

7 CONCLUSIONS: MOVING BEYOND THE SELF-EVALUATION

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7.1 Lessons to be learned from the self-evaluation process

In the previous chapters, different aspects of the impact of the Twente higher educational institutions on the region are presented. In this chapter we bring together the lessons learned. In the first part of this chapter, the stakeholders of the HEI structure are described, followed by the state of cooperation between the institutions. Then the developmental themes for the region are presented. Already here, at the start of this chapter two important issues are presented as major challenges for the region:

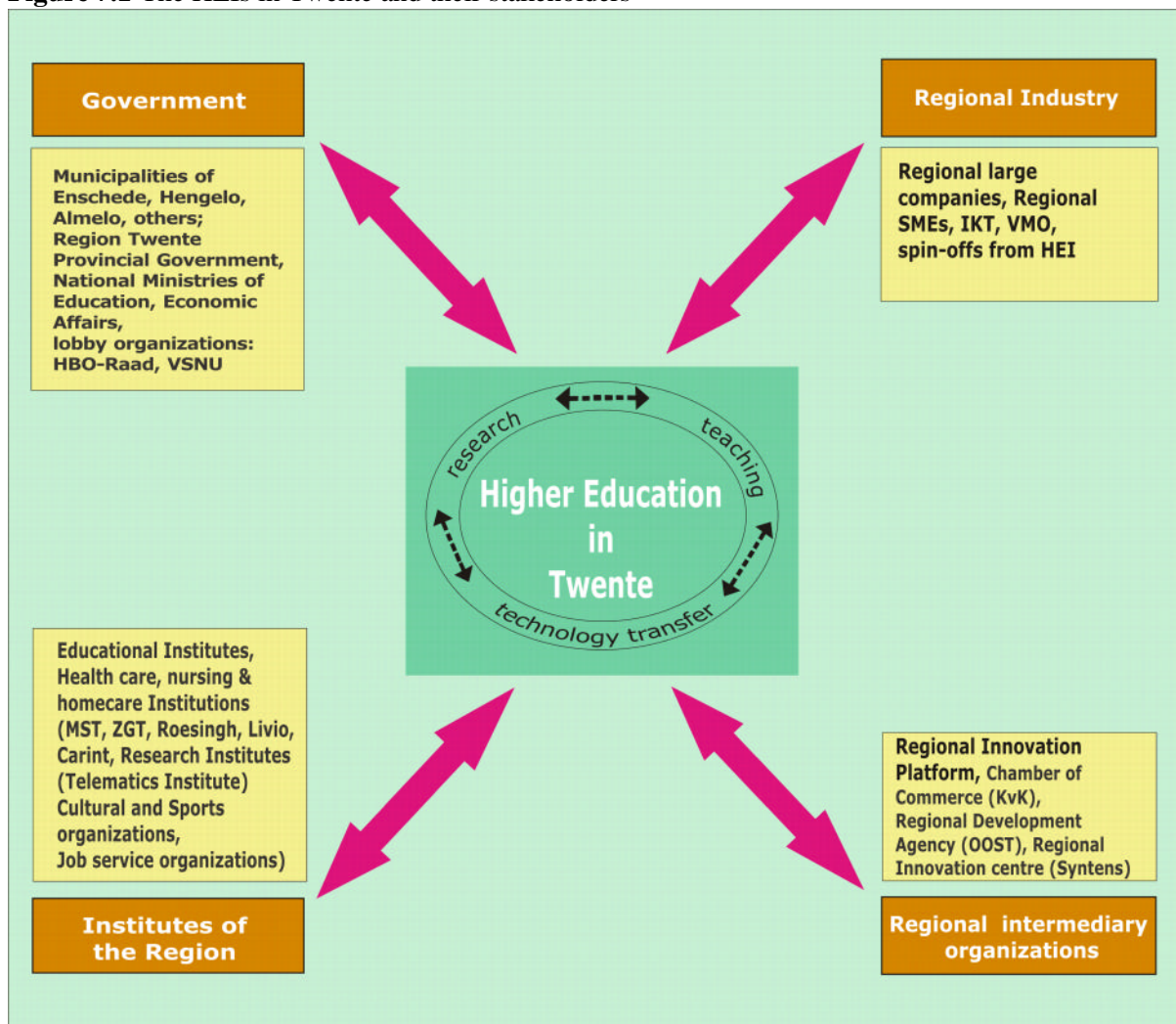
- The Twente region needs a jointly adopted view and ambition.
- Twente needs to recognize its socio-cultural context and infrastructure as an economic force.

