Structural Innovations in the Dutch green knowledge system

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Abstract: *The paper reports about an ongoing research, investigating structural barriers that hamper the innovative capacity of the Green Knowledge System in The Netherlands. Innovation is supposed to benefit from co-creative networks of knowledge workers and practitioners. The research team interviewed successful change agents of such processes, and proceeded by asking opinions of managers in research and education about room for change. As a theoretical framework for the research the Triangle of Change was used, focussing on ambition and energy, rather than objectives and interests. The modified model offers perspectives for strategic action, taking the initiative as a starting point.*

Keywords: *AKIS, knowledge system, innovation, management, free actors*

The mission: improve the innovative capacity of the system

Although the Dutch agricultural sector still has an international reputation of being effective and innovative and it is generally believed that the agricultural knowledge and information system (AKIS) contributes substantially to this strong position, within the system there are serious concerns about its capacity to respond to the challenges of today and tomorrow. For this reason the Ministry of Agriculture, Nature and Food Quality invests in research that should result in recommendations for structural improvements.

In The Netherlands, the focus of attention has shifted from AKIS to GKS: the Green Knowledge System, including more rural functions than agriculture only. The overall ambition of the steering community in the green knowledge system is to intensify interaction between stakeholders in the field and knowledge workers from green education and research. What measures could be taken to this effect and which structural barriers should be removed?

The research project "Systems Innovation", is part of a larger research programme, being carried out by Wageningen University and Research. It should formulate recommendations that are acceptable to managers in green research and education as well their financers in the public sector. Other components of the programme are focussing on procedures for monitoring and evaluation, and management of change within institutions. The programme is by far not the only effort being made to enhance innovations in the green sector. One example is the "Green Knowledge Cooperative (GKC)", banking on the glorious past of Dutch cooperatives in agriculture. All agricultural schools, colleges and Wageningen University are obligatory members of this cooperative, that manages a fund for joint activities of knowledge workers with practitioners. Although many interesting activities have been funded, complaints are there as well. The research team took special interest in the mechanics of activities that were supported by this GKC. In the following sections we will clarify our methodological point of departure, the main findings and our analysis.

Methodology: start asking the change agents

Innovations are new practices that have become widely accepted. The innovative capacity of a system is related to the ability of people within the system to create innovations. This involves sensing chances for improvement, experimenting with new practices and creating acceptance for valuable new practices within the range of practices in use. (e.g., Rotmans, Kemp & Van Asselt, 2001; Kemp, Schot & Hoogma, 1998; Geels, 2002). Since structures are created to streamline common practices, innovation occurs rarely without any struggle for breaking down structural barriers (Beers, Veldkamp, Hermans, Van Apeldoorn, Vervoort & Kok, In Press).

What structural measures could help to create a system that induces innovation? In spite of this seemingly impossible mission, its urgency is clearly felt. Circumstances are rapidly changing, public opinion is critical and demanding regarding agriculture, and major ecological threats are affecting ways of production as well as economical opportunities. The capacity to respond adequately to their changing environment is crucial for those who make their living in the rural space.

There is growing support for transforming current systems based on the approach of *New Public Management* focusing on accountable contract arrangements with measurable targets. Knowledge arrangements, funded with public money, should become more flexible and allow for emergent change, self organisation and co-creation (e.g. Termeer 2007).

The question remains how to do this in practice. In literature, little attention is being given to the link between over-all structures and the mechanics of interpersonal interaction. If so, actor interests are supposed to be driving forces for interaction. This is a basic assumption in most approaches in management of change, multi stakeholder processes, and also economic theory. Based on their interests actors pursue goals, and if this requires the contribution of others they might seek cooperation in 'win-win situations'. The other option to make other actors align with their goals is to exert power (hierarchy within organisations, economical power in markets or political authority in the public sphere). A stakeholder analysis investigates interests and power relationships. It results in opportunities for an actor to best make use of the power field to serve its own interests. Actor interests are taken aggregates of individual interests at the level of organisations or interest groups.

