

Twente Business Innovation Valley:

SYMBIOSIS

Final report of the 2001 IsoCaRP
Young Planners Workshop
Enschede, Sept 13-15 2001

Group 1: *economic efficiency and moderate impact of IT*

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CONTENTS

1. Introduction
2. Methodology
3. SWOT analysis: key points
4. Causal Map
5. The main concept and vision
6. Design proposals
7. Conclusions

1. Introduction

The basic outlines of our scenario were *economic efficiency* and *moderate impact of IT*. We had to examine the development opportunities for the study area ("Knowledge Park Twente"), and come up with a planning strategy and some design proposals, based on this initial scenario, also described as "exploiting our traditional economy".

The main point in this scenario is to find the balance between the two main drivers for the area towards the future concerning the campus of the university of Twente and the science and business-park. The main drivers mainly stress on economic efficiency but at the same time a moderate impact of IT. This means that the development of IT in society does go on in future as is now the case: the impact of information technology and the role of IT are very much supportive and related to efficiency and effectiveness in logistics, commerce and communications. It is more an exploiting of the more traditional economy.

2. Methodology

Exploiting the traditional economy, having a somewhat pragmatic vision of the future means, in our case, to focus on the existing strengths of the area and develop them; they configure the basic shape of our group vision. So we started by studying the area (both directly - making a field tour and some punctual field research interventions, and indirectly - studying the documents provided by the workshop organisers and those available on the net) and then made a SWOT analysis, in order to identify those existing strengths.

We tried to overlook the complete area on different levels, for instance on regional level, city level, network level and of course on the level of UT and the business-park itself. The strengths, weaknesses, chances and threats we identified show this multi-level perspective: some of them concern local level, and others are related to regional or global networks and to global phenomena.

The main point of the scenario creating process was the next stage: drawing the *causal map*. We studied the relations between the features identified in the previous stage and came to some concrete outlines for the vision.

Then we concentrated these outlines into one vision and one main concept; the design proposals are only some examples to show how this vision could materialise in the future. We think there may be other possible design proposals that fit our vision, but our objective was not exploring all of them; it was creating a scenario and a vision for the future.

The main concepts of this vision are expressed once more in the final conclusions.

3. SWOT analysis: key points

The main strengths of the study area (Twente University campus and the business park) are: the existing IT infrastructure, lower housing costs (compared with the western part of the Netherlands), available labour force on local and regional level, and the existing green environment (quality open space).

The weaknesses are: low educated local employment, the fact that TU and the Business Center are separated by Hengelose Street, and the cross-border network not well developed.

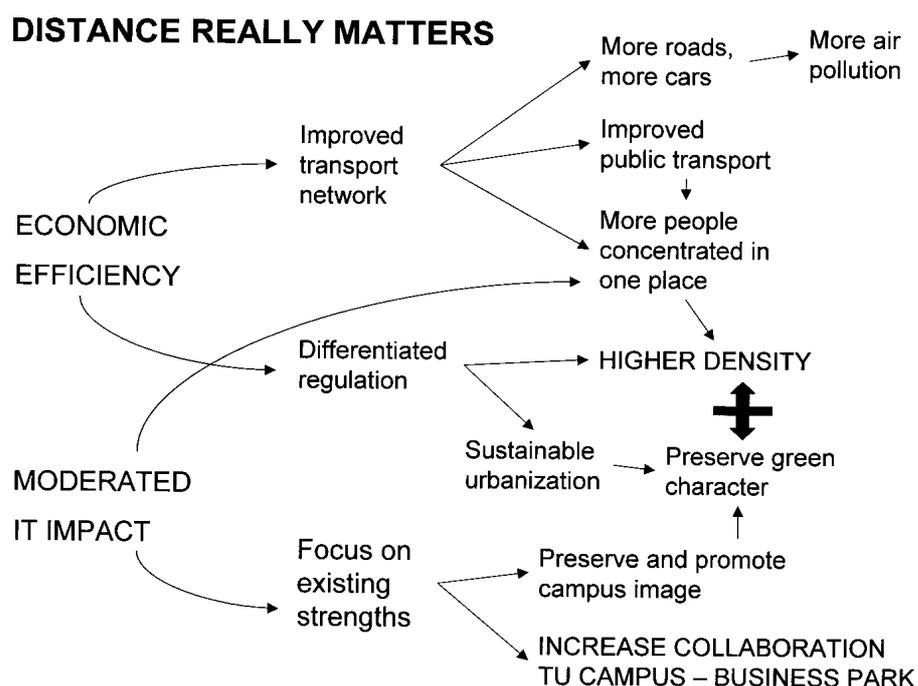
The opportunities (focusing on exploiting the traditional economy) are: the possibility to offer complementary education at TU, the companies could use TU facilities to educate the staff (local employment), and the chance to improve transport network (taking into account the vicinity to Germany).

The threats are: diminishing regulations (in the perspective of an increased economic efficiency as a global rule) and the fact that high density affects green environment.

<p>Strengths</p> <p>IT infrastructure</p> <p>Lower housing costs</p> <p>Available labour force</p> <p>Green environment</p>	<p>Opportunities</p> <p>Complementary education at TU Companies can use TU facilities to educate the staff (local employment) Improve transport network (vicinity to Germany)</p>
<p>Weaknesses</p> <p>Low educated local employment TU and Business Center separated by Hengelose Street Cross-border network not well developed</p>	<p>Threats</p> <p>Diminishing regulations High density affects green environment</p>

5. Causal Map

The *Economic Efficiency* oriented development translates into an improved transport network (we suppose that people still need to travel quite a lot, and concentrate in some focal points), and differentiated regulation. The vision of a *Moderated IT Impact* means focusing on existing strengths and taking into account even a greater number of people concentrated in the same place.