These two challenges are incorporated in the developmental themes for the region.

7.2 Stakeholders of the HEI structure in Twente

In the previous six chapters an outline is given of the various stakeholders of the Twente HEIs and their involvement with activities that impact the region and regional development and vice versa. Although students are stakeholders in the HEI, they are not explicitly incorporated in Figure 7.1; the students are implicit stakeholders and dealt with this way in this report.

Figure 7.1 The HEIs in Twente and their stakeholders



These stakeholders together with the HEI make up the “playing field” of the higher education arena in Twente; they influence and determine the course of higher education by participating in the (different levels of) governance of the regional HEIs and stimulating and facilitating the HEIs to take particular courses of actions via lobbying for and with the institutions. Together, strategies are developed to elevate the educational level, create wealth (through the stimulation and contribution to innovation and entrepreneurship) and well-being in the region⁵⁷.

7.3 Cooperation between the HEIs in Twente

The cooperation between the HEIs in Twente took shape in the last decade of the last century. As a result of the Bachelor-Master structure in higher education, Saxion⁵⁸ and Edith Stein are cooperating closer and on a more structural basis than before with the UT and other educational institutions (schools and the National Institute for Curriculum Development; LinX is an excellent example of an integral cooperation between educational institutions – see 4.6.1) in the region. Undergraduates from Edith Stein and Saxion have (after completing a so-called pre-master programme) access to the Master studies at the UT.

TSM Business School (a foundation of the UT) cooperates with the SWOT (a foundation in which both UT and Saxion cooperate) and draw their teachers primarily from other HEIs. In the TechnoCentre Twente both Saxion and UT participate (as does the ROC van Twente). In the previous chapters many examples have been mentioned of cooperation between the HEIs in Twente; some forms of cooperation can be characterized as “projects” (of a temporary nature and for a specific purpose), while others are of a more permanent nature. Partnerships and strategic alliances with (regional) industry and institutions are formed to enhance the interaction between “theory” and “practice” (see 6.1/6.1.1. and 3.3.3.2). Also new partnerships and alliances are necessary; e.g. between the Edith Stein, Saxion and UT to be able to cope with the shortage of and drain from teachers in secondary education, managers in primary education and the “second phase” teacher trainings in Twente. (Appendix I)

Nevertheless, all HEIs in the Netherlands are fishing in (more or less) the same pond for students. This holds for the undergraduate students (a university study or a higher professional education study) as well as for the postgraduate students (a master’s degree at the university or at the UPE). Agreements have been made to approach future students together. Also, since all HEIs are supposed to engage in research, this could put the higher education institutions in competition with each other – further cooperation in this area could lead to a strengthening of the Twente position in research.

The AKI is focused on art and in this area there is cooperation with other HEIs in the region. Although ITC has (on an ad-hoc basis) regional impact, its focus is primarily international.

7.4 Developmental themes for Twente

Given this first outline of the ambition of Twente, there is definitely a lot of work to be done in the region for the HEIs together with the stakeholders of the HEI structure. Since regional development is the issue, the HEI should and cannot take leadership; support and involvement, however, is necessary. The Innovation Platform Twente (IPT) has taken up a leading role in setting the agenda for Twente with respect to innovation, industry and policy. The REOP (Regional Economic Development Plan)

⁵⁷ After a visit to Silicon Valley early 2005, stakeholders in the field of regional innovation (policy makers, universities and entrepreneurs) decided to cooperate in order to publish an annual Twente Index that should map and compare the economic development of Twente. To develop the index, the University of Twente, Saxion Universities, the Chamber of Commerce and regional development agency Oost NV immediately joined forces and carried out the task to prepare a first version. The result, Twente Index 2005, is an overview of existing quantitative and qualitative material on the economy of Twente and is an important source for policy makers and other Twente stakeholders in charge of boosting regional competitiveness. It is presented to the public in November 2005. The example shows the growing awareness in Twente that cooperation leads to synergy and does pay off economically.