These approaches ignore an essential factor. Talking with successful change agents, their enthusiasm and passion always appears to go beyond the interests of the institute that pays their salaries. It is also hard to maintain the view that they work for their own personal interest only, unless one accepts that everything that makes individuals feel good is in their personal interest. In that case 'individual interest' is an empty concept and thus useless for analysis. Enthusiasm and passion in our investigation was linked with the ambition of individuals to contribute to collective interests.

Many authors have written about the importance of passion, inspiration and ambition. But what are the mechanisms by which structures enhance their occurrence or kill them? In a famous study Peters and Waterman (1982) found that enterprises with excellent performance all had a clear mission that was supported by their workers. This finding gave rise to a hype in projects for changing organisational cultures, starting with a mission statement everybody should believe in at the end of the project. The effects were disappointing, however. A shared mission is not the start of a good process but the result of it.

No one will contest the importance of enthusiasm and energy for every day work, and even more so for innovations. It is remarkable that there are not yet many tools available to take this energy factor into consideration. What will happen if we take ambition as primary driving force for change?

Ambitions are not similar to interests. An ambition is something to dream of, the will to achieve things: it generates the energy for action. Interests emerge as people start visualising concrete targets, and as they consider the position they need for reaching those

targets. Energising ambitions always reach further than individual gain. Support for this statement can be found in e.g. Maslov (1954) who discovered that at the top of the motivational staircase self actualisation is related to a feeling of being meaningful. Csikszentmihalyi (1990) found the same while investigating the phenomenon of flow. This overwhelming feeling relates to being meaningful for others, or at least to being a meaningful part of something that is larger than the individual self.

We assume that in any system there are people who follow their ambition and take initiatives. They might inspire others, who recognise their own ambitions and stir hope to bring them closer by joining the action. A shared ambition is a strong driving force. In any system there are also people who feel responsible for maintaining structure. Not every initiative is a useful one. Sooner or later the change agents will encounter the gatekeepers in the system, and they will have to negotiate about feasible changes. Change agents and gatekeepers usually are a minority in a system: others are the ones who follow, who do not take risks and just deliver what is being asked for. They are not so much concerned with the system or necessary changes, but rather with their own position for survival.

This distinction between change agents, gatekeepers and survivors is visualised in the simple version of the Triangle of Change *(figure 1)*. For change agents this model provides a tool to act strategically. First make sure to find sufficient supporters who share an ambition. Approach gatekeepers only after having acquired a position that ensures that the initiative is taken seriously. Then communicate about realistic changes with the followers. Don't waste energy on convincing survivors until the risks have been reduced to acceptable levels (Wielinga 2001, Wielinga et al 2008).
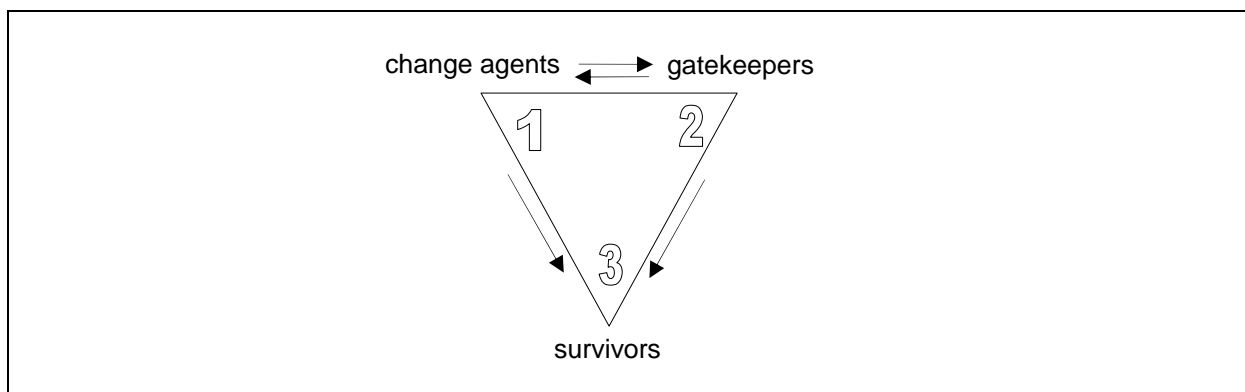
Figure 1. The Triangle of Change (simple version)

This model was the starting point for our investigations. First we looked for successful change agents. What was their key to success? Which parts of the structure had been helpful? What had been barriers they had to overcome? And what should change to increase the likelihood for innovations to occur? The change agents would be asked to make an agenda for structural changes. Next, the feasibility of this agenda would be discussed with the gatekeepers (managers and financers).

