

## 4 The Dynamics of Novelty Production

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A recent and multidisciplinary research programme that centred on novelty production in rural development processes (AGRINOVIM, realized in Italy, South Africa and The Netherlands), defined novelties as

*'[being] located on the borderline that separates the known from the unknown. A novelty is something new: a new practice, a new insight, an unexpected but interesting result. It is a promising result, practice or insight. At the same time, novelties are, as yet, not fully understood. They are deviations from the rule. They do not correspond with knowledge accumulated so far - they defy, as it were, conventional understanding. Novelties go beyond existing and explained regularities'* (van der Ploeg et al. 2006:200).

Thus, novelty production is about new insights, practices, artefacts, and/or combinations (of resources, of technological procedures, of different bodies of knowledge) that carry the promise that specific constellations (a process of production, a network, the integration of two different activities, etc) might function better. Novelties can be embodied in particular artefacts, in new organizational devices or consist of particular institutional arrangements. Novelties are, as yet, unelaborated in terms of codified (scientific) knowledge. Novelties can not easily be transported from the specific context from which they emerged and germinated, into other contexts. This is a major difference between a novelty and an innovation. An innovation is an expression of codified knowledge that is embodied into an artefact and which can travel globally. A novelty, by contrast, is associated with and is part of a system of tacit knowledge and is highly bound to (and rooted in) a local context.

Wiskerke and van der Ploeg (2004:1-2) use *seed* as a metaphor to emphasize three essential elements of a novelty.

*'First, novelties need time - just as seeds require cultivation and nourishment to germinate, grow, flower and set fruit. They follow a specific unfolding through time before the final outcome (their 'usefulness') can be assessed [...]. Secondly, seeds require a particular ordering of space, or more generally: a particular organization of context. Sowing seeds on rock bed or in a desert is useless. One needs a well prepared seed bed, a well organized distribution of*

*water, proper crop protection, and so on [...]. Thirdly, the inherent insecurity needs to be stressed. Just as harvests may fail, novelties might turn out to be failures as well. Novelties are related to expectations. It is, however, far from evident whether the eventual outcomes will match the initial expectations'.*

In short, a novelty is, to echo Rip and Kemp (1998), 'a new configuration that promises to work'. In retrospect the impact of novelties has been expressed with the concept of X-efficiency (Yotopoulos 1974). X-efficiency refers to a superior economic performance: in which economic results exceed the level that can be explained by the available factors of production and technology. X-efficiency is the 'unknown part' (hence the X), which can nonetheless be very important. Novelties, then, are a decisive ingredient in creating X-efficiency. Novelties make the economy perform better: they drive the 'frontier function' in an upward direction (Timmer 1970) and are decisive in 'disembodied technological change' (Salter 1966).

### **Novelty production, learning, contextual knowledge and territory**

Novelty production is closely associated with *contextual knowledge*'. With more (and deeper) contextual knowledge there will be more novelty production. On the other hand, high levels of formalization and centralization (and a subsequent marginalization of tacit knowledge) will hinder novelty production. In this sense it can be argued that contextual knowledge is a crucial and indispensable ingredient of the rural web. Following Nonaka and Takeuchi (1995), Belussi and Pilotti (2000) identify four important learning processes that flow together to create contextual knowledge. These processes are:

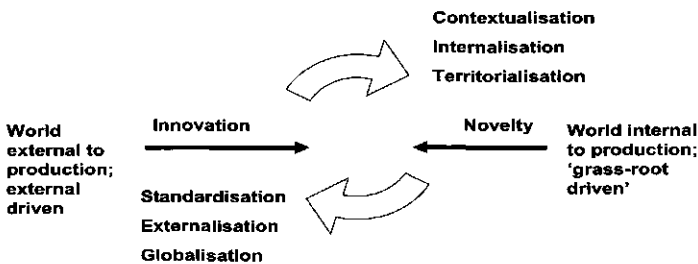
- a *socialization*, where individuals collectively share their tacit knowledge;
- b *externalization*, in which this tacit knowledge is transformed into codified knowledge, a necessary step for diffusing knowledge in a larger circuit beyond the original group;
- c *recombination*, this involves the reuse of various types and sources of tacit and codified knowledge to create new knowledge, through the use of inter-firm networks and other linkages;
- d *internalization*, which describes the process through which firms absorb external knowledge and transform it back into tacit knowledge.

Together these learning processes flow into the 'stock of contextual knowledge'. Contextual knowledge can be understood as the social output of a historical process of the accumulation of technological capabilities and skills. This occurs only when knowledge is actively mobilized, circulated and further developed within a given territory. Contextual knowledge is an important source of novelty production<sup>1</sup>.

Novelties embody new (and often unexpected) combinations of heterogeneous elements of knowledge contained in the stock of contextual knowledge. Experiences obtained with the practical use of novelties will, in turn, enlarge the territorial stock of contextual knowledge.

Figure 4.1 summarizes some of the crucial differences between the learning processes underlying novelties and innovations. It shows that novelties are primarily ‘grass-root’ driven, grounded in the *worlds and processes of production and labour* and spurred by learning process that occur through contextualization, territorialization and socialization. By contrast, innovations primarily stem *from worlds that are external to the sphere of production*: expert-driven learning processes that are characterized by standardization, externalization and globalization. These processes can also translate novelties into innovations and the opposite might also occur: with innovations being translated at the grass-root levels into novelties through contextualization, territorialization and internalization.

Figure 4.1 Novelties and innovations



The existing literature identifies a number of mechanisms that can favour the emergence and further unfolding of novelties.

- 1 The presence of knowledgeable agents (potentially individuals, firms or institutions), and their capability of combining dispersed bits of knowledge through channels that allow for repeated interactions (Horlings 1996).
- 2 A diffuse social system of SMEs, with low levels of internal organizational costs, high levels of mutual trust and a high ‘birth-rate’

- of new firms (often founded by employees of technologically advanced firms, who start their own new enterprise).
- 3 Specialization at the regional or district level (reflecting the Italian 'districts') in combination with a well-developed division of labour organized through inter-firm relations of subcontracting.
  - 4 Awareness within the firms and institutions about novelties and the ability to absorb and assimilate new knowledge.
  - 5 Artisanal processes of production, which emphasize skills and skill-oriented technologies (Bray 1986), coupled with demanding and discerning clients.
  - 6 Networks that allow for learning (as outlined above); which can sometimes be explicitly organized as e.g. *field laboratories* (Stuiver *et al.* 2003).
  - 7 Internal differentiation (in the Dutch horticultural sector there are the small enterprises that have room for experimentation - once a new product or procedure is 'ready' it is passed onto the large ones).
  - 8 R&D institutions that collect and build upon local novelties. Vijverberg (1996) studied innovations and novelties in glasshouse production in The Netherlands and came to the conclusion that novelties that are derived from practice are more successful and more widely taken up than innovations that have their origins solely in the agri-expert system.

### **Trajectories of novelty production in agriculture**

The history of agriculture is a history of novelty production. Over the centuries farmers have introduced, on purpose or unintentionally, small changes in the process of production, resulting in a steady but ongoing increase in yields. This process has been amply documented (see e.g. Slicher van Bath 1960; Boserup 1965; de Wit and van Heemst 1976; de Wit 1983; Richards 1985; Bieleman 1987; and Osti 1991). Analytically speaking it might be argued that novelty production is intrinsic to agriculture as a result of co-production, i.e. the ongoing encounter, interaction and mutual transformation of the social and the natural (Toledo 1992; Rip and Kemp 1998; Roep 2000; van der Ploeg 2003). Peasant innovativeness, (Ventura and Milone 2005a) unfolds along different trajectories that are all grounded, in one way or another, in co-production. These trajectories centre on:

- 1 Improving resources
- 2 Fine tuning (of growth factors)
- 3 Boundary shifts
- 4 Re-patterning resource use

We will briefly illustrate and discuss these trajectories with examples from farming. This should not be taken imply that novelty production is limited to agriculture. On the contrary, it is very much present in small and medium enterprises, as is clearly demonstrated in the Italian literature on economic districts (Schiavone 2005; Dargan and Shucksmith 2006; Maillat 1995; Camagni 1995). The examples we have selected share several common features: they contribute to an improvement in the economic performance of farm enterprises (and as such are one of ever so many responses to the squeeze on agriculture); they enhance sustainability and they also imply learning processes, often of a joint nature.

### *Improving resources<sup>2</sup>*

Agriculture is constantly differentiating and transforming itself (Altieri,1990; Toledo 1992; Sevilla Guzman and Gonzalez 1990). New constellations emerge, containing remoulded resources and new combinations of resources. Hence, the nature entailed in farming is 'not the one from Genesis' as Koningsveld (1987) beautifully phrased it. Instead, living nature is constructed, reconstructed and differentiated within long and complex historical processes, which build particular characteristics into resources, giving rise to particular regularities that characterize the behaviour of the resources. These regularities are neither fixed nor universal: they might be *modified*, at particular conjunctures in time, into other possibly even contrasting, regularities (NRLO 1997; Ploeg 2003; Groot *et al.* 2006).

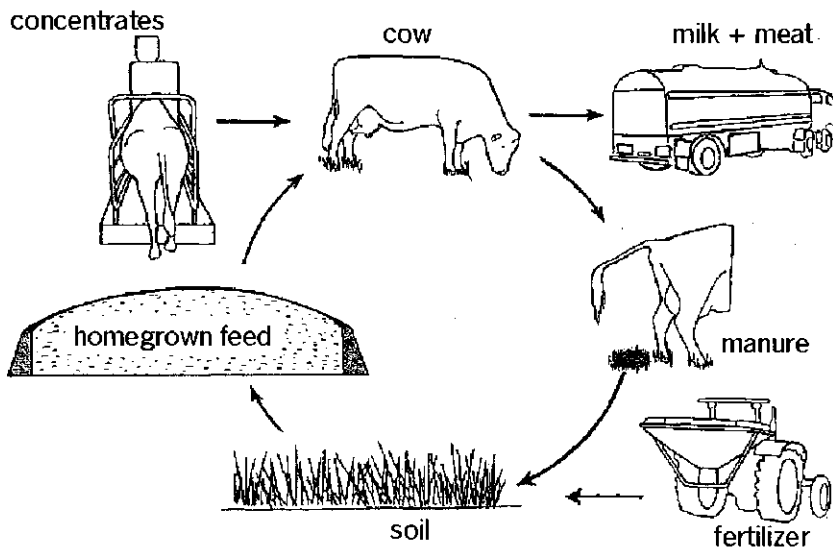
In theoretical terms this implies that the behaviour of natural resources cannot be properly understood outside the pattern of land use (or style of farming) within which they are combined (according to a particular balance) and through which they are reproduced, developed and particularized into distinct entities that fit optimally with the other entities that form part and parcel of the same land use pattern (Sonneveld 2004). Concrete resources are the outcome of co-production: they are shaped and reshaped in and through the constantly evolving interaction between man and nature. That is, *co-production feeds back on the resources on which it is built*. Farming is not a uni-directional process. It is not simply *based on* resources, but also entails *feedback* effects through which resources are unfolded and improved in differentiated ways.

In the Dutch context 'good manure' is probably one of the most telling but also one of the most contested novelties for illustrating these different feed back mechanisms. The background of this particular novelty lies in the modernization process that deeply restructured farming practices and the resources drawn upon. 'Well bred manure' once was a highly valued

resource. Its making and use were closely embedded in local cultural repertoires. However the modernization trajectory led this valued resource to be converted (unintentionally) into a waste product.

For some farmers this somewhat worrying state of affairs triggered a multi-faceted search to recreate good (or at least better) manure. Thus, the search for good manure started as a critique on inefficiency and losses (Verhoeven *et al.* 1998). It also departed from the careful observation and interpretation of heterogeneity: the grassland of some farmers was far more productive than that of others in the same neighbourhood; and it was suspected that this could be related to the differences in the manure used in the fields.

Figure 4.2 Cattle-manure-soil-fodder balance



For the farmers involved, 'good manure' was far from being an isolated artefact. Rather it is the outcome of a *rebalanced* resource use that can best be illustrated by reference to Figure 4.2 (derived from Verhoeven *et al.* 2003). Technically speaking, good manure is slurry with an elevated C/N ration and a relatively low concentration of ammoniac nitrogen (and consequently an elevated concentration of organic nitrogen). These and many other features are now (after nearly 15 years) well known, documented and scientifically explained (see e.g. Verhoeven *et al.* 2003; Sonneveld 2004; Goede *et al.* 2003; Reijs *et al.* 2004 and 2005; Reijs 2007). At the beginning, though, there only was the *expectation* that manure could be made better. This also applied to the constellation as a whole (see Figure 4.2). It was expected that rebalancing the constellation (Verhoeven

*et al.* 2003) would render positive outcomes – especially since the modernization trajectories had been focussed nearly exclusively on one component of the relevant whole (the cow) and had created many frictions and setbacks.

At the beginning good or improved manure clearly represented a novelty. It was different in terms of composition, outlook, smell and its effects. It differed also in as far as its history, i.e. its making was concerned. At the time, many exponents of the Dutch agricultural expert system considered good manure to be a *monstrosity*. Currently, though, ‘good manure’ is the logo for new practices that are now spreading widely across The Netherlands. Its effects include improved economic performance (by reducing costs: see van der Ploeg *et al.* 2003; Groot *et al.* 2006) and providing more opportunities for further farm development.

In a similar vein, Milone (2004) analyzed the novel experiences of shepherds in the Abruzzo mountains, an Italian region that had suffered a decades-long process of slow, and seemingly irreversible degradation of the mountain pastures. This process was due to the strong decline of sheep farming: a process that the modernization of regional agriculture did little to correct and ironically, even accelerated. .

In this context, an initially small group of young shepherds started to re-use these mountain pastures. Just as with manure in the Northern Frisian Woodlands, it was a forgotten (or at least neglected) and degraded *local resource* that became the starting point for novelty production. Rebalancing was also a key here. The use of the mountain meadows was combined with the choice and selection of sheep breeds that are highly adapted to the difficult mountain conditions. The choice was made to focus on cheese production and to this end new, and mobile, cheese processing units were designed. After considerable and well phased experimentation a range of new cheeses (some of which, such as *Gregoriano*, a soft cheese, and a smoked ricotta cheese were new types) was brought to the market. This initial development opened a range of other circuits over time, including the group’s own shop and restaurant (linked with agro-tourism services) and internet sales (which now reach as far as the USA and Germany). These same circuits were also used for selling meat and, in a later stage, for wool and derived products.

Today the enterprise employs the equivalent of 20 full time employees, with an index of 26 adult animal units per unit of labour force. This indicator is a remarkable contrast with conventional sheep breeding (1 labour unit for 60 animal units) and particularly with industrialized meat production in the nearby Po Valley (1 labour unit for 500 adult animal units). Thus, the initiative in the Abruzzo mountains gives far higher

employment levels than conventional agriculture. This is especially important in a marginalized mountainous area. In several respects the novelty production represents a rupture with the past. It has created new networks (with consumers, with workers and between the shepherds) which are in stark contrast with the atomization of actors and the anonymity of markets that prevailed before (and this also represent a new *embeddedness*; see Chapter 8 of this book).

An important feature of Milone’s study is that it meticulously explores the economics of this novel way of production. Table 4.1 (derived from Milone 2004) summarizes the main findings.

Table 4.1 Economic performance (Euros per sheep)

Typology	Specialized breeding		Novelty	
Total revenue	208.60		296.00	
Breeding and milk production costs				
- Feed	38	19%	23.6	14%
- Family Labour	42	21%	28	17%
- Employed labour	90	45%	75	45%
- Rent for pasture land	--	--	16	10%
- Technological costs	20	10%	15	9%
- General costs	9	5%	8	5%
Milk processing costs			57	52%
- Family labour			32	29%
- Employed labour			15	14%
- Technical costs			10	9%
Marketing costs:			53	48%
- Family labour			20	18%
- Employed labour			10	9%
- Technical costs			23	21%
Total costs	199		275.6	
Net profits	9.6		20.4	
Labour income plus net profits	141.6		210.4	

These data show, in synthesis, that this novel approach to shepherding yields 50% more Value Added per sheep than conventional, specialized sheep breeding. In addition the novel approach is also leading to an increase in the size of flocks, while the conventional approach continues



to result in further decline. This illustrates the superior performance (see also Chapter 1 and 3) that novelty production can give rise to.

Table 4.1 also shows that novelty production not only affects the technical side of farming, but that it simultaneously re-patterns the socio-economic structure. It is an appropriate response to the squeeze on agriculture. Similar differences have been found for novelty production in other sectors and other regions (see e.g. Swagemakers 2002; Wolleswinkel *et al.* 2004; ADAS 1996 which show how agrarian programmes for nature and landscape preservation have also increased employment and increased the total Value Added in the regional economy).

### *Fine tuning*<sup>3</sup>

Secondly, novelty production in agriculture may emerge out of (and proceed as an improved) the coordination and fine tuning of the extensive range of growth factors entailed in agricultural production processes (de Wit 1983). Examples of growth factors are include the amount and composition of nutrients in the soil, the transportability of these nutrients, the root capacity to absorb them, the availability of water and its distribution over time and so forth. Even the cultivation of wheat involves more than two hundred such growth factors and more emerge as our knowledge grows. It is important to reiterate that these growth factors are not constant over time. For example, the amount and composition of nutrients in the soil are modified through the work of farmers (see Hofstee 1985 for an impressive discussion of farmers' management of soil fertility before chemical fertilizers were available). A decisive feature of farming is that these growth factors critically depend on the active and deliberate behaviