid consultancy to transfer the model into other situations. At the same time, the *Transferpunt* were being pressured to generate income³, and consultancy filled this financial hole. The *Transferpunt* became involved in a number of entrepreneurship promotion projects where novice entrepreneurs could establish new businesses. In some cases, these were university activities in other regions, with *Transferpunt* staff provided a training service. However, they also became involved in projects in other subsidised settings, including former Dutch colonies.

The *Transferpunt* increased in size, and a new director was recruited to manage this process. Pressure to generate income saw *Transferpunt*'s focus shift towards developing subsidy proposals, whilst TOP represented a drain on *Transferpunt*. Firstly, a number of university professors questioned the appropriateness of the *Transferpunt* (a service organisation) undertaking quasi-research activity in contexts far removed from their primary role of supporting UT's commercialisation activities. Secondly, a substantial deficit emerged in *Transferpunt*'s accounts, and it was rolled into Liaison Group, responsible for all UT's external relationships, from recruiting international students to the University Press⁴. Thirdly, the TOP Spin International (TSI) Foundation was formed in 1995 to take over activities more peripheral to university interests, such as the colonial entrepreneurship activities, involving VVT. This brought TOP back to its basics and removed its from its reliance on internal university subsidies whilst retaining the networks and expertise of the original TOP staff.

5.3 The gap in the subsidies (2002-06)

In 2001, the university decided to disband the Liaison Group with TOP activities merging with a Professorial Group to form the NIKOS research group, and as shown above, the flow of companies into the scheme continued unabated at around 16 annually. At this time two new university managers assumed their post, both supportive of TOP, because of its external profile, and the potential to use TOP to persuade external partners to invest in the university to help it improve its commercialisation outcomes. This external value was very important for ensuring TOP's survival of TOP during the third crisis, in 2002 when the European subsidies underwriting TOP expired. The university board agreed to fund the programme from internal funds, but the past experience of the TOP managers suggested to them that this funding source was not sustainable in the long-term. The programme economised to reduce its costs: in the shift from the guilder to the euro, the loan was cut from *f.* 3000 per month to €1000, whilst participants were charged €2500 from their loan to cover the research group premium.

At the same time, the Provincial Government became very interested in innovation policy, specifically responding to a national decision to focus regional development funds upon investment in innovation excellence. The 2003 Provincial Coalition accord set aside €5m to develop a provincial innovation strategy. The Province was already aware of TOP, and realised that TOP could fulfil this rubric of "innovation excellence". The Province were therefore very keen for TOP to continue; over the course of 2003-04, a number of civil servants wrote TOP into a number of key regional strategies for Twente.

TOP also came to the attention of national policy-makers developing the national economic development strategy *Pieken in de delta* ('High points in a low country'). TOP and the Business and Science Park in Enschede were named as a science part of strategic national significance, a model on which two other strategic science parks would be based, to exploit Leiden's medical school and Delft's engineering strengths in the university and the TNO headquarters⁵. *Pieken's* vision for the east of the Netherlands was 'making use of knowledge concentrations', clearly referring to TOP as a vital means of achieving this.

University managers quickly realised that TOP provided a useful lever for accessing external resources, underlining that TOP was also a means of winning more resources for the university if a way could be found to increase the scale of the TOP activity. Central management support provided time to identify new subsidies to maintain the programme. The *Stimulering van Kennis Exploitatie* (SKE) *regeling* (Stimulating knowledge exploitation rule) provided funds to the university to help high technology starter funds after 2006. SKE required a set of programme changes, with independent service providers (accountants and banks) in the evaluating commissions, and helping the new firms to establish their financial systems. The size of the loan was increased €20,000 over the TOP year, with the charge for using university premises replaced with SKE providing a contribution to UT for running TOP.

6 INSTITUTION CRISIS MANAGEMENT STRATEGIES

Over the course of its life TOP experienced a number of critical turning points, and in reacting to these pressures, there were a series of changes to the programme which did not represent efforts to improve the way that resources are provided to entrepreneurs. These changes have instead been an attempt to ensure the survival of the project within the institutional setting of the university. In response to a set of **external** pressures (viewed from TOP's perspective), withdrawal of subsidies, a shift in university interests, and competing demands on university resources, the emphasis has been on survival. These pressures are both external to and derived elsewhere within the university. At the same time, there has been an **internal** evolution of the programme, as those involved with TOP have developed their own knowledge, and expressed that knowledge academically, about the business of spin-off creation.

