

**QANU Research Review
Innovation & Entrepreneurship
IGS-UT**

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Foreword

This report follows the Standard Evaluation Protocol 2003-2009 for Public Research Organisations (SEP) that was developed by VSNU, KNAW and NWO. The purpose of this report is to present a reliable picture of the research activities submitted for this review and to give feedback on the research management and quality assurance.

The review committee was supported by QANU (Quality Assurance Netherlands Universities). QANU aims to ensure compliance with the SEP in all aspects and to produce independent assessment reports with peer review committees of international experts in the academic fields involved.

QANU wishes to thank the chairperson and members of the review committee for their participation in this assessment and for the dedication with which they carried out this task. We also thank the staff of the units under review for their carefully prepared documentation and for their co-operation during the assessment.

Quality Assurance Netherlands Universities

Mr. Chris J. Peels
Director

Dr. Jan G.F. Veldhuis
Chairman of the board

Preface

This report describes the independent external quality assessment of the research programme on Innovation & Entrepreneurship in the Institute for Innovation and Governance Studies (IGS) of the University of Twente (UT). The assessment covers the period 2002-2007 and was conducted according to the Standard Evaluation Protocol 2003-2009 for Public Research Organisations (SEP).

The quality assessment was carried out by a review committee consisting of one chair and three members with expertise in the relevant areas of research.

As chair of the Committee, I greatly appreciate the commitment, the expertise and the excellent cooperation of my colleagues. The Committee wants to thank all persons involved in the thorough preparation and support of the review.

Prof. Hans Georg Gemünden
Chairman of the Committee

1 The review committee and the review procedures

Scope of the assessment

The Review Committee was asked to perform an assessment of the research programme ‘Innovation & Entrepreneurship’ as carried out by researchers in the Institute for Governance Studies (IGS) of the University of Twente (UT). The assessment covers the research in the period of 2002-2007. This review does not include an assessment of the ‘institute level’. The reason for this is that the Institute will be evaluated in a separate review process. One interview during the site visit was devoted to the ‘management aspects’, but only served as background information for the assessment of the research programmes.

In accordance with the Standard Evaluation Protocol (SEP) 2003-2009 for Public Research Organisations, the Committee’s tasks were to assess the quality of the research programmes on the basis of information provided by the Institute and through interviews with the management and research leaders, and to advise how this quality might be improved. The Committee used the SEP rating system. The meaning of the scores is described in Appendix B.

Composition of the Committee

The composition of the Committee was as follows:

- Prof. Hans Georg Gemünden, Technical University Berlin, chairman of the Committee
- Prof. John Bessant, University of Exeter
- Prof. Wim Hulsink, Erasmus University Rotterdam and Wageningen University
- Prof. Carole Tansley, Nottingham University Business School.

A short curriculum vitae of each of the Committee members is included in Appendix A.

Roel Bennink of the Bureau of QANU (Quality Assurance Netherlands Universities) was appointed secretary to the Committee.

Independence

All members of the Committee declared that they would assess the research in an unbiased and independent way. Any existing personal or professional relationships between Committee members and the programme under review were reported and discussed in the committee meeting. The Committee concluded that there were no unacceptable relations or dependencies and that there was no specific risk in terms of bias or undue influence.

Data provided to the Committee

The Committee received detailed documentation consisting of the following parts:

1. Self-evaluation report of the research programme under review, which included the information required by the Standard Evaluation Protocol (SEP);
2. Copies of seven key publications for each of the three research themes.

Procedures followed by the Committee

The Committee proceeded according to the Standard Evaluation Protocol (SEP). Prior to the Committee meeting, each theme was assigned to two members of the Committee, who independently formulated a preliminary assessment. The final assessment is based on the documentation provided by the Institute, the key publications and the interviews with the management and with the programme leaders. The site visit and interviews took place on October 29, 2009 at Twente University (see the schedule in Appendix C).

During the committee meeting, the Committee was briefed by QANU about research assessment according to the SEP, and discussed the preliminary assessments. After the interviews, the Committee discussed the scores and comments. The texts for the committee report were finalised through email exchanges. The final draft version was presented to the Institute for factual corrections and comments. The final report was presented to the Board of the University of Twente and was published after formal acceptance of the report.

2 Information at the Institutional level

Introduction

This review does not include an assessment of the ‘institute level’, i.e. the organisational setting, the research policy, funding, facilities, etc. The reason for this is that the Institute will be evaluated in a separate review process. The self-evaluation report did not include information about the institute IGS or about the embedding of the programmes in the general context of the University of Twente.

Leadership

Formal responsibilities for research activities of the institute rest with the scientific director. Chairholders are responsible for the scientific direction of the research programmes linked to their chairs; they report to the scientific director of the institute under which a specific programme resides.

Research Strategy and Policy

The six research institutes at the UT all focus on a multi-disciplinary area in which ‘strategic research orientations’ (SRO) are defined. These large scientific programmes have a programme director who is responsible for the scientific coordination of the SRO and is accountable to the directors of the institutes involved.

Resources, Funding Policy and Facilities

As a matter of policy, all permanent academic staff have a dual assignment: teaching and research, while temporary academic staff (i.e. PhD students and postdocs) are usually restricted to a research assignment.

The majority of the tenured staff is funded by the University. Non-tenured staff are mainly post-docs and PhD students, of which the majority is funded by research councils and other funding.

3 General remarks and recommendations

The Committee found the self-evaluation report informative and of good quality. The process of producing the self-assessment report has been taken seriously and has yielded valuable insights that have already had their effect on the plans of the groups. The Committee finds this a very promising development.

The Committee has great appreciation for the group of PhD-students, whose level of enthusiasm and commitment to the institution was impressive and demonstrated that there is a growing formalisation and improvement in the quality of the support they receive both for their doctoral studies and for developing their academic profiles in relevant conferences internationally.

The research programme ‘Innovation & Entrepreneurship’ has been organised across two departments (OOHR & NIKOS) since 2004, and has two interrelated research themes that are evaluated in this review. These groups have direct links with the Master in Business Administration. The main purpose of the research programme is to enhance the theoretical and practical understanding of the organization and management of innovation, entrepreneurial and business development processes and strategies at different levels (i.e. network and firm level). In the opinion of the Committee, the groups have presented a strong narrative for their current practice and have demonstrated an impressive capability. The groups know their areas of strength, particularly the entrepreneurial capability in applied research with strong value networks in the Netherlands. They represent a thriving, productive community of scholars at the University of Twente, with increasing cross-institutional links in the Netherlands and involvement in several EU projects. The groups have built up a good academic network and they have a large database of companies that enables them to maintain valuable interactions. The high number of research contracts is testimony to this. In the next stage of development, the Committee would welcome an increased emphasis on relationships with institutions at a higher level internationally. This should go hand in hand with the explicit target to raise the level of NWO-funding. In the opinion of the Committee, the group has now achieved such a ‘bench strength’ that they should now aim more ambitiously at increasing the number of publications in internationally recognised and highly rated journals.

The Committee did not have the task to evaluate the organisational context of the research, i.e. the embedding in the Institute for Innovation and Governance Studies (IGS) and the recent establishment of the Strategic Research Orientations (SRO). This means that the information provided about these organisational aspects was not very detailed and they were not discussed intensively in the interviews. The general impression that the Committee formed was that the structure is complicated and that the advantages and disadvantages were not always clear, but that the research groups accept the situation as a given fact within the context of the University. The Committee certainly believes that the multi-disciplinary approach of innovation, governance, management and entrepreneurship is a very valuable jewel in the crown of the University of Twente.

The Committee decided to assess and score the research themes, as a basis for the assessment of the research programme ‘Innovation & Entrepreneurship’ as a whole. The Committee rated the research themes as follows:

		Quality	Productivity	Relevance	Viability
Theme 1	Organizing for Product, Service and Process Innovation	3.5	4	4	4
Theme 2	Entrepreneurship and New Business Development in Networks	3.5			

The detailed assessment per theme is provided in the next section of this report, followed by an assessment of the programme ‘Innovation & Entrepreneurship’ as a whole.

4 Assessments per theme

Theme 1: Organizing for Product, Service and Process Innovation

Leader: Prof. Dr. Ir. Koos Krabbendam

Assessments:	Quality:	3.5
	Productivity:	4
	Relevance:	4
	Viability:	4

Short description

This research theme aims to develop organization design knowledge to successfully implement product and process innovations, taking into account the challenges of Human Resource Management, market orientation, business ethics and sustainability.