⁵⁸ The cooperation between UT and Saxion received an extra impulse because at both institutions a special position was created to stimulate and implement further cooperation in the areas of bachelor-master, fundamental-applied research, flow of students, etc.

that just came into the implementation stage⁵⁹ extends this agenda setting to new entrepreneurship, industrial environment, tourism and labourmarket & employment. The participation of the larger companies, the educational and research institutes in the IPT (the UT and Saxion are members it) and the support of the government (both local and provincial) gives the platform an excellent position. The platform came into existence in December 2004 and set up a process in which all stakeholders are asked to cooperate to present a Twente agenda for regional innovation (road map) to the Prime Minister of the Netherlands in December this year. Based on the outline of the ambition and the previous four chapters the following “developmental themes” are identified:

- Entrepreneurship, innovation and creativity
- Regional focal areas
- Knowledge infrastructure
- Strengthening of HEIs

7.4.1 Entrepreneurship, innovation and creativity

The challenge: For a long period the region has used the slogan “Twente where innovation is tradition” to promote itself as an entrepreneurial and innovative region. As described in Chapter 3 the many spin-off companies of the UT and Saxion contribute to the innovation through entrepreneurship (UT via the TOP programme, the institutional spin-offs, and the holding company; Saxion via spin-offs, Small Business, the virtual incubator, and S-CIO). Innovation is supported directly (cooperation with SMEs, contract research, continuous professional development) as well as indirectly (via spin-off companies). Nevertheless, Twente has companies belonging to the “old economy” as well as ones belonging to the “new economy”, and an opportunity for building on this basis new ventures incorporating its creativity and resources provided (also/primarily) by the HEIs. In Chapter 5 the socio-cultural context of the region is summarized.

The challenge to strengthen its economic base by focusing on innovation and entrepreneurship and to use its creative class and its cultural potential as an economic power:

- a. To strengthen companies’ capacity to:
 - apply the knowledge (from the HEIs) into products, processes and services;
 - successfully market innovative products and services.
- b. To organize education and research of the HEI in a demand-driven way
- c. To support and spin-off companies with a growth potential

Intention & Contributions needed: The intention of the HEIs is to contribute actively to entrepreneurship and innovation in the above-mentioned way. All HEIs already have these intentions in their strategic plans and in the coming years, entrepreneurship will be strongly stimulated in the academic communities. Together with industry, stimulating incentives will be developed and implemented for both students and faculty to engage in entrepreneurship and innovation. The following three concrete action lines will be implemented:

- *Stimulation of entrepreneurship:* The HEI will stimulate entrepreneurship in the different schools and institutes. Since individuals drive entrepreneurship, the stimulation of entrepreneurship is directed towards individuals in different target groups: management, teaching and research faculty, and students. Research faculty and students are the prime target group for setting up their own business. Project and activities will be organized in the individual HEIs, preferably at joint activities and projects with companies, institutes, government and other HEIs. The management and the teaching faculty have to facilitate entrepreneurship; teaching staff has to enthuse the students and will be encouraged to participate in companies and institutes in advisory boards and management has to enthuse the schools and institutes.
- *Stimulation of innovation:* Higher education and industry, especially SME, have to work more closely together in a “one stop shop” through which companies can get access to knowledge,

⁵⁹ <http://www.twenteinuitvoering.nl>

equipment and laboratories and research capacity. The challenge for higher education and regional companies is to build up together a harmonized system for commercialization of knowledge. A system in which not only the knowledge of higher education, but also knowledge within companies is shared. All with one target: applying the knowledge in Twente in products, processes and services.

- *Connecting creativeness with entrepreneurship.* Successful marketing of innovative ideas and products requires knowledge and feeling for the needs of the market: of target groups, their perception of the environment and behaviour and of the way in which the market can be opened up. Connecting the creative sector with (industrial) products and services of Twente has great potential. The HEIs want to contribute to this by connecting the creative courses with the more technological ones in projects, internships, etc.