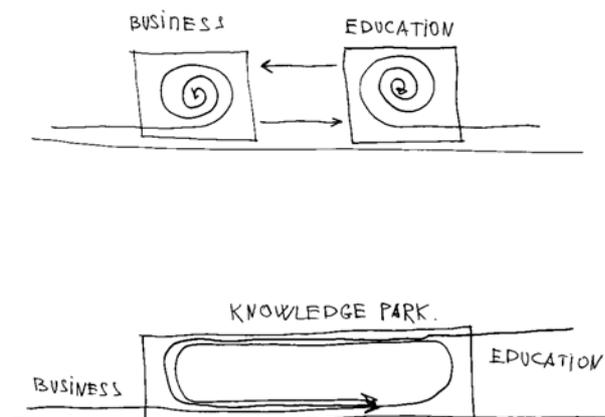
The conclusion is: *distance really matters*.

Comparing the main points of the causal map, we came to some more precise objectives and side-effects. Developing the existing strengths means, in this context, preserving and promoting the campus image and increasing collaboration between UT campus and the Business Park. We can anticipate higher transportation volumes: more people concentrated in the same place, more cars on the streets, more air pollution and the need for advanced public transport.

In our vision, the business park will not be really an IT park; it will be a business park with some amount of IT companies. The vicinity of the university is an important opportunity: neighbors could become partners.

The most important bottleneck is the one between the high density built-up area and the need to preserve the green character of TU campus. Another bottleneck is the one between the need to connect TU campus and the business park spatially and the need to maintain the existing road which separates them.

6. The main concept and vision

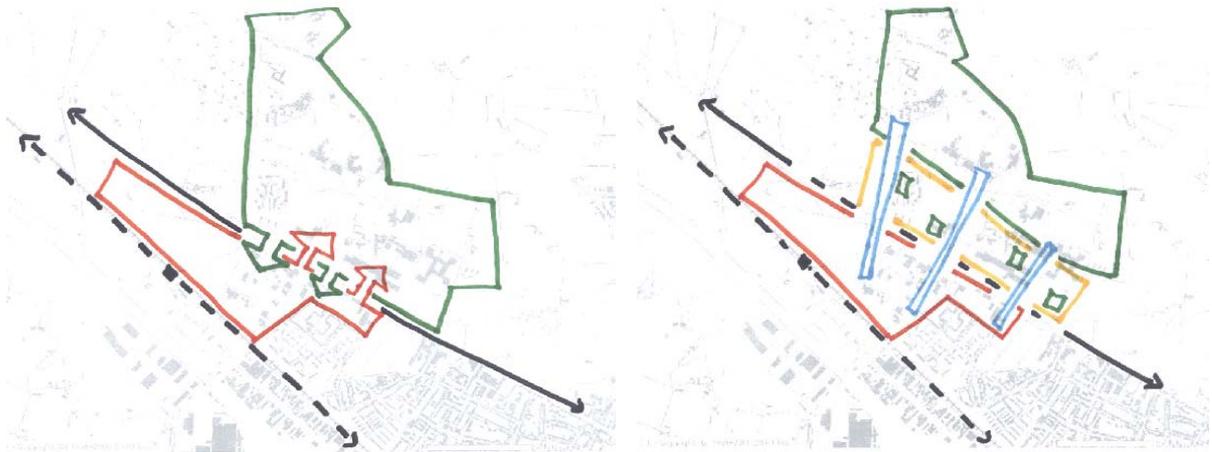


Main concept: *"The success of Silicon Valley is because companies are physically close to each other"*.

This symbolical meeting between business and education describes a center where business and TU meet: TU can help companies in educating staff, both partners can share facilities. These shared facilities should be located in new *meeting* and *attraction* places, for example in a common "strip" along and across the road.

The Knowledge Park could provide space for new functions and activities: center for starters (business-university integration); graduates, students participating in business, mixed functions between TU campus and Business park.

The preserved green area, balanced with dense, built-up business park offers the final image of a flexible spatial structure where various programs can have place.

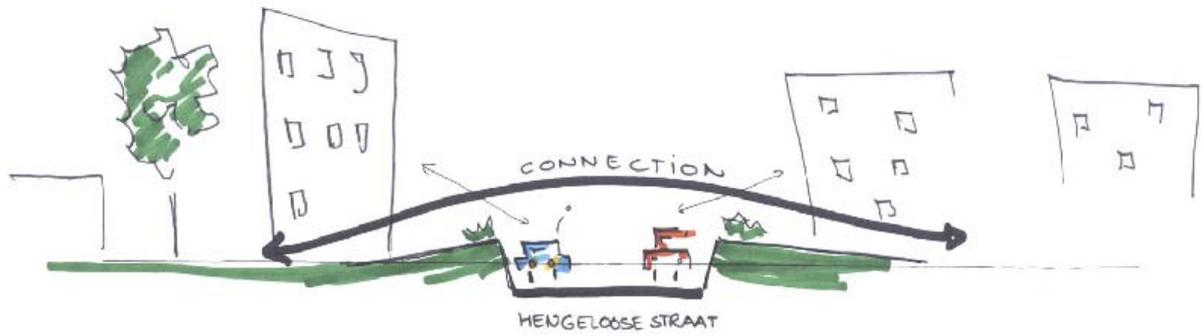


Intention: Business park and TU have to connect physically: **Neighbors become partners.**
 Future vision: mix functions between campus and Business park (**sybiotic development**)

7. Design proposals

Today, the main road acts as separation. Our proposal of a common strip along the road can overcome this impediment by building an ECO-BRIDGE which connects both sides of story. Business and Innovation meet at meeting places, situated either on the main axis (the present barrier, the future connection line) or on other places in the two parts, generating new connection axes and new flows.





The green area is preserved while balancing on dense built-up strategies.

8. Conclusions

- Green environment
 - Business innovation infrastructure
 - Symbiosis - no more isolation
 - Meeting places for people
- Science Valley

KNOWLEDGE PARK TWENTE

- an eco-tech vision -

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Group 2: *economic efficiency and pervasive impact of IT*

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CONTENTS

INTRODUCTION
SWOT ANALYSIS
INTERPRETING THE SCENARIO KEY POINTS
FUTURE VISION
MANAGEMENT PROPOSALS
DESIGN PROPOSALS
CONCLUSION

INTRODUCTION

The scenario key points for group 2 –economic efficiency and pervasive impact of IT- shape a difficult (demanding) context for the design proposals. The planning and design proposals we made were supposed to reach a high degree of economic efficiency, based on dynamic and versatile systems (rapid changes, different flows) due to the high impact of ICT on the future society.