Quality

This is a well-established theme with some interesting ideas which has established itself on the international stage, particularly through its approach to engaged research, contributing helpful qualitative insights to the field. Overall the programme has coherence and there is evidence of a planned approach to publications and development of a community of interest as opposed to dependency on a few ‘stars’. Publication is in established and known journals in relevant fields and there is consistency across this output together with a ‘pipeline’ of new ideas evidenced from a good range of conference attendance and presentation. A commendable number of PhD-students present their work at international conferences where competition is high for places (e.g. Academy of Management, European Academy of Management, International Conference on HRM).

There is perhaps scope to raise the level of journals targeted – less so in the specialised fields than in the general management literature – but it is recognised that this is difficult given the high volume of submission to such journals and the long lead times. The Committee feels that the quality of the scholars on the team has great potential for increased presence in higher level journals. This is now recognised in a clear strategy for improvement.

Productivity

Overall productivity is good with a consistent stream of publications and a healthy ‘pipeline’. There is an extensive number of publications across disciplines (for example, of e-HR papers in IS conference proceedings and international journals), and most colleagues publish at a good rate per year. Of particular merit is the effort being made to engage and bring on early career researchers and doctoral students, through supporting their presentation at conferences and workshops. The PhD programme seems to function well with a steady stream of students and there seem to be good links with core academic staff. The PhD cohort was impressive in number, motivation and application. Both full and part-time PhD students felt they were given equal opportunity to disseminate their work at conferences. Overall productivity levels have increased relative to the previous assessment, particularly in terms of volume of publications.

Relevance

A strength of the theme is its close engagement with the world of practice via a series of mechanisms; this is clearly the consequence of a deliberate strategy now being underpinned by various activities to support ‘engaged scholarship’ as an organising philosophy for the area. The embeddedness of this approach is now visible in the provision of curriculum and publications. Involvement of business and public sector agencies seems to be high and sustainable over an extended period and the result is that relevant problems are worked on, people transfer across to and from the university and the work has a demonstrable impact in practice. Particularly impressive was the value network between Dutch organisations and the group on the topic of HR shared service centres. The work is more applied than fundamental research but there are

efforts to ensure objectivity, synthesis and learning from engaged research and the development of a theoretical base underpinning the implementation questions in innovation. The community of scholars at Twente is thriving and productive; perhaps more advantage can be taken from visiting professors and others in the Twente external network.

Viability

The theme is well-established and there is sufficient critical mass to support the research agenda presented. New staff and ideas are well-integrated and there is a healthy flow of doctoral students through the group. Proposals to link more closely with the entrepreneurship stream may help deal with what might otherwise be seen as a 'steady but flat' growth trajectory and raise long-term issues about viability and refreshment of the intellectual base.

The group has a variety of interest across the topics. Of particular note is the work in e-HR which is internationally recognised not only for quality of publications but also for colleagues at Twente showing determination to develop a global community of scholars in that area.

Good quality PhDs are coming through for succession in the group. Several PhDs said they would consider joining as an academic, others said they would also look at working in industry as a preferred career option. There have been recent promotions to associate professor in the group and there are plans for more to aid succession planning in the group.

Conclusion

Overall a well-established group in a topical area with a coherent approach to 'engaged scholarship' and a strong track record in this kind of work. Doctoral activity is appropriate and well-managed and the overall productivity in terms of conference and journal publications volume is good. There is probably scope for 'raising the game' somewhat in terms of funding sources sought (more competitive high profile grants¹) and in more challenging journals of a general management type.

The thriving, enthusiastic group have concentrated on a small number of areas of endeavour to promote excellence in scholarly work and applied research in processed-based research working in the intersection between research fields, such as IT and HRM and where HRM meets entrepreneurship. The link with innovation in all areas of endeavour is to be commended, particularly in the past work on social innovation.

The researchers work cross-institutionally in the Netherlands and also internationally. Steps are taken to engender relationships with institutions at a higher level internationally in the next stage of development.