The internal evolution has been well-documented elsewhere, but what is notable is that at least part of the evolution has been externally driven. Because the programme remains a subsidy activity, the development of new models has relied on finding new sponsors willing to experiment with new approaches, for example Rabobank for *Kansrijk Eigen Baas* and the Province for VentureLab⁶. This reflects the simple requirement for the TOP programme to acquire its own to ensure its own survival. But looking at the story at each of the three crisis moments, there has not been a simple iterative interplay that TOP has evolved to meet the needs of external sponsors, it has also evolved ensuring that it remained a university activity, which has driven a set of changes which are again not directed to improving the provision of entrepreneurship resources (except in the broadest sense of ensuring the project's survival).

One example of this being its anchoring within a professorial research group in 2001, to create a hybrid group, and from that moment, changing the TOP character from being a pure entrepreneurship promotion programme to also being a laboratory for entrepreneurship research. From the preceding narrative, we identify that the TOP programme has adopted three 'anchoring' strategies to ensure its retention within the institution of the university, and at the

same time these strategies have also changed the nature of the programme without regard for the provision of entrepreneurship resources. The three anchoring strategies are:-

- Staying light-touch, closely focused on promoting university entrepreneurship,
- Ensuring the programme was accepted as central to university missions, and
- Building wider political support for the activity, ensuring that others within the university appreciate the value of the continuation of the project.

6.1 Retaining a close focus on the main task of promoting entrepreneurship

The first anchoring strategy, which is necessary but not sufficient for the programme's survival, has been to be successful in terms of supporting entrepreneurship in Twente, whilst at the same time being unobtrusive, as one interviewee described it "as lean and mean as possible" with as few people involved as possible to reduce the visibility of its cost to the university. This anchored the programme within a **wider entrepreneurial system space**, from which, as we show in Table 1 above, around 15 to 20 companies emerged annually. From the outside, that might appear as a well-functioning process, but it can also be considered as an entrepreneurial ecology, where entrepreneurs sought a range of resources necessary to create new high-technology start-ups.

We would highlight a number of different elements to this entrepreneurship system anchored around the TOP. Firstly are the consultants involved with the TOP programme although not formally employed by the university who provide the dynamism in the system. The second is the role of former TOP alumni in providing mentoring, finance, material and moral support for the development of the programme. Thirdly are a number of networks that emerged around the TOP programme, such as the Twente Technology Circle (TKT), originally created to help small firms sell to large businesses but which now has a small firm networking role. Fourthly is the increasing availability of informal, angel and venture finance provided by serial regional entrepreneurs known to the key TOP consultants and animateurs.

This entrepreneurship system could be conceptualised as part of the university's extended development periphery. However, so many of the activities were at such a remove from the university itself, and indeed not within university control, but negotiated by inter-personal contacts from those involved in the programme, that the extended development periphery idea seems inapplicable. One way to think of this might be as a 'second order' development periphery, connected to the university's extended development periphery, but anchoring a much wider regional entrepreneurship system to the university. This second order anchoring meant that those individuals in the system do not have to be university employees, which reduces the problem of trying to find ways to engage staff who do not have competencies which fall within traditional university job descriptions. At the same time, those individuals within the university system do have to fit, making the success of the system at least in part dependent between how core and peripheral TOP staff are able to negotiate their contacts and relations.

6.2 Remaining central to core university missions

Although the three crises were very different in nature, each reflected the complexity and fluidity of the environment within which universities operate (*cf.* Slaughter & Leslie, 1997; 2001). At each point, the TOP team faced a tension between developing something 'innovative' as an

iteration of existing activities, and consolidating those existing activities. Central to this conundrum was the fact that in these cases, the innovations were not demand-led in the sense of improving the accessibility of resources to entrepreneurs. One interviewee noted the pressure that this created, to innovate in terms of the programme in a way that distracted from the business of entrepreneurship.

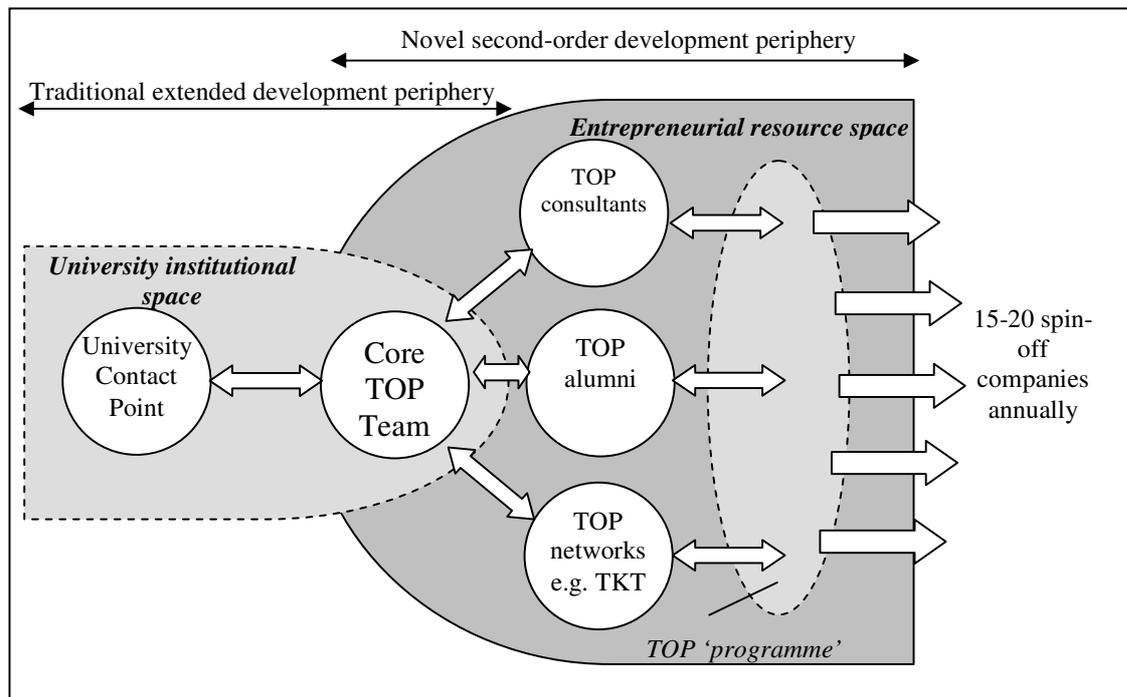
“It is always the case with new activities in the long run, that people become accustomed to them, they see that there is nothing new. It is always a difficulty with innovation and entrepreneurship programmes, you are tied into the same system, and that’s no longer the sparkling new idea. The only solution is that you always should support new young entrepreneurs.”

A core strategy explicitly pursued by the TOP team was to ensure that TOP contributed to what was important to the university at each moment, *viz.* underwriting the regional mission in the 1980s, helping to win subsidy programmes in the 1990s and forming part of a wider bid for public support in the 2000s. Part of this has been directly contributing to the primary purpose of the university, creating linkages to companies to facilitate placements in business administration programmes, involving alumni in teaching activities and as users for applied research proposals. However, and arguably more important, was that TOP retained (or reinvented) its position as something that university senior managers talked about in describing the university to third parties, as proof of the university’s entrepreneurial character.

TOP can be considered as a gateway to a set of external resources beyond the university but which are still of value to the university. These are depicted in Figure 1 below: a stylised reading of this could be that there is a TOP institutional space quite separate from the university institutional space. In order for the university to be able to claim the outputs from the TOP institutional space (which became important in terms of meeting the demands of external stakeholders upon the university), the university developed an interface from its core institutional structure to the TOP programme. In the 1980s, this was via *Transferpunt*, which was seen as being a key element of delivering its regional mission and ensuring its survival, in the 1990s, it was associated with internationalisation, and in the 2000s, with research excellence. This anchored TOP in the **academic institutional space of UT**, ensuring permission for its continued existence.