SWOT ANALYSIS

By doing the SWOT analysis, we tried to describe the main features of the present situation, and identify trends and possible developments (opportunities, threats) in the particular context of our scenario key points (economic efficiency and pervasive impact of IT).

The identified strengths are generated by four main characteristic of site: the presence of extensive green areas, that of companies (and especially big companies), the Twente University and some other local advantages. The presence of green areas provides an identifiable image for the campus, but it also means clean environment and a quite low density of buildings, and these two factors are extremely important in our scenario. The companies located in the Business Park (Texas Instruments, OCE, Ericsson, KPN, CMG, Lucent, Hollandse Signaal etc.) are important partners in the future development of the area; their presence impulses economic development; they act as attractors for local labour force, students, services, etc. The other location advantages are mainly the vicinity to Germany and the good connection with Amsterdam and Rotterdam (which means that our site is located on one of the possible corridors to be developed in the future).

<p>STRENGTHS</p> <ul style="list-style-type: none"> Extensive green areas <ul style="list-style-type: none"> Clean Environment Low Density Companies <ul style="list-style-type: none"> Texas Instruments, OCE, Ericsson, KPN CMG, Lucent, Hollandse Signaal Twente University <ul style="list-style-type: none"> Human Capital ICT Know How ICT Students Location advantage <ul style="list-style-type: none"> Proximity to Germany Good Connection with Amsterdam and Rotterdam 	<p>OPPORTUNITIES</p> <ul style="list-style-type: none"> Ecological Site Dynamics of the Technical Park Vacancy of land Multifunctional use of space Maximise use of space Better connection International environment
<p>WEAKNESSES</p> <ul style="list-style-type: none"> Stereotyped Image No major events ICT is periphery in Netherlands Organizations Exodus of the youngest Small market Missing parking places Lack of enough meeting points 	<p>THREATS</p> <ul style="list-style-type: none"> Little economic growth Decrease of higher educated young population Companies move away Nasdaq goes down...ICT are in trouble

The weaknesses concern both local, regional and global level. On a local level, we identified a stereotyped image, the lack of major events (also works for the regional level) and the lack of meeting points. On the regional level, the main features are the exodus of young people

and the small market. On a higher level, we can speak about the peripheral role of ICT in Netherlands organisations.

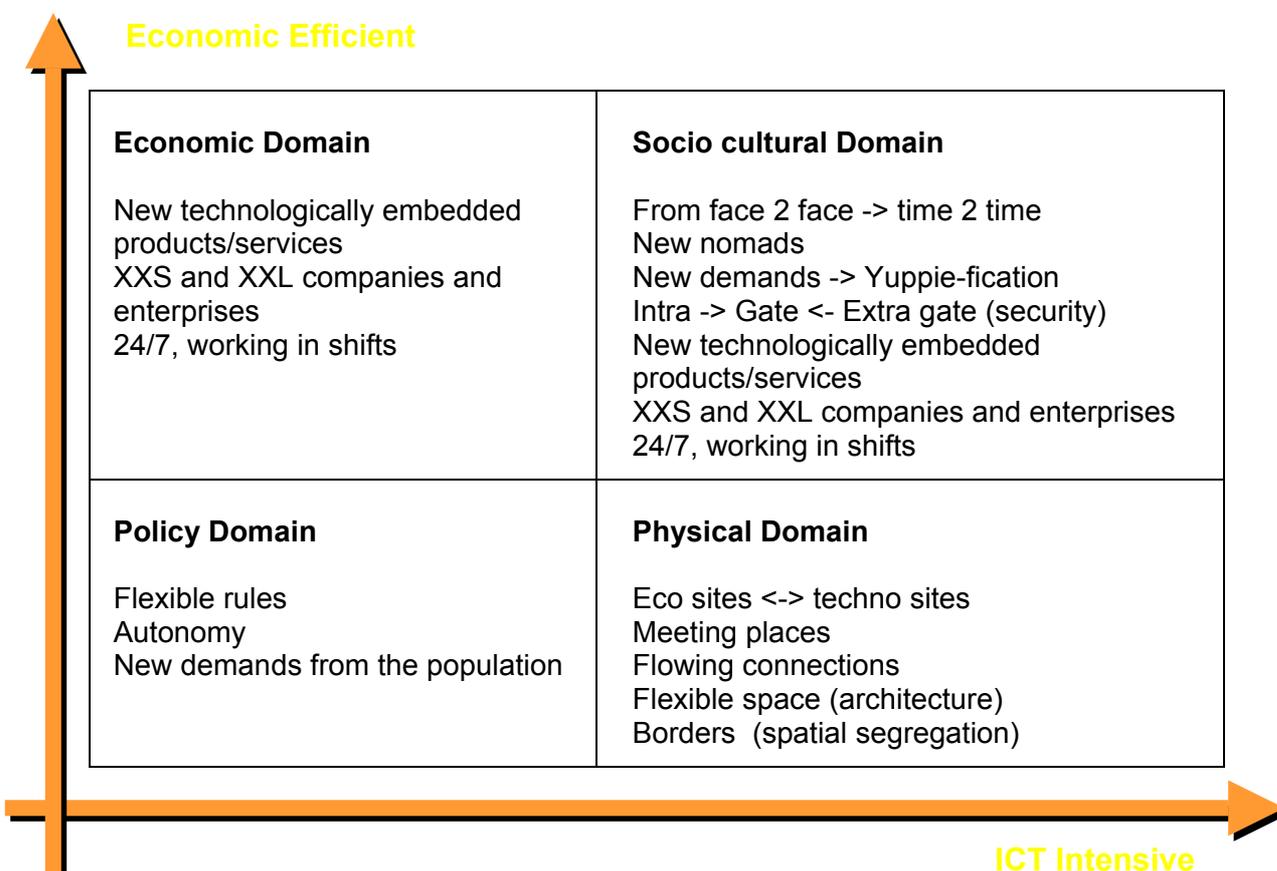
In our context, the main development opportunities are: promoting the university campus as an Ecological Site, promoting the dynamics of the Technical Park, taking advantage of the vacancy of land, making a multifunctional and maximised use of space, improving the connections and extending them to an international level.