¹ The VENI grant awarded to Dries Faems is an important sign in this respect.

Theme 2: Entrepreneurship and New Business Development in Networks
Leader: Prof. Dr. Aard Groen

Assessments: Quality: 3.5
Productivity: 4
Relevance: 4
Viability: 4

Short description

This theme was built around the following questions:

1. What are knowledge-intensive (KI) entrepreneurial processes?
2. What is the role of networks in these processes?
3. How can differences in outcomes of KI entrepreneurial processes be explained and/or influenced?

Technological changes in, for example, information and communication technology, biotechnology or nanotechnology lead to important strategic changes in industry involving changes of products, changing actors in markets (clients, competitors, suppliers), and changing market structures that alter the rules of the game, local as well as global. These changes imply very wide network dynamics, resulting in questions for entrepreneurs about how to handle network interactions on individual, organizational and network levels. As complex networks of socioeconomic institutions are shaped and themselves shape the development of new technologies, knowledge-intensive entrepreneurs are especially impacted and must deal with and act in dynamic networks. Beyond their individual scope many (small) firms co-operate with other organizations, large and small, to exploit new technologies in entrepreneurial networks.

Quality

The research output of this group has a distinctive style, characterised by the focus on small business, the entrepreneurial approach of the university, knowledge transfer, partnering and networking with start-ups/spin-offs. Though the regional setting is important and most of the research is carried out in the vicinity of the university, the projects are not based on regional data only and the research was embedded in large EU projects such as KINX, BEPART and Global Starts. With more and more international PhDs joining the research group, the focus is widening to other areas and settings. The research group is clearly among the leaders at the national level and seeks to become prominent in Europe (for instance through the High Technology Small Firms (HTSF) conference and the subsequent book publications) and doing one or more special issues. The impact of such a publication strategy is somewhat transient, with only limited impact across the international field. Since organising these niche events draws upon the scarce resources of the group, the strategy for these international workshops has shifted from open access with a low threshold (for PhDs) to selectivity with a high threshold (for senior researchers). The High Technology Small Firms (HTSF, May 2010) conference focuses on recent empirical research. Competitive funding from NWO/STW has been difficult to acquire, but several large and competitive EU projects were won and recognition as a Marie Curie training site for PhD's was granted.

The Committee was not sure to what extent the structure of the research institute IGS and the Strategic Research Orientations (SRO's) within that system, and the future plan for a Graduate School really provide more than a sheltered research space and add value to the Entrepreneurship & New Business Development group. Prof. Groen will lead the research orientation Innovation and Entrepreneurship in IGS, which is regarded as a recognition of the importance of the research of the group.

Productivity

When looking at the impact of the publications one has to conclude that titles in high-ranking journals and prestigious and influential book publishers are missing. Across the various publications, creativity and innovativeness in applying distinctive theories, tools and methods is still somewhat missing, despite the efforts towards working with one or two paradigms, namely the social systems approach and process theory. The focus on entrepreneurship in networks clearly enhanced group cohesion and systematic development of the research, but a tendency to stay within the tradition and the shared perspectives chosen should not limit curiosity-driven research that might generate original contributions. Originally, the emphasis in the publications was tilted towards more professional publications at the expense of more

rigorous scientific publications, but over the years this is clearly changing with academic contributions gaining in weight and number. The output of the group has reached a consistent level with a high number of paper presentations at international conferences, an increasing number of manuscripts sent to leading international journals, a steady and incremental growth of (finished) PhD's, and invitations for editing special issues in TF&SC and ISBJ.

The number of international refereed academic publications per full-time equivalent of tenured staff in research shows major differences between staff members, with one visiting professor scoring extremely well and some full professors clearly underperforming. It is a deliberate strategy of the young group to work with very productive colleagues that serve as a role model.

Relevance

The group is well connected with fellow researchers at home and abroad through all kind of international projects, workshops and conferences in which the group is actively participating, not only in co-organising them but also at presenting papers and publishing books as a final outcome of those events. Having a small size the group had to compensate for a lack of resources and mass by working together and carry out plenty of activities, some focussing on fellow academics and others targeting practitioners. As such the university and the research group are very much embedded in the Twente region's knowledge-intensive cluster.