Observations: don't transform the system, but create space

Successful change agents were not difficult to find. Usually they had a reputation of having a contagious kind of passion, combined with some disrespect of rules and procedures. Some-times they cleverly made use of the structure, but if necessary they would go for their ambition in spite of the rules. Just ask around, and everybody knows whom you're talking about.

We looked for respondents amongst researchers, teachers and practitioners working on various themes such as agriculture, nature and food. Respondents should be involved in

collaborative efforts with knowledge workers and practitioners. The following examples are just a few amongst many:

- *Learning with Future* aims at mutual reinforcement of research and education in arable farming and horticulture, with commercial farms as the spot where practical learning takes place for students, teachers researchers and of course farmers.

- *The Dairy Cattle Academy* provides a professional network for progressive dairy producers, as a meeting place where they also encounter researchers and educators. The Dairy Academy is a breeding place for a wide range of joint activities.

- *Nature Management in Practice* offers opportunities for students to work on assignments from practice, related to the reconstruction of the area of Gelderland Valley. This is one of the areas where farms in intensive animal husbandry have to be replaced in order to reduce risks on animal disease outbreaks.

- *Versatile Countryside* promotes new economical activities recognising the many ways in which the countryside serves the urban communities: besides food production also recreation, nature, experience of space, peacefulness and beauty, reconnection of urban people with the origin of their food, tastefulness of regional and artisanal foods, etc.. The project provides a platform where students, teachers, researchers and entrepreneurs meet and work together.

- *Sea Farm* is an experiment to yield seaweed and other vegetable products in the salty sea branches in Zeeland province. The provincial green academy is the leading partner.

The interviews revealed a range of structural bottlenecks and suggestions for improvement. Some of them are highlighted here:

- Rigid structures are barriers for bottom up initiatives and collaboration between institutions. Clients of the GKC have too little influence on procedures that determine agendas and criteria for .e.g. funding programmes. These criteria for holding partners accountable often do not reflect the needs of reality. Self control through agreements between partners in *knowledge arrangements* would work better than top – down assignments.

- Networks of entrepreneurial visionaries have too little room for experimenting and for learning from mistakes. More people should be facilitated in learning from best practices and failures that have been made elsewhere. A *backpack* with tools for innovating networks should be made available (see as example: Networks with Free Actors, Wielinga et al 2008). Better use of ICT in this respect should be possible.

- *Free actors*: people who can create and maintain necessary connections are found to be crucial for innovation networks. However, there is no structural recognition for the work they do. An organisation that wants to provide space for free actors must be capable of applying tailor made management. Tools for such type of management are lacking so far.

After fourteen interviews we convened a workshop with the change agents for discussing our major observations under the title Catching Dreams. We hoped to conclude this meeting with an agenda for change that we could take along in the next stage of the research when we would engage into interaction with gatekeepers in het Green Knowledge System.

The outcome of this workshop was somewhat surprising. The audience told us not to be interested in a change of the system in the sense of reorganisations or new structures. Instead, they shared the opinion that a climate for innovations requires a certain degree of free space. The observations from the interviews were reconfirmed. The main conclusion of the meeting was that success is not made by structure but by people. People with the ambition to change need to connect with those who are in the position to provide room for these changes. Success is most often a process of small steps that are feasible in the eyes of managers. Good initiatives require tailor made management that allows for space to experiment with the risk of failure. Change agents need meeting places for learning and

inspiration. Financers should be more concerned about the quality of learning processes in networks than about reaching predetermined targets.

In the second year of the research, we focussed on managers: the gatekeepers in the system. Twelve interviews were made and several workshops have been conducted with programme leaders of the GKC funding programme.

Most managers we dealt with felt more like change agents themselves. They confirmed that the structure should leave more space for change agents. The role of change agent is actually not acknowledged in the structure, which is merely designed for a relationship between the funding government acting as a client with a shopping list and suppliers who are supposed to deliver products that should meet the specifications. Middle managers feel to be forced into a gatekeepers position by the funding agency. In this position they cannot play the motivating and stimulating role as they would like to.

The culture of holding partners accountable for reaching predetermined SMART formulated targets induces strategic behaviour of the actors involved. Clever games and hidden agendas emerge. Generally speaking it is being observed that struggles for positions, competences and funds take away a lot of energy at various management levels, to the detriment of enthusiasm, bright initiatives and especially: co-creation.

The game: Would you please give me ...?

Issues like those that surfaced in the previous section are hard to discuss in a formal setting. In order to investigate the mechanisms at stake and to enable communication with the respondents, we decided to develop a game. We used it in workshops as a starter for discussion. Role playing is closer to reality than discussing reality in retrospect. This way we could put *Triangle of Change* to a test. Would the model help to identify mechanisms in social behaviour, and would this lead to options for intervention? At what point becomes collaboration more than just give and take? What are the key factors for real co-creation? How do people cope with insecurities that come along with processes of innovation that lead to unknown areas?

The game, including discussion, takes about one hour. Three to six participants can play, others will be observing. The players are supposed to be a team, working for a communication company. Their task is to brainstorm about a leaflet, as part of a communication campaign. The subject may vary along with the audience. The assignment of the team is to develop the leading idea for the leaflet. Prior to the brainstorm, they have to pick a picture from a large collection spread out in the room which is appealing to them. They meditate for a short while about what this picture is telling to them. The key factors from the stories of each player should be recognisable in the team result.

Although all players have equal functions being team members, they receive a hidden agenda that is not being revealed to the others. There is pressure on the team. In view of the economical crises, the company will have to lay off personnel within due time. The role descriptions give each player a position to strive for: a creative artist, an expert, or someone who hopes be promoted to a management position.

After ten minutes of brainstorming the facilitator announces a time out. Players expose their feelings and observers tell what they have seen, including body language that reveals emotion. Then the players are asked what they would need from other players in order to perform well when the brainstorm will be continued. *Could you please give me...?* For example: more recognition, structure, inspiration, safety, etc.. They are also asked what they could give to others. Then the time out is over and the game continues for another ten minutes.

The effect of the time out can be impressive. In the first phase, most energy appears to be spent on struggle for positions. Arguments about contents are commonly being used as

weapons at the level of meta communication where a different game is going on. The time out creates space to clarify real ambitions and to express what each player would like to contribute. Once the dust has settled down and peace has come at the level of positions, people are ready for co-creation. Then the players can give full attention the ideas of each other for the result. Co-creation means that the idea that emerges is more than an idea of someone imposing it to others or just an addition of the stories at the start of the brainstorm. Cooperative effort has created something new. When this happens, it gives great satisfaction.

The yield of using the game in our research includes a number of interesting points regarding the mechanics of interaction. Interaction during the time out facilitates the process of seeking complementarily in positions. Our observations so far confirm that the three connected positions of change agent, manager and supplier are essential indeed for co-creation. If someone shows the ability to take the role of the free actor, this speeds up the process considerably. Roles shifting towards disconnected positions have been observed as well, especially the ones of survivor and gatekeeper. People taking these positions hamper the process of co-creation. Proper intervention can stimulate them to shift back within the Triangle again.

Clarifying the mechanics of interaction this was an eye opener to many participants. Furthermore, the feeling of being able to handle such a process better is empowering. This makes the game suitable for team building.

Our purpose for using the game in meetings with middle managers in the knowledge system was to create a starting point for discussion. This worked out well. Experiences from the game could be translated to frustrations regarding the system, and gave room for analysis of blockages and opportunities for action.

Lastly, the game has increased our own insight, leading to modification of the model. It can be concluded that it is a useful tool for research on the relationship between personal behaviour in interaction and mechanisms at the level of structures.