The above-mentioned tasks for the HEIs cannot be seen in isolation and ought to be activities in which the relevant (regional) stakeholders play an important role. In order to enable the HEIs to perform their self-imposed tasks, industry and government have to provide or participate in:

- *Acknowledgement and appreciation by all stakeholders of the role of HEI in the (regional) innovation and entrepreneurship (or R&D) infrastructure.* The HEIs contribute in many different manners to the innovation and entrepreneurship infrastructure and the stakeholders should acknowledge this. The HEIs perform an essential task in the regional innovation structure via their generation and transfer of knowledge, availability of their research infrastructure, equipment, laboratories and other facilities; industry and SMEs, other research organizations should also be encouraged to open up their infrastructure to the higher education institutions.
- *An active role in the HEI structures:* Industry (and government) already plays an important role in the decision-making processes in the HEIs. As the HEIs' intention is to be more regionally engaged, this is an opportunity for the stakeholders to participate in the different levels of decision-making with regard to education and research. Such involvement should lead to joint projects that are mutually beneficial.
- *Strengthening of the intermediary's role in HEI:* Both Syntens and Oost N.V. can play a more prominent role in the articulation of needs from companies in the region and in (regional) knowledge and technology transfer processes and projects.
- *Development of (financial) instruments* for the stimulation of entrepreneurship and innovation both for companies and the HEIs.

7.4.2 Regional focus

“Health & Technology”: In the last 10 years many activities have been developed around this theme. Regional companies clustered in the TIMP, Twente initiative for Medical Products, which currently is a Euregional cluster of companies. IZIT – an initiative to stimulate technology in care was established recently and together with TKT they developed the “Product Factory”. With Saxion Health & Care there is a so-called Best Practice Unit and to stimulate innovation in SMEs the project “Trinnovatie” was recently granted. The UT has its Biomedical Technological Institute for research, a Bachelor’s and Master’s programme in biomedical engineering and technical medicine as well as a business accelerator for tissue engineering. The HEIs together spin-off annually some 4 to 6 high-tech companies.

The challenge: group of SMEs can be provided leading to a contribution to sustain the innovation structure and A strong point of the Twente region is that all stakeholders have jointly selected focal areas and more focus is needed. The regional focal technology area follows the technology choices made by the UT (Microsystems/nanotechnology, biomedical technology, ICT, and mechanical engineering and process technology) and reinforces the regional industrial make-up (health/healthcare and manufacturing). The development of the region concentrates around these policy issues and themes. An opportunity for the Twente region is the further involvement of Saxion; especially via the recently established *lectoraten*, knowledge circles and knowledge circulation mechanisms, innovation

to a wider potential of the region. The Regional Innovation Platform Technology Valley will direct this process; the LinX initiative established in 1996 could serve as an example for the economic development domain in the region in the operational domain (e.g. in entrepreneurship, clustering and commercialization). The challenge for Twente is:

- To position the HEIs within the regionally chosen focus areas in such a way that they can optimally contribute to the further development
- To position the companies in the focus areas in such manners that they can on the one hand enhance their growth and on the other hand play an active role in the HEI's activities.

Intention & Contributions needed: The HEIs already contribute to the above-sketched processes; nevertheless, some elements need to be strengthened:

- *Harmonization and further cooperation between the HEIs.* As described in this report, there is already a lot of good cooperation between the HEIs in the region. The cooperation at governance levels ought to be sustained and elaborated and harmonization of activities of the HEIs should enter the discussions. Harmonization of activities for regional development should be the focus.
- *Further HEI-industry cooperation:* To stimulate entrepreneurship and especially innovation in the focus areas, the HEIs ought to improve their systems for the exploitation of knowledge both to small and larger companies, innovative and (more) traditional companies.

Obviously, the HEIs need the commitment and involvement of the stakeholders, particularly when it concerns the further cooperation between HEIs and industry. In the regional focus areas, the HEIs together with industry (small and larger companies) should be enabled to not only experiment with new structures but also to sustain proven concepts. The active involvement of the stakeholders in the self-imposed tasks and intentions is of crucial importance.