The research group not only analyse the behaviour of their start-up and spin-off firms but the researchers are also involved in the dissemination and implementation of new knowledge and their research findings through monitoring, coaching and consulting.

In the past, when contract research and project fund raising were dominant, there was an imbalance between fundamental and applied research (i.e. applied research prevailing over fundamental research). Over the years this imbalance is disappearing with a gradually increasing emphasis on more generic and influential publications on management and entrepreneurship.

Viability

The research group managed to establish itself, grew from 7 persons in 2001 to about 20 on entrepreneurship in 2010 and has effectively built up an initial track record in the international entrepreneurship community. With respect to the past scientific performance the achievements were yet modest but in view of the plans and ideas for the future the group is now better prepared, as evidenced by the publication performance after the assessment period. The research output in the first years of the review period suffered somewhat from the merger of the previous groups, the incomplete participation of the full-time professors appointed (with some of them less visible and involved in the research activities of the new group) and the legacy of third party research and consulting, but these years also helped to build up funding resources as a basis for the current improved situation.

With institutional support from IGS and the larger university and leadership provided by the senior research fellows and in view of staff age, flexibility and mobility, the realisation of the plans for the future now seems to be feasible. The research group has gained in seniority, administrative experience and links with internationally well-known scholars, but also from the enthusiasm and ambition infused by a new group of young and internationally oriented researchers. Despite having established a reasonable group size, the skill and knowledge base in the field of entrepreneurship, innovation and new business development is still somewhat thin with regard to flourishing topics in the fields such as corporate entrepreneurship, entrepreneurial marketing and small business finance.

As indicated in the follow-up presentation by the research leaders, the wheels have been set in motion to hire new full professors covering these high-profile areas. These visiting professors will have to be involved in joint publications and/or via a part-time affiliation at Twente University. A closer collaboration with the two other Technology Universities in the Netherlands and the universities located nearby in the cross-border region may also be helpful to search for new combinations across research projects, achieving scale economies and adding variety and diversity to the research agenda.

Conclusion

Although the period under review was very much transitional and characterised by an emerging group seeking a coherent path and a focused output, now a proper infrastructure for high-impact research seems to have been created with a clearer focus on the future. The aims and ambitions for the upcoming period have been set higher and with promising young researchers (either pre- or post-PhD) on board this may be feasible. The overall assessment of the period under review has solid points (e.g. productivity) as well as somewhat bleaker points (e.g. quality of international publications), but with the research pipeline now filled with valuable publications forthcoming in higher-impact journals, interesting datasets and with new promising and motivated PhD students on board, the mid-term future of Entrepreneurship, New Business Development and Innovation research seems to be in very good shape.

From the interviews during the site-visit it was clear that the Entrepreneurship and New Business Development group was aware of its staff deficiencies in the past, in terms of numbers, diversity and quality, but they have shown the ability to widen and deepen their competence base and set higher and more ambitious goals.

5 Assessment of the programme

Programme: Innovation and Entrepreneurship

Leaders: Prof. Dr. Aard Groen & Prof. Dr. Ir. Koos Krabbendam

Assessments:	Quality:	3.5
	Productivity:	4
	Relevance:	4
	Viability:	4

Short description

The research in the programme 'Innovation & Entrepreneurship' focuses on establishing a fundamental understanding of innovation and entrepreneurship / business development, predominantly in technological contexts. Factors taken into consideration have their origin in operations management, organization theory, business ethics, human resource management, strategy, marketing, international management and entrepreneurship. Three cornerstones are:

1. The interaction between characteristics of Technology, Innovation, Human Resources, and Entrepreneurship within and between organizations related to (innovation) performance.
1. Multi-level and multidimensional analysis of network actors in processes of innovation and entrepreneurship.
2. An approach that combines both qualitative and quantitative methodologies in process oriented research. Furthermore, in line with the "engaged scholarship approach" (Van de Ven 2008), the practical relevance of this area of research is considered to be a cornerstone of academic development.

Evaluative remarks

Constituting research themes within the programme during the evaluation period were:

- Organizing for Product, Service and Process Innovation
- Entrepreneurship and New Business Development in Networks.

These themes are assessed in the preceding sections of this report. These assessments form the basis for the scores of the programme as a whole.