Analysis: the revised Triangle of Change

The Triangle of Change enriched

What language and tools are appropriate to discuss what change agents actually do, and how this relates to the structure they are part of? Obviously, change agents are not just doing what they are told, they don't refrain themselves to their formal task description. Does it matter what mandate they formally have? Could there be an optimal task division for enhancing innovations in knowledge networks, or is it merely a matter of personal qualities, and would it be better to invest in people only? Is it a combination of both?

Experiences with the game taught us that we had to become more precise in distinguishing functions and actual behaviour. The terminology in use was too fuzzy: they mean different things to different people. We redefined functions, positions and roles. A *function* describes a formalised task in a system, with duties and mandates. A *position* indicates the actual influence someone has in a system (team, organisation, network etc.). A *role* refers to the behaviour someone shows in a system at a given point in time.

Someone can have the function of a gatekeeper. Meanwhile she chooses the role of an change agent, trying to get people along with his plans. However, she might not get the position of the change agent: this depends also on the behaviour of the other actors involved. If she looses the game, she might end up in the position of a survivor, just trying to save her reputation.

A function indicates what formal means someone has to influence others, and what others expect him to deliver. *Functions relate to power*. A position refers to the kind of influence

someone requires for achieving what he wants, as he sees it at least. *Positions relate to interests.* The division of positions emerges from interaction and is usually shifting over time. A *role* describes the behaviour someone is performing, consciously or unconsciously. It tells something about his willingness to act, or maybe his lack of will. *Roles relate to ambitions.* The terms being used in the Triangle of Change can be applicable to functions, positions as well as roles.

The model shows the track of a change: it starts with ambitious agents who make a move, it has to pass gatekeepers who are in the position to open up doors or to keep them closed, and then it alters conditions for survivors, making them follow the change or not.

The problem with this simple model is that people who are supposed to be gatekeepers or survivors do not recognise themselves as such. Although the model was not meant to be normative, it feels like it, because people feel denied in their contribution as soon as they do not identify with a change agent.

In the revised version of the Triangle of Change *(figure 2)* we gave separated terms for actors who contribute to a certain process of change and to those who are not connected.
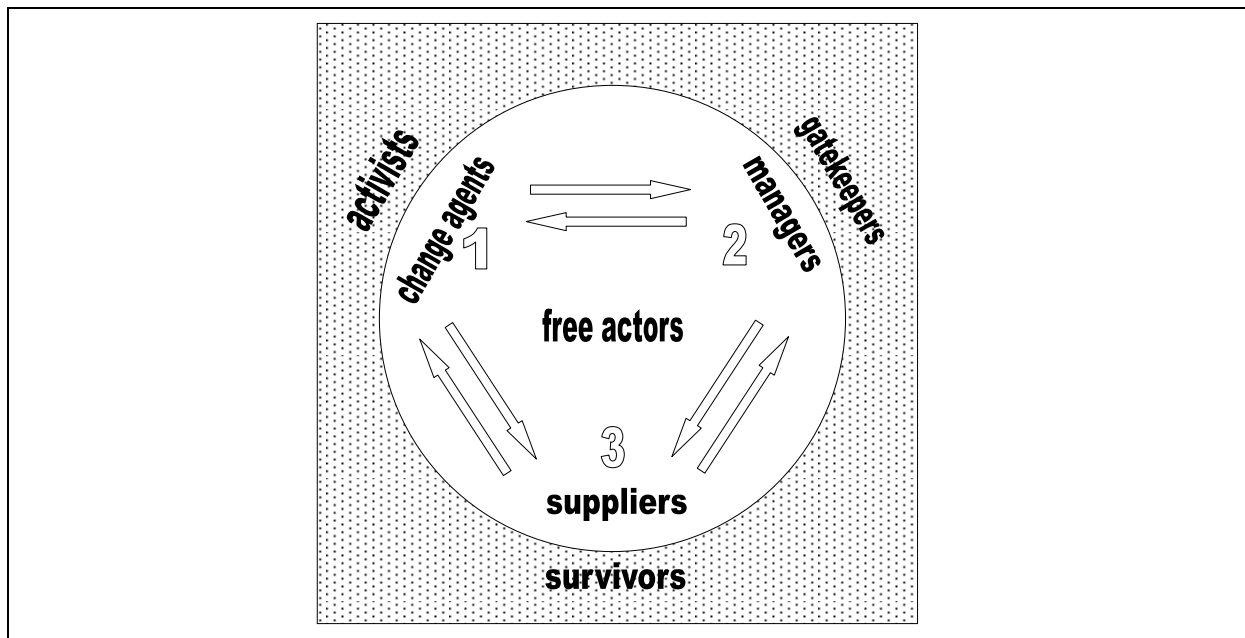
Figure 2. The revised Triangle of Change