We bring the first two anchoring processes together in figure 1 below, which show how the TOP institutional space functions as a second-order development periphery to the university. The Core TOP team is loosely coupled to the university contact point, *Transferpunt*, Liaison Group or NIKOS, and in turn, the TOP team are loosely coupled to a set of actors in this wider entrepreneurship system. This wider entrepreneurship system in turn provides the main business resources necessary for new firm formation, with individuals having contacts with the main university research groups entering the TOP programme and emerging as new high-technology small firms.

Figure 1 The entrepreneurship programme as gateway to wider entrepreneurship system



6.3 Building wider sustainable political support for the activity

The third final anchoring strategy has been the development of wider political support for the entrepreneurship programme to support it during moments of crisis. TOP was supported internally for much of its history, as outlined above, as TOP activities fitted with the evolving university goals. The strategy involved trying persuading external partners to become champions of TOP. This was pursued by generating publicity in the early days through media appearances, more recently by publishing reports and documents, winning subsidy projects and finally most recently, developing larger visions for promoting entrepreneurship in the poor entrepreneurship environment of the east of the Netherlands. This anchored TOP in the **economic development policy space** of the east of the Netherlands, and made it a feature of those policy networks allocating resources to activities, ensuring its continued subsidy support.

The anchoring that this provided was to reduce the impact of external pressures on the university to divest themselves of the TOP activities. The university had a number of substantial financial crises in the period under examination necessitating reductions in expenditure. The fact that the TOP programme was externally supported encouraged the university senior managers to continue the programme of activity (this process is documented to a greater extent in Benneworth & Hospers, 2007). This in turn meant that the TOP programme had to be responsive to the needs and demands of a set of external stakeholders, in return for their support, which also supported the sustainability of the TOP programme within the university.

It is important not to portray this as the TOP and external organisations having worked together against the interests of the university. Rather, what happened was that a number of third parties – notably the Province and the Ministry of Economic Affairs – wanted UT to increase its overall

economic output and impact for the region. The university and these external bodies were able to agree that the TOP programme was an important mechanism for delivering this economic impact, and therefore this reinforced the anchoring of the programme within the university as a whole. As part of this process, and after the events described in this paper, the university's new estate development process, the so-called *Kennispark*, was described in a Ministry of Economic Affairs expert report as one of the three most important science parks and knowledge exchange areas in the Netherlands (BCI, 2010).

7 ANCHORING SPIN-OFF PROGRAMMES IN COMPLEMENTARY COMMUNITIES

These three anchoring processes provide an alternative means of conceptualising positive qualities of UEPs, not only in terms of the access they provide to entrepreneurship resources, but how they anchor the programme within key networks. One way to represent the previous discussion is to regard the entrepreneurship programme as being a point of anchoring between three separate spaces, the academic institutional space, the regional entrepreneurship space, and the economic development policy space. It appears from this case study that good entrepreneurship programmes fit effectively within those spaces and thereby ensure their own survival and the continuation of the access to entrepreneurship resources which they provide.

The way the programme is anchored in each of these three separate spaces is shown in figure 2 below. In figure 2, we distinguish two key elements of the entrepreneurship programme team, there are those who are more academic facing, and there are those that are more oriented towards entrepreneurship. The way those two elements hang together as a single unit appears to be a critical success factor in allowing the entrepreneurship programme to fit into these different spaces, each of which having their own particular requirements and logics.

The university institutional space has a **logic of survival**, not producing a deficit, and producing sufficient outputs to secure the resources necessary for its survival. The entrepreneurship resource space has a **logic of growth**, putting entrepreneurs into contact with resources to create new businesses which potentially produce profits for those involved. The economic policy space has a **logic of visible success**, spending taxpayers' money in ways that are accountable but also create successes for politicians seeking re-election and to inspire new political ideas.