The Committee has understood that 'crossing boundaries' is a common aspect in the work of the researchers in this review, and an aspect which will be emphasised even more in the future. It expresses the need to combine methodologies, not only in the social sciences, but also in the interaction with technology. The Committee appreciates the intention to establish this principle as a particularly distinctive feature of the research programme, even more than in the past. The group leaders have taken the very wise approach that effective integration of academic fields within IGS requires the establishment of a good international research reputation of the individual research groups first. At the same time, the groups acknowledge the importance of the interaction of their research efforts with society, particularly with innovative companies and entrepreneurs. The VentureLab Twente (aiming at 350 participating companies) is a very important initiative in this respect. The project 'Kansrijk Eigen Baas' is also a very good example of productive interaction between academic groups and society.

The Committee appreciates the explicit objective to create societal impact, next to research and teaching. The group leaders have clear views about societal impact, even though they admit that it is hard to define 'valorisation' in terms of quality and quantity, or to agree on performance indicators that would measure media appearances, newspaper articles, contract research, spin-off companies, generating regional employment, etc. The Committee finds that the groups have a very commendable performance in these areas.

The Committee has understood that in the recently created SRO's within IGS, the societal impact or interaction is an important condition and objective, while the academic quality of the work remains the

most important criterion. The Committee applauds the fact that the researchers strive to maintain a good balance between practical relevance and academic rigour.

The Committee applauds the plans to continue the two research themes ('Organizing for Product, Service and Process Innovation', and 'Entrepreneurship and New Business Development in Networks'), but to increase collaboration between the themes and with other themes in the Department, for instance in the project 'Competences for Innovation'. Adding rigorous empirical components to 'social innovation' aimed at analysing and improving innovative capabilities, is a serious challenge that will take time and effort. The concept of 'engaged scholarship' that is taking shape in several countries including the US, can be helpful in this respect.

It is an asset that expertise on HRM, organisations and marketing can be combined with expertise on IT and innovation. On the other hand, the group is relatively small, and the combined fields of interest are huge. The strategic objective to increase the collaboration between social science and technology at the University of Twente, is highly commended. Also, the decision to focus mainly on the link between business performance on the one hand, and creativity and innovation management on the other, is a very good choice.

Appendix A: Curricula vitae of the committee members



Hans Georg Gemünden

Professor Hans Georg Gemünden is full professor Technology and Innovation management at the Technical University Berlin. He was director of the “Institut für Angewandte Betriebswirtschaftslehre und Unternehmensführung” of the Universität Karlsruhe (TH) between 1988 and 2000. Prof. Gemünden studied Business administration and Psychology at Saarbrücken University and made his Phd on the theme Innovation marketing. At Kiel University he did research on information behaviour and efficiency. He published many books and articles on Technology and Innovation management, Business management, Business organisation and HRM and accountancy. He was vice chairman of the Scientific Committee for Technology and Innovation management in 1998–2002.



Carole Tansley

Professor Carole Tansley is Director of the International Centre for Talent Management and Development, Nottingham University Business School. She also teaches postgraduates on the Doctorate in Business Administration, MBA, MSc in Strategic HRM, and the MSc in Fraud and Risk Management. Areas covered include talent management, knowledge management, organisational behaviour and human resourcing strategy, planning, policy and practice, in addition to interpretive research methodology and methods. She is Director of Studies for PhDs and Doctorates in Business Administration and has wide experience as a doctoral examiner and an independent chair of doctoral vivas. She has published in journals such as British Journal of Management, Journal of Managerial Psychology and Personnel Review. She has led a number of research projects for the ESRC and the Chartered Institute of Personnel and Development (CIPD), as well as for corporate clients.



John Bessant

Professor John Bessant holds the Chair in Innovation and Entrepreneurship at the University of Exeter, where he is also Research Director. Before joining the University of Exeter, he was active in research and teaching in the field of technology and innovation management at the Aston University Technology Policy Unit, the Science Policy Research Unit at Sussex University and at Brighton University where he directed the Centre for Research in Innovation Management (CENTRIM). He served on the Business and Management panel of the 2001 and 2008 Research Assessment Exercise. His areas of research interest include the management of discontinuous innovation, strategies for developing high involvement innovation and the use of learning networks to facilitate diffusion of innovation. He is the author of 15 books and many articles on the topic and has lectured and consulted widely around the world. His most recent books include ‘Managing innovation’ and ‘High involvement innovation’.