Change agents start an initiative for change or they become partners. Change agents see opportunities or want to solve problems. They share an ambition and this generates energy. Usually change agents find each other in informal networks. When they convert their dreams into action, they have to relate with others in the system. *Managers* feel responsible for the structure. They contribute to change by organising what is necessary, by mobilising resources and by keeping risks within limits. *Suppliers* deliver the building bricks that are needed for change. For example: experts might offer technical know-how or process skills to add quality to the initiative. A successful process of change requires all three positions to be fulfilled.

In each corner of the triangle actors can act in a disconnected manner as well. *Activists* equally strive for change, but they do not connect with the system. Activists try to force change from the outside. A network of activists shares an ambition which gives them energy but they use it for struggle. *Gatekeepers* feel responsible for the structure just like managers, but they resist to change. They do not connect with the change movement and defend their position of power. *Survivors* are primarily concerned with their own position in which they try

to survive. They are not connected in the sense of feeling responsible for either maintaining the system or changing it. Whatever is useful for their survival they will do.

Survivors constitute a fuzzy category since they are versatile in finding ways to survive. They might be followers who just do what is being asked from them. They also might perform as active suppliers when this helps them to survive. They might as well act in disguise as gatekeepers, managers or even as change agents when it serves their interests. Usually they do not openly share their real intentions, and this makes it hard to have real dialogue about what to do. An indicator for dealing with survivors is a declining energy level. This is because a shared ambition as a driving force is lacking.

It is important to note here that this distinction does not imply any negative judgments about survivors, gatekeepers or activists. They all might have legitimate reasons for choosing these roles. Someone who is fully occupied with other concerns has good reasons to refuse a request from a change agent to join a risky new project, and thus to take the role of survivor for this case. Furthermore, with this typology a system is painted in only six colours. Reality is more colourful than that. Actual roles and positions are composed of various elements with shifting balances between the different components over time. Lastly, the typology is relative to a specific process of change. Meanwhile the same people might take different roles and positions concerning other issues.

The simplification is justified if it serves its purpose. The Triangle of Change has been designed as a strategy tool for change agents: whom to approach and in what order? In the revised version, it recognises the change agents as prime movers and the managers as the ones who provide necessary structure for action. It also recognises the suppliers in their support, adding quality and volume to the action. We assume that in a healthy process of change a good combination of these three positions are essential. The model helps change agents to identify actors they need and to choose proper timing for their actions.

We found the revised version of the model also useful to clarify factors affecting the innovative capacity of the Green Knowledge System.

If there is a low threshold for actors to engage in processes of co-creation, the probability of innovations is high. Co-creation requires a high level of trust. Something really new can emerge if people are ready to leave old views and patterns behind for exploring new ideas and practices, and also take the risk of failure.

In practice however, much energy of stakeholders appears to be spent on acquiring positions. Only if there is sufficient acceptance at that level, co-creation comes within reach. Regretfully, many programmes and projects, although designed for stimulating collaboration, never surpass the level of position struggle.

We assume that the competition for acquiring positions is inevitable. It cannot be prevented by changing structures or procedures. It is an essential part of any process in order to build up trust. Partners have to probe each other to find out what they can expect when things get even more complicated. What is needed here is the ability to recognise when this competition is helpful, and when it turns into a destructive struggle.