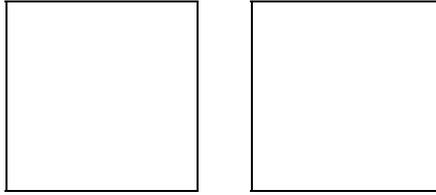
The threats for this future developments are related to global economic factors (global trends which could influence our site and region): a too little economic growth, a decreased amount of higher educated young population, the companies that move away. Especially if Nasdaq goes down...ICT are in trouble.

INTERPRETING THE SCENARIO KEY POINTS

Economic Efficiency

- An economic system oriented towards new technology and knowledge investments
- XS companies provide research and new ideas to XL enterprises
- the city never sleeps





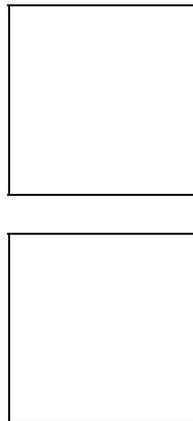
Implications in physical space

- Integration of ecology and technology into eco-tech site
- Flexible space provides responsive medium to the changing demands
- Connections between sites will change in relation with main mobility needs of the settlers/nomads
- Meeting places will function as rigid points and local landmarks for a flowing urban system

Policies

- Autonomy: actors (students, companies, etc.) decide about their environment
- Flexible rules that quickly adapt to the new developments
- Population that will demand new functions, new facilities new types of services

FUTURE VISION



MANAGEMENT PROPOSALS

Knowledge Park Management: a public-private joint venture

The core idea is that the Public Agency will shift its role from administrator into enterprise partner. Public Agencies can reduce start-up costs for new firms in exchange for a share in the future profits. Creating wider choices of financial mechanisms to attract growth in the region. Methods of Public Assistance can include:

- Development Loans
- Performance Oriented Tax-Credits
- Zoning and Development Permits
- Land Write Down Cost Subsidy
- Ease and Reduction of Red Tape Regulations
- Lease of Public Property as Financial Mechanisms

Incentives for Public Agencies to enter in a Public-Private Joint Venture

- Create an environment that could help Enschede become an undisputed leader in Telematic and Innovation Technology

- Increase Local Tax Base
- Diversify Local economy with a both Large Companies and micro-enterprises clusters
- Increase High-Skill Labor opportunities
- Bring new money from “Out of the Region”
- Make Best Use of Under-Utilized of Vacant Property and Increase Land Values
- Bring the benefits usually associated with the creativity and innovation that characterizes private enterprises.

Incentives for Private Sector to enter in a Public-Private Joint Venture

- Local Government Support
- Proactive economic development policies
- Clear and Defined rules for business enterprises
- Reduce risks involved with business Start’ups
- Benefit from synergy derived from the Tecnological District

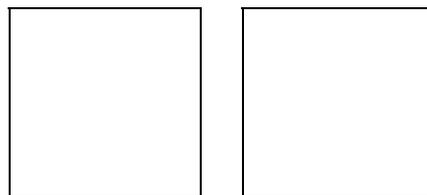
Incentives for Academic Institutions to enter in a Public-Private Joint Venture

- Provide more opportunities for students for specialized training
- Increase research cooperation efforts with Corporate Labs “Big Companies”
- Integrate International Expertise in Academic Programs

DESIGN PROPOSALS

Scenario implementation strategy

The “knowledge park” needs a very well shaped, specific image, one that could attract small and big companies, and especially ICT related companies. Our proposed image consists of four main points: eco-sites, water-connected micro-places, the reshaping of the present business park according to the campus features, so that they would provide a whole, homogenous image, and new “connecting places” (various types of meeting points).



Eco - tech sites and water connected micro-places.
The water becomes a landmark for the knowledge park.

The presence of a dynamic university campus supposes an important benefit, both from the viewpoint of ICT knowledge and from that of urban life events. The future knowledge park could take advantage of the situation and host a series of important events (annual, biennial etc.) like: ICT related international congresses and seminaries, design festivals, digital art festivals and biennales, etc.

The knowledge park could include a thematic park related to ICT and/or its applications in industrial design; a place where visitors can explore (using ICT instruments) the newest prototypes of cars, home equipment (like “the house of the future”) and communication devices.

These events should make the site attractive permanently, using a year-schedule of activities and *time to time, face to face* meetings.

CONCLUSION

The **knowledge park** will be a dynamic place, a place that never sleeps, a place for the “new nomads” (highly educated young people, organized in XS firms related with XL ICT companies). Their training and internship period will take place at the **knowledge park**.



SUSTAINABLE REGION

GROUP 3:

Final report of the 2001 IsoCaRP

Young Planers Workshop

Utrecht, September 16, 2001

(by Anna Kostka and Adam Rodziewicz)

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Sustainable region

The Core Scenario

Moderate impact of IT and Social sustainable humanistic

Sustainable region Keywords - Scenario



- High quality environment
- Social & physical integration
- Concentration of knowledge businesses
- Public transportation
- Flexible spaces

Problem statement

The integration of the Business and Science Park (BSP) with the University of Twente (UT) in a sustainable, high quality environment.

Methodology

In formulating the scenario, an analysis of the current situation and trends was undertaken. This included a site visit, review of available documentation, and mapping. This was used to develop a SWOT analysis and key uncertainties.

Through discussions and argument, a vision was formulated. This vision forms the basis of the scenario. The elements of the vision were discussed in order to define detailed criteria of the scenario.