7.4.3 Knowledge infrastructure

The challenge: There is an excellent knowledge infrastructure in Twente and there is fertile soil for R&D. The HEIs are important components of this infrastructure and they supply it with human resources (researchers, professors, *lectoren*, students) and facilities (equipment, laboratories). There also is a high-speed broadband computer network and services (Trent, NDIX) available as well as specialized research and service facilities and laboratories in the region. The knowledge/science park, (technology) incubators, formal and informal venture capital funds complete the knowledge infrastructure. Twente faces two major challenges:

- *Positioning Twente* in the Netherlands, Europe and beyond as a region of excellence with a superior knowledge, social and cultural infrastructure where HEIs and industry work together in the (further) development of the region for the benefit of all.
- *Active participation of all in "bringing knowledge to market":* It is our joint task to overcome the European knowledge paradox (excellence in knowledge production, inability to bring it to the market). Twente possesses all important ingredients.

Intentions and contributions needed: Bringing knowledge to the market and within reach of (regional) industry is an important task, not a task that can be performed without the (active) involvement of all parties. Knowledge circulation (see Chapter 3) is an important mechanism that should enable all involved to benefit from it and jointly create new knowledge. Concrete intentions are:

- *Vertical harmonization of programmes and projects in and between HEIs.* Cooperation in the professional "column" to enhance the contribution to entrepreneurship and innovation and the harmonization of the competency frameworks and the actual competencies of (graduate) students is a big challenge to deal with. A focus ought to be the usability of knowledge (in practice, in companies and societal organizations) and the competencies of the knowledge workers of the (near) future – see e.g. the IDC best practice.
- *Finding ways to encourage* the involvement of faculty and students in these processes.

The Twente knowledge infrastructure can be further improved through facility sharing. Both industry and HEIs could jointly invest in new facilities and other elements of the knowledge infrastructure, e.g.

- *Regional technological top institutes* and technology parks for the development and exploitation of knowledge in a small number of carefully selected focal areas. Such initiatives should be started jointly. The technology parks aim not only at sophisticated, knowledge intensive companies, but also at the full chain of companies that are necessary to convert an innovative idea into applied knowledge that contributes to the competitiveness of Twente's economy.
- *Cooperation and joint coordination* of the developments in and of the knowledge infrastructure (e.g. via the regional innovation platform).

7.4.4 Strengthening of HEIs

The challenge: Traditionally, HEIs are “supply” driven and follow solely their own agendas. Today, HEIs are regionally engaged to a larger or smaller degree. This implies that the HEIs, including the Twente HEIs, adopt the regional (innovation) agenda as input for their own policies. Twente faces many challenges, e.g.

- To further incorporate (within the boundaries and limitations of the legal tasks) the regional agenda into the HEI policies
- To (better) respond to regional needs.

Intentions and contributions needed: To be able to face the challenge, the HEIs have to assume new roles, next to the traditional ones, with respect to the provision and retention of human resources. The Twente HEIs intend to incorporate the agenda (and as the previous chapter indicates this already happens) *further* into the HEI policies. This will be implemented through the provision of a wide variety of degree programmes and contract and joint activities with and for companies. Many students have traineeships in regional companies and in this way contribute to elevate the innovative potential in the region. Other students also go for traineeships in companies outside the region, because companies with established reputations offer better opportunities. In addition, some students leave Twente after completing their studies causing a “brain drain” of students leaving Twente to work for companies in other parts of the Netherlands and in Europe.

A challenge for the Twente HEIs is to play, together with its stakeholders, an active role to attract and to keep potentially excellent students (educational programmes of excellent quality, special programmes for “top talent” like Fast Forward (see section 3.3.3.2) and TOP (see section 3.3.3.1) and to support the creation of excellent career opportunities in Twente. But also to create, in response to regional needs, educational programmes together that provide the students and knowledge workers in general with new and other relevant skills and competencies.

The regional stakeholders and the HEIs ought to exploit jointly the excellent location of Twente as being strategically located on the West-East corridor that runs from Amsterdam to Moscow, on the border with Germany. It can also be reached by water (*Twente Kanaal*), by rail (on the line from Amsterdam/Schiphol to Berlin) and by air (Twente Airport, Schiphol Airport (Amsterdam) and FMO (Münster/Osnabrück, just across the border in Germany). Twente is well connected with the major German economic centres (Berlin and the Ruhr area). As such, it is well positioned in Europe with an excellent infrastructure and top-class universities.