Following the revised Triangle for Change actors in any connected position carry the suspicion of being their disconnected counterparts in disguise. In the probing stage other actors seek evidence for this suspicion. If an actor succeeds in convincing others that this suspicion is not justified, trust will grow. On the other hand, if actors are denied in their genuine ambition, their role can shift into the disconnected version. For example, *change agents* could be activists in disguise, undermining the structure, including the position of power of people with responsibilities and the safety of the followers. For building up trust they must show understanding and compassion. On the other hand, others can turn their suspicion into a self fulfilling prophecy by ignoring the genuine ambitions of the change agents.. Another example could be the *managers* who bear the suspicion of being gatekeepers, primarily focussed on keeping control. If they don't show any ambition or

flexibility, they will confirm what others fear and provoke strategic behaviour. This reinforces their conviction that strict control is necessary. Such escalating patterns block the way to co-creative interaction and innovation.

Functions are linked to expectations and means of power. Someone with the function of manager is likely to perform the role of a manager as well, having more means than others to take the corresponding position. This entails that also functions are linked to suspicion. Experts who are being hired to assist in a project have the formal function of supplier of knowledge. The suspicion will be that they only contribute for the money, and thus take the position of survivor, just doing minimal effort for maximal profit.

Obviously these issues are rarely part of the formal agenda. It can take a lot of energy when people pretend to discuss content while underneath the surface quite different games are going on. When actors succeed in creating mutual acceptance concerning positions, this frees the energy to learn from each other and to co-create.

It is extremely helpful if there is at least one actor who has already a position beyond suspicion. Moreover, he should have the insight to recognise unhealthy patterns and the skills to intervene in a manner that removes blockages for connection. This is the position and role of the *Free Actor*. In figure 2 he has a central position. The free actor lubricates the system. Observing well functioning networks that depend on voluntary contributions of all members, such a free actor can practically always be recognised (Wielinga et al 2008, 2009a).

In rigid and target driven structures there is limited space for free actors. Following this analysis it is likely that for this reason the threshold for doing what it takes to create innovations is high.

Conclusions

What did the research project reveal so far about structural measures that could help to create a system that is favourable for innovation? People with good initiatives are every-where: they have always been there and they will always be. Their biotope selects. If structural barriers are high, only few will succeed in their innovative efforts. If the system is to be made more inviting, people who are in power to open up doors can make a move. Policy makers at national and provincial levels managing funds for stimulating innovations, managers governing institutions for research and education: they can improve conditions for innovative knowledge arrangements to emerge.

We identify three domains for action.

[1] *Networks and contacts.* In this domain the main action is *to seduce.* Change agents and free actors should be recognised in their role and be given space to act. Communities of Practice facilitate mutual learning and can be encouraging in difficult periods every free actor goes through from time to time. Such people and networks can be made more visible and more easy to find. Various varieties of *knowledge brokers* (e.g. Klerkx 2008; Wielinga et al 2009b) can be classified in this category.

[2] *Concepts and experiences.* In this domain the main action is *to develop.* The exchange of best practices and clever mistakes (a failure that leads to new insights can be at least as helpful as a success) should be promoted. Managing processes of co-creation and inno-vation require a set of tools that is different from those being commonly used for project implementation (Wielinga et al 2008). Managing tools to provide appropriate space for free actors (not too little, but also not too much) still have to be developed. Also tools for monitoring and evaluation need to be adapted for innovative processes, since tools for measuring the degree of realisation of prefixed targets do not apply per definition. If the outcome is predefined, nothing new has happened.

[3] *Structures and Institutions.* In this domain the main action is *to transform.* A lesson learned in this research project so far is that people involved in innovative activities do not expect much from major transforms. It is an illusion to think that people will start behaving differently when institutional walls are being replaced to somewhere else. Transformations will occur incrementally when more people feel inspired to take action. When many start to ignore the formal borderlines it is time for adjusting the bedding to the flow. Nevertheless, thresholds in the system that are clearly too high in the eyes of many actors involved should better be removed.

The mission of the research project has not yet been achieved. The next step is to enter into dialogue with the managers in the steering community of the green knowledge system: the enabling community that should allow measured freedom for processes of co-creation. This will have a chance if realistic risks as felt at that level are taken into consideration.

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