Each of the two groupings of the entrepreneurship programme are involved in different ways with the two different spaces. The main grouping active in the university institutional space is necessarily the academic side of the entrepreneurship group, in this case because they are the only ones either formally represented or who are able to contribute to core university goals, in terms of producing publications and delivering teaching. Likewise, it is mainly the entrepreneurship facing elements who are active in the entrepreneurial resource space, helping to create linkages between entrepreneurs and those with the resources entrepreneurs need to create and grow their high technology businesses. Both groupings are involved in the economic policy space, because on the one hand, the university is a significant actor in its own right in this space, and on the other, because economic policy-makers are ultimately concerned about improving access to innovation resources. The involvement of the different actors within the programme, and the different anchoring processes, are summarised in table 2 below.

Figure 2 TOP 'loose coupling' three elements of Twente's high-technology system

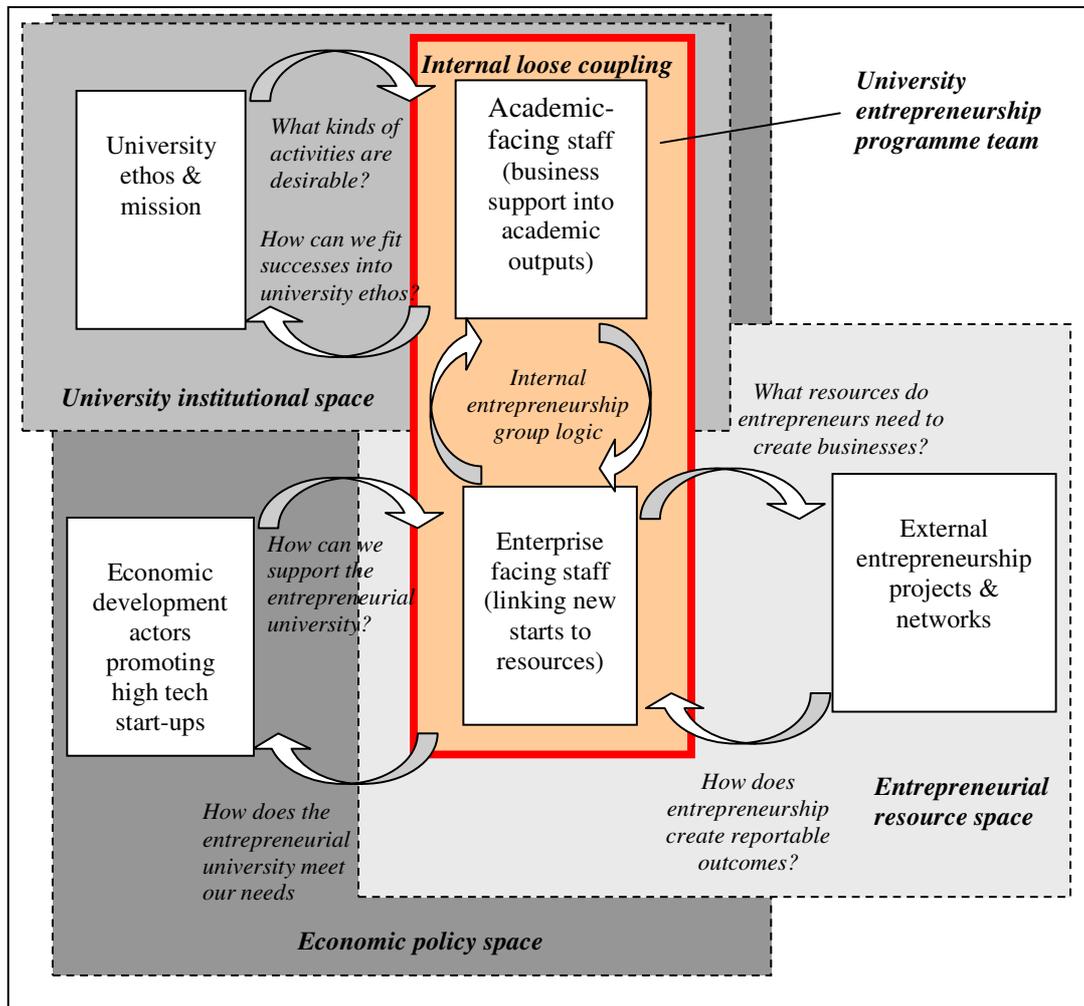


Table 2 Anchoring processes for the Twente entrepreneurship programme

[Table 2 goes about here]