The criteria were used to develop and test the design in order to determine the plausibility of the scenario. The design was then sketched using the available computer software.

At the end after defining bottlenecks the conclusions had been made concerning whole topic not only our designing site.

The current situation

The topic is shaped in the context of the significance of the interrelation between on the one hand business and science cluster in the region of Twente, and on the other hand the living, working and infrastructure condition. Important factor for attracting technology-intensive business are for example the existing green environment, the neighbourhood of knowledge centers and intermediaries, the quality of the living environment; the transport and traffic infrastructure, and the available communication infrastructure.

The area of the discussion is located between the city of Enschede and Hengelo, and divided to separated cluster by the road Hengelo- Enschede.

The University of Twente and its campus are located north of the road. The business park with many enterprises is situated south of the road.

An integration of those separated business sites and knowledge centers as well as spatial integration of living and working in a sustainable, high quality environment is a problem statement.

Current Trends

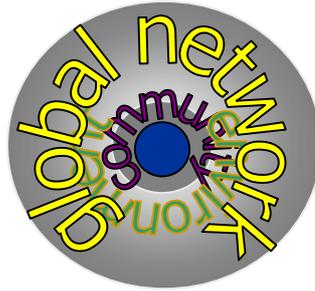
The trends were analysed in terms of the core scenario which emphasized community, policy, economic structure and the environment.

SWOT analysis

The SWOT analysis is as shown in the following table:

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none">• The area is identified as a knowledge center;• There is an existing concentration of ICT companies and infrastructure• There is a recognition of the importance of establishing a relationship between the BSP and the UT;• The area is easily accessible both locally and internationally (particularly in the European context);• There is a recognition of importance of protecting the natural environment locally and nationally;• The area has a unique scenic beauty.	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none">• There is a split between the activities of the BSP and UT;• There is lack of interaction between the different stakeholders of the area;• A number of the UT buildings are not suitable for high technology functions;• Open space not optimally used;• Development is constrained by the natural environment.
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none">• The existing buildings and infrastructure can be renovated;• Concentration of young people at the UT, supporting the IT industry;• Increased interaction between BSP and UT;• Natural recreation areas that can be used to improve the interaction.	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none">• The availability of financial resources to support the entire development period;• There could be a decline in IT industry.

Vision



A **knowledge-based community** of **highly skilled individuals**, living in a **sustainable natural environment** as part of the **global network**.

Key Stakeholders

The key stakeholders and their viewpoints according the previously stated vision are as follows:

Key Actors	Viewpoints
Community/people	Socio-economic development within a high quality green and built environment
UT	Development of science and research
Railway authority	
BSP Foundation	Business & Science development
Existing businesses	Growth
City of Enschede	Development of high-level science park in a socially equitable and within a sustainable environment
Football Stadium	Integration of sports activities with BSP & UT
Overijssel Development Agency	Socio-economic development within a sustainable environment

Main scenario

In the year 2010 Knowledge Park Twente is a thriving area with a concentration of knowledge-intensive businesses located within a high quality environment. The landscaped environment allows for the social and physical integration of the BSP & UT. Environmental sustainability is achieved through the use of Public transport, an efficient people mover and by providing limited parking.

The open spaces are connected and form part of a larger open space system. The area is divided into clearly defined precincts of different character namely, business, education, housing, and recreation. The area offers a range of flexible spaces able to adapt to changes within the ICT industry.

Objectives

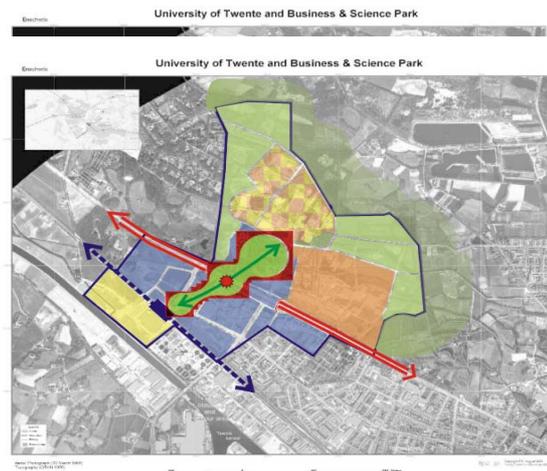
- Integration and interaction between the BSP and UT
- Protection of natural environment
- Linked open space
- High quality living environment
- Efficient public transport system
- Flexible use of the buildings and space
- Mixed densities
- High density around core meeting space
- Optimize use of recreation & sport areas
- Psychological identification with the area

Description of the design

Physical integration between the university and the existing BSP will be achieved through the construction of a tunnel underneath and the development of a high density complex above the tunnel. A people mover will be Social integration of two present separated groups. Constructing different types of services from first needs facilities to these more luxury ones. We propose three different types of space. Green area in the middle as an integrating space surrounded by above mentioned services. Second one is convertible space of science and business mixed each other. The last one is an area of private houses hidden between trees as a natural environment.

main idea

green bridge spinning two separated areas



land use

Blue - business

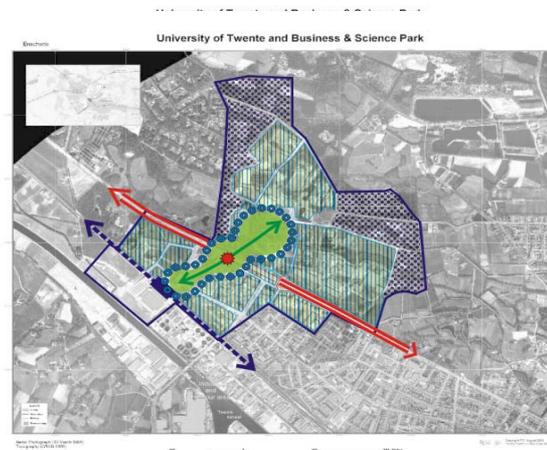
Orange - science

Red - services

Yellow - recreation

Green – green areas and housing

Density



Car free & Special Architectural expression – green area in the middle
High standard of living within protected green area - housing area (mainly north part)
Flexible use of space & buildings – area of business park and university

Challenges to achieve the scenario

The challenges to achieving the vision can be classified into socio-economic, environment, land use, and logistics issues.