Wim Hulsink

Professor Wim Hulsink is a senior lecturer entrepreneurship at Rotterdam School of Management (Erasmus University, The Netherlands) and director of its Centre for Entrepreneurship. He also holds a chair in innovative entrepreneurship at Wageningen University. His research interests include new venture creation and firm growth, leadership and networking in high-tech industries; and strategic management in infrastructural and/or regulated sectors. He has published in *Small Business Economics*, *Technology Analysis & Strategic Management*, *Organization Studies*, *International Journal of Technology Management*, *Gazette: International Journal for Communication Studies* and *Telecommunications Policy*. His book publications include: *Pathways to Research Triangles and High-tech Valleys: innovative entrepreneurship, knowledge transfer and cluster formation in Europe and the United States* (with Hans Dons, Kluwer/Springer, 2008), *On creating competition and strategic restructuring* (with Emiel Wubben, Edward Elgar 2003), *Privatisation and Liberalisation in European Telecommunications* (Routledge, 1999).

Appendix B: Explanation of the SEP-scores

<i>Excellent (5)</i>	Work is at the forefront internationally and will most likely have an important and substantial impact in the field. Group is considered an international leader.
<i>Very Good (4)</i>	Work is internationally competitive and is expected to make a significant contribution; nationally speaking at the forefront in the field. Group is considered international player, national leader.
<i>Good (3)</i>	Work is competitive at the national level and will probably make a valuable contribution in the international field. Group is considered internationally visible and a national player.
<i>Satisfactory (2)</i>	Work that is solid but not exciting, will add to our understanding and is in principle worthy of support. It is considered of less priority than work in the above categories. Group is nationally visible.
<i>Unsatisfactory (1)</i>	Work that is neither solid nor exciting, flawed in the scientific and or technical approach, repetitions of other work, etc. Work not worthy of pursuing.

Quality is to be seen as a measure of excellence and excitement. It refers to the eminence of a group's research activities, its abilities to perform at the highest level and its achievements in the international scientific community. It rests on the proficiency and rigour of research concepts and conduct; it shows in the success of the group at the forefront of scientific development.

Productivity refers to the total output of the group; that is, the variegated ways in which results of research and knowledge development are publicised. The output needs to be reviewed in relation to the input in terms of human resources.

Relevance is a criterion that covers both the scientific and the technical and socio-economic impact of the work. Here in particular research choices are assessed in relation to developments in the international scientific community or, in the case of technical and socio-economic impact, in relation to important developments or questions in society at large.

Vitality and feasibility. This dual criterion refers to the internal and external dynamics of the group in relation to the choices made and the success rate of projects. On the one hand, this criterion measures the flexibility of a group, which appears in its ability to close research lines that have no future and to initiate new venture projects. On the other hand, it measures the capacity of the management to run projects in a professional way. Assessment of policy decisions is at stake, as well as assessment of project management, including cost-benefit analysis.

Appendix C: Schedule of the site-visit

9:00-10:30 Capitool C-009	Committee meeting	
10:30-11:30 Capitool C-009	Meeting with the management: organisational setting, research management	Kees Aarts Aard Groen
11:30-12:30 Capitool C-009	Theme 1: Organizing for Product, Service and Process Innovation	Jan Kees Looise Tanya Bondarouk Dries Faems Petra de Weerd-Nederhof
12:30-13:30	Lunch	
13:30-14:30 Capitool C-009	Theme 2: Entrepreneurship and New Business Development in Networks	Aard Groen Jeroen Kraayenbrink
14:30-15:30 Capitool C-009	PhD-students (group interview)	Annemien Pullen Petra Hoffmann Sandor Lowik Tiago Ratinho Thijs Habets Raymond Loohuis Rainer Harms
15:30-16:30 Capitool C-009	Committee meeting	
16:30-17:30 Capitool C-009	Programme management “Innovation and Entrepreneurship crossing boundaries”	Aard Groen
18:00-20:00 Faculty Club	Dinner	