8 CONCLUDING DISCUSSION

This paper has sought to respond to Dahlstrand's call for a better theoretical and empirical understanding of what constitutes good spin-off programmes, and trying to understand this not just in terms of making resources for innovation and entrepreneurship available to would-be entrepreneurs, but also allowing the networks by which those resources are made accessible to endure by anchoring them around the university. In this case study, we explored one entrepreneurship programme, the TOP programme, and explored how it has evolved over the quarter century of its life. What is clear is that that evolutionary process was as much driven by the need to configure the programme to a range of stakeholder interests. High-technology small firms are only a comparatively small component of those stakeholders whose interests must be balanced, although it is not clear from the research if this was a result of the programme's

success meaning that their needs were already well met, and they felt no need to vocally articulate their interests in the programme.

In this paper, we identified that there were three key stakeholder groups whose interests were material in the negotiations and developments by which the entrepreneurship programme was anchored in the university.

- High-technology small firms seeking to form around the university, and it is assumed they were reasonably satisfied given the comparative overall success of the programme.
- University senior managers, a small group evolving over time, who needed to be convinced, both negatively, that the programme was not a cost to the university, but also positively could deliver extra resources for the university.
- Regional economic development policy community in the east of the Netherlands, Overijssel and the Twente region, whose interest was in supporting proposals which harnessed high-technology entrepreneurship around the University of Twente to improve these regions' competitive performance.

In table 3, we summarise for each of those three spaces within which the entrepreneurship programme was articulated the logic governing success in that space, the positive programme qualities which supported program continuity, and the key actors within the programme responsible for delivering those stakeholder benefits.

Table 3 Positive programme qualities for anchoring UEPs

	Academic university space	Entrepreneurial resource space	Regional economic development space
Logic	Survival of university	Growth of businesses	Successful policies
Key actors	Academic facing	Enterprise facing	Both academic and enterprise facing
Positive programme qualities	Tying internal experts to the university centrally	Emphasising match-making and signposting	Creating visible projects and outcomes, supporting new science parks
	Diversification and winning new opportunities	Proposing stream of new support activities	Applying methodology in new settings; <i>Kansrijk Eigen Baas</i> , <i>Venturelab</i>
	Generating good news stories for university/ TOP	Working with existing entrepreneurs on new project ideas	

Part of the anchoring comes through the partitioning of the extended development periphery into two elements, internal and external to the university, with the TOP programme having elements on either side of that internal/ external divide. This second-order development periphery, the regional entrepreneurship system, helping entrepreneurs access firm formation resources, is of no interest to the university, but indeed to regional entrepreneurs and policy-makers, and therefore of a second-order interest to the university, providing that the academic facing elements of the programme can be successfully maintained within the university.

This is a case study of a single, and arguably exceptional, example of a UEP in terms of its longevity, volume of outputs, and returns to investment by policy-makers. Caution must therefore be exercised in seeking to draw more general conclusions about the anchoring of UEPs within their university settings to guarantee their long term survival. However, the case of the TOP programme demonstrates how what determines the success of an entrepreneurship programme is not exclusively restricted to how successfully the programme provides entrepreneurs with access to innovation resources. It is also dependent on how effectively the programme can anchor itself within the university, and also the extent to which the programme is valued by other external actors. This case study suggests that more research is needed into the relationships between UEPs as organisations and their host institutions.

There are also some interesting policy implications for those seeking to support start-up and spin-off programmes, which is that more thought needs to be given to the wider political context within which those programmes are being created. This implies that the most successful start-up and spin-off programmes will be those that are constructed to clearly meet the needs of a range of stakeholder groups. But stakeholder interests evolve over time, and a second important element of this case study is the need for flexibility by those programmes, to allow them to evolve in response to changing stakeholders' needs. The third element is the importance of the people that negotiate and mediate those networks; for both academic and enterprise facing programme staff, there is a need to have the ability to deal with multiple communities. For academics, the university and policy-makers, and for enterprise facing staff, policy-makers and entrepreneurs. Good entrepreneurship support programmes should therefore have the personnel and personnel systems to retain staff that work well with different communities and with one another, to provide the loose-coupling necessary to ensure the entrepreneurship programme retains its privileged place amongst the various interest groups.

This paper has sought to respond to Dahlstrand's call for a better theoretical and empirical understanding of what constitutes good spin-off programmes, rather than what high-technology small businesses need from those programmes. This paper has emphasised the importance of ensuring that there is a positive institutional setting for those programmes, allowing the networks which provide access to those resources to build up, and the programmes to maximise their potential. This implies that more research is needed to understand different kinds of institutional settings for UEPs, to develop institutional typologies and identify which kinds of entrepreneurship programmes work best within which kinds of institutional settings. This will allow a more nuanced tailoring of programmes to what will work best within particular contexts, and hopefully allow in the future more university entrepreneurship programmes to be celebrate their own silver jubilees.

Table 4 Anchoring processes for the Twente entrepreneurship programme

Anchoring process	Key actors involved	Network within which anchored	Key stakeholder entrepreneurship programme needs	Programme response/ positive programme qualities	Costs & benefits for entrepreneurship programme
Academic university space (logic of survival)	Academic facing	Central university decision-makers balancing missions and resource allocation	Prudent use of resources (not wasteful) Supports core missions (teaching & research) Generates additional funds (third-stream)	Tying internal experts to the university centrally Diversification and winning new opportunities Generating good news stories for university/ TOP	+ : maintains knowledge-intensive allure of link to university base - : distraction in generating alluring new ideas rather than network-building
Entrepreneurial resource space (logic of growth)	Enterprise facing	Network of regional entrepreneurs and support organisations assisting firm start-up	Navigating messy/confusing support network. Outputs of TOP creates entrepreneurship resources Academic perspective creates value perception	Emphasising match-making and signposting Proposing stream of new support activities Working with existing entrepreneurs on new project ideas	+ : builds up regional network of resources for high-tech entrepreneurs - : risks turning programme into a business support activity, losing hybridity
Regional economic development space (logic of visible success)	Both academic and enterprise facing	Policy network including university, experts, province, plus EZ view of role of Twente nationally	Creation of new high-technology businesses Creation of new employment Creation of new policies and buildings to launch.	Creating visible projects and outcomes, supporting new science parks Applying methodology in new settings; <i>Kansrijk Eigen Baas</i> , <i>Venturelab</i> ...	+ : helps to build TOP into university physical fabric as 'experiment' - : risk of political change leading to later stranding of TOP idea.

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¹ The proposal emerged from a report written by Professor Burggraag (Delft) for the Ministry of Technological Innovation on how universities could contribute to a new Dutch innovation policy. Professor During of UT was secretary to the Burggraag group, and worked with Van den Kroonenberg at UT to ensure that the funds were spent on the establishment of TOP.

² The ESF subsidy was particularly attractive because it was linked to the number of participants in the programme, and financial engineering meant that more participants meant more profit for the university.

³ In this period, one interview said that he believed that they needed to be covering 50-60% of their total cost from consultancy work in order to keep the office, and TOP, running successfully.

⁴ This process was managed by an interim manager who came in with the remit to make *Transferpunt* 'profitable' (defined as covering 50% of its costs) and helping staff to win external (provincial and European Regional Development) funding.

⁵ TNO (*Nederlands Organisatie voor Toegepast Natuurwetenschappelijk Onderzoek* or the Dutch Organisation for Applied Technical Research) is the Dutch national applied research organisation, with its headquarters in Delft; it receives core scientific funding from the Dutch science ministry (MOCW) and invests that in research projects in the immediate pre-commercial phase. TNO employs around 5,000 employees of which around 4,000 are researchers.

⁶ *Kansrijk Eigen Baas* was a project in a neighbouring rural region which was based on creating companies formed by teams from unemployed people, and was sponsored by Rabobank Oost-Gelderland. *Venturelab* is a project currently running at the time of writing, which provides coaching for entrepreneurs with an idea for a high growth business idea, sponsored by the Province Overijssel.