Socio-economic

- To achieve diversity within the knowledge sector in order to limit threat of dependence upon one sector of the economy (IT industry)
- To avoid social disparities
- To secure sufficient financial resources during the entire development phase

Land use and environment

- To avoid uncontrolled development to the detriment of the environment
- To avoid green areas acting as barriers to integration
- To adapt existing facilities including roads, buildings, and rail station

Logistics

- To create the proper ICT infrastructure
- To attract and retain highly skilled human resources

"Brewing" process

Short term	Long term
identification of actors and people	final design
co-operation of actors and people	monitoring
preliminary design	evaluation
finding funds	
financial feasibility	

Bottle(neck)

of sustainability:
uniform policy
individuals
companies
integration
surrounding space

"bubbles" of bottlenecks	
Synergy	Mobility
Dynamics	Design
Balance	Analisis
Flexibility	Integration
Scale	Policy
Energy	Adaptability
Identity	Quality
Cooperation	Monitoring
	Kinetics

Conclusions

- IT influences society, but only people can change the society;
- IT is not a goal but a tool to achieve sustainable development;
- IT industry is not independent and has to be linked to other sectors.

REPORT

Workshop: solutions and implications of Knowledge Park Twente
(KPT)

Group 4

[Sustainability + intense impact of IT]

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CONTENTS

1. Introduction
2. Methodology and conceptual framework
3. Existing situation (variables of sustainability)
 - a. Social aspects
 - b. Economic aspects
 - c. Ecological aspects
4. Vision
5. Key objectives
6. Levels of intervention
 - a. Global / national
 - b. Regional / local
 - c. Site specific
7. Proposals & implications
8. Conclusion (response to brief)

Introduction

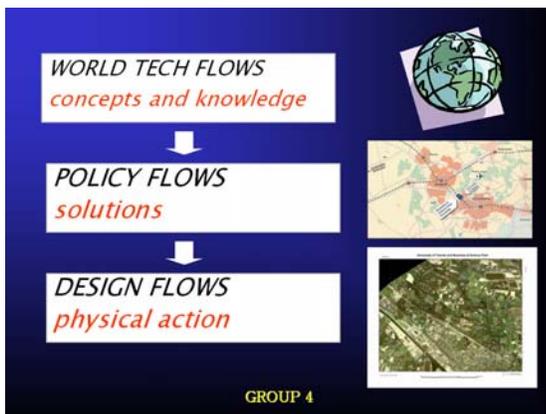
We have been working in the spatial transformation of a particular area, which had to be linked to a world-tech scenario. New economies, information and communication technologies had to frame our design solutions. Are we drawing a “network society”-alike solution?

IT has in depth effects on the way people work, live and travel. The use of Internet is especially changing the flows of time and space. At Twente level, what does it mean? Which are the levels of interaction and intervention? What the implications for project makers and stakeholders at regional and local level -Knowledge Park Twente (KPT), UT, City Enschede, local industries, OOM, VROM, Business Park Foundation.

Those multiple levels have to be split into easier units of analysis, considering our backgrounds, education and culture (being together is another sign of this new era). How we developed a scenario? Here are the key points.

Methodology and conceptual framework

We have been given a ‘sustainable approach with moderate-high impact of ICT in our solutions’. In the matrix, we were supposed to push for more human scale and social conscience, as opposed to economic-driven solutions.

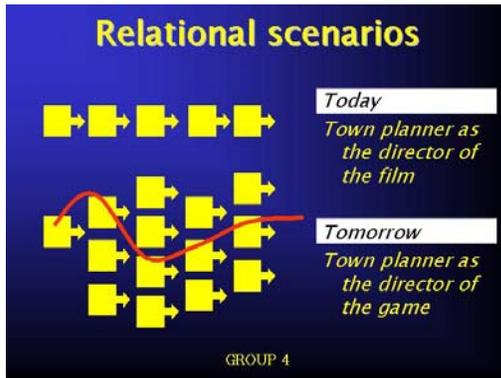


Our conception is defined as follows: the role of ICT has to be enhanced by social and physical contact. Human scale definitively improves the implementation of ICT solutions. Our practical solution (Telematica Piazza) gives a broader scope on that concept.

How do we place this abstraction into reality? First, the scale of reference has three tiers (Global/regional, regional/local, and site specific), where flows of technology, policy and design respectively appear.

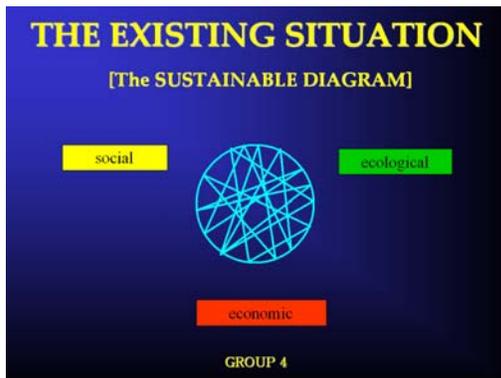
An outline of our proposal was done brainstorming the variables that could define a sustainable situation. We chose levels of intervention, in order to separate spheres of decision. The importance of social-economic policy making and planning decisions made us to stay on the middle level. Therefore, we could reflect into practice the lines of interaction (infrastructure, interchange of activities, environmental considerations...) and develop a key project as a final step. The global-national level means for us the interchange of IT concepts, the growth and decline of these new forms. It also means the projection of the Enschede region towards the regional-global scale, using the attraction potentials to acquire business settlements from all over the world.

Relational Scenarios



Although intervention is proposed at all three levels, the proposed “solution” is intended to act as a catalyst. It is anticipated that the impact of the proposal outlined below will lead a number of other “events” occurring, thus the spin-offs achieved through the initial intervention are largely unpredictable. The proposal framed by this group is intended to facilitate future development, but the group does not intend to be prescriptive with regards to the nature of this development.

Existing situation (variables of sustainability)



In order to reach a suitable analysis framework, we have used a well-known concept: the sustainable society network, where institutions and scales are better represented for our approach. The different variables to consider are thus divided into three spheres: social, economic and ecological. All three spheres have multiple lines of connection, and there is no causal mechanism that works by itself.

Social aspects

- Both Business Park (BP) and University Twente (UT) have a different scale. Not only in size and location, but also on the perception that arises from the surrounding environment (Enschede, Hengelo, etc).
- We have diagnosed very little social and work exchange between BP&UT. Knowledge interchange is lacking, both in businessmen exporting their expertise to UT, and in human resources and research skills which could be shown to the BP.
- There seem to be gaps in the consideration of Hengelo and Enschede’s roles in society. The one keeps its industrial and worker’s appeal, whereas the other hosts residential functions of business high staff.
- The whole region is still recovering from the textile industry crisis.
- Considering the needs of the knowledge-driven industry, such as highly skilled and flexible employees, we can foresee a shortage of both. This will imply that some educational functions will have to be implemented too.
- BP seems to display high private car usage. The parking standards have already been overtaken.
- Both UT and BP are rather clustered in their working and research functions. Living spaces are still a weak point.

Economic aspects

- Complementary to the social disparity between both areas, economical gaps are present. Wages and unemployment figures are different and unbalanced with the rest of the steady and strong economy of the Netherlands.
- The textile industry collapse has made to give substantial hope to ICT-based industry.
- There have been failures in some projects that tried vision changes. Miracle Planet was a trial to implement softer uses in the business area, but a bad budget design made it unsuccessful.

Ecological aspects

- There is a recognized environmental quality all over the stakeholders. The strong point of having so many open spaces becomes a conflict in terms of space use
- Future extensions have encountered pressure groups driven by environmental principles. Strong movement against extension comes from surrounding land, farm and homeowners.
- Railway possibilities are under utilised. The attraction of the joint project cannot be transplanted to public transport usage, due to the difficulties to link the current local train station to the intercity network.
- 'Ecoducts' or green connections between both areas are missing. The access from one to the other must be done through a spare tunnel. Both environments are not actually exchanging ecological flows.
- We have diagnosed a lack of green-red balance. There are quite limited green spaces in BP, whereas the UT ones are probably under utilised

Vision

How can we combine the potentials of ICT industry through a sustainable model? We believe that the introduction of social consciousness can help to reach a better scenario. Information and communication technologies have to be improved from their business and technology current approach.



As an example, we have diagnosed little social and work exchange between BP&UT. In case knowledge interchange is needed, making professionals to share their knowledge and expertise with students, academics and the like, there is necessary to build spaces of meeting (Telematica Piazza is our stronger creation). Conversely, the academia can export their research resources to a more dynamic environment.

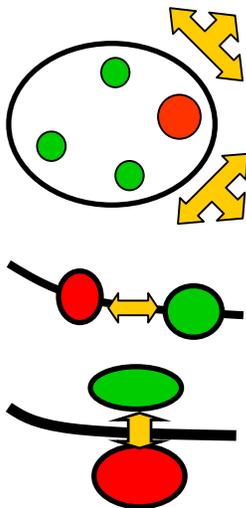
ICT can also be used to link city space and the twin parks. As there is still some social and labour gap between old style and new realities in economy, knowledge needs to be shared to educate those lagging behind the new days. Therefore, a triangle should be created to connect not only research and business, but also the rest of society.

Key objectives

Our three lines of action are:

- To improve the quality of life of all citizens (of both cities) by ensuring meaningful participation. Citizens of the two cities should be empowered in order to participate meaningfully in the knowledge-based economy. This will broaden the range of recreational, employment and economic choices available to them.
- Movement: to improve the flow of knowledge and people between the cities, the Business Park and the University of Twente. This entails physical as well as electronic flows and incorporates physical interaction as well as the functional linkages in terms of the flow of knowledge, skills and ideas.
- To create a strong local and global identity for the cluster containing the two cities, the Business Park as well as the University of Twente. This should be based on elements that make the study area unique and special, yet competitive in the global arena.

Levels of intervention



The conceptual levels of analysis and subsequent intervention relate to the physical context within which the study area is located. This is illustrated in Figure X. At the broadest level the position of Enschede (together with the Business Park and the University) need to be considered in terms of its role in the global economy. Thus, the proposals consider these factors in terms of improving physical linkages that improve access outside the study area, and optimize its location in proximity to Dutch centers as well as its proximity to Germany.

Secondly the study area needs to be considered in terms of its immediate local context: what is the study area's perceived relationship to Enschede and Hengelo; and how will intervention impact on this spatial level? Thus, proposals contained in the remainder of this report respond to this question.

However, the intervention proposed here, responds to site-specific issues, with a concrete proposal on the ground. Thus, site specific issues area considered, with the proviso that all three levels of intervention are considered throughout.

Proposals and implications

The central proposal intended to achieve the formulated objectives; on all three levels on intervention is a **Multi-purpose Telematica Piazza**. This will be a virtual and physical meeting place located in the Business Park, comprising the following components:

An Internet Café

A training centre intended to enable people to meaningfully participate in the knowledge-based economy

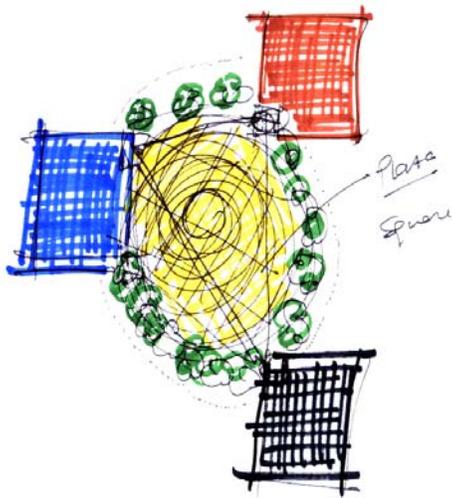
A job centre intended to assist people to access employment in the ICT sector

Small-scale internet service providers

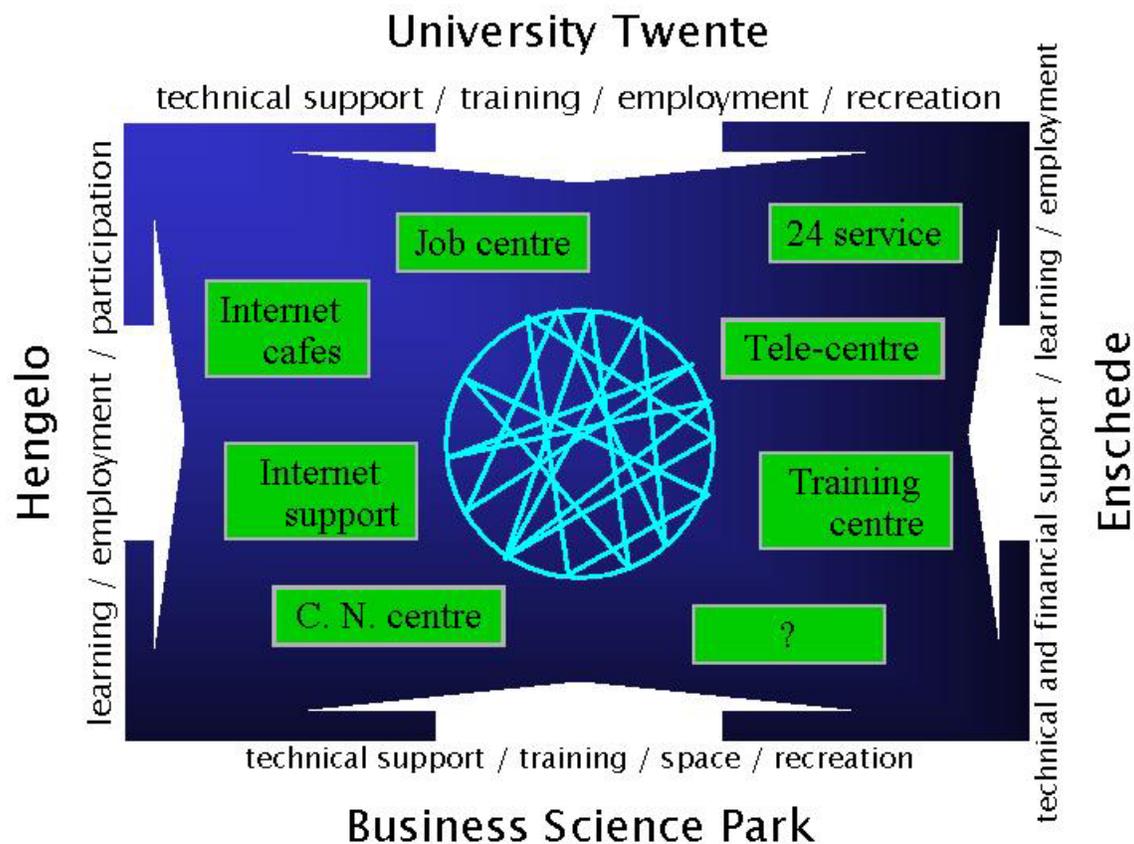
A service provider for tele-workers such as home-based professionals that need technical support such as access to printing services, secretarial support and other infrastructure not feasible to acquire by small-scale home-based industries

Other services that will enhance the functioning of ICT at a community level.

The spatial concept is one that relies on Information Technology, but also enhances physical interaction. Thus, the “meeting place” at the confluence of these components can occur in Cyberspace as well as in reality. This enables the goal of inclusivity: those not yet trained to the point of being comfortable with communicating in cyberspace, can do so through face-to-face contact; as participants become more comfortable with ICT's communicating in cyberspace becomes available to them.



However, the proposed Telematica Piazza is intended to achieve more than social interaction. It is also intended to reinforce linkages between the four spatial elements: the Business Park, the University of Twente, the City of Enschede as well as the City of Hengelo. It will do so through promoting physical interaction between representative of the three entities, but also through functional linkages.



Thus, the Telematica Piazza is intended to be a catalyst that enables the flow of knowledge and training from the University of Twente to the Business Park. The Piazza will provide employment and recreational opportunities for students at the University of Twente, for inhabitants of the two cities as well as an opportunity for interaction between job seekers and potential future employers, thus improving interaction between citizens seeking work and the Business Park actors. The Business Park will be the provider of space and expertise as well as technical support. It is intended that the Telematica Piazza will be of catalytic benefit, enabling the use of ICT's to the benefit of all stakeholders.

The proposed Piazza will respond to the three levels of intervention in the following ways: by improving opportunities for global exchange between citizens of the two cities and the outside world; and also by having a regenerative impact on the Business Park. It is anticipated that this, in turn, will draw new investors into the study area, thereby improving linkages between it and the global economy.

However the following physical elements are necessary in order to achieve the above:

- A strong physical link between the cities and the Twente airport;
- Ensuring that no further physical barriers segregate the four spatial elements: the cities of Enschede and Hengelo, the University of Twente and the Business Park;
- Improving physical linkages between the University of Twente and the Business Park through common physical and infrastructure as well as green recreational

spaces. A further way of achieving this is also through improved pedestrian and cycle paths that can later evolve into a “people-mover” - a system that can provide the link between the Business Park and the University, which in turn can link to the Railway system.

Conclusion

The solution suggested here represents reinforcing a relationship between the spatial elements that comprise our study area. It is not a final spatial design solution but a framework for future intervention that seeks to engage with the local, regional and global contexts. The underlying strategies are interaction and integration: enabling an improved physical and social environment through combining the principles of sustainability with the opportunities presented by ICT. The use of ICT is intended to heighten an improved social consciousness, thereby creating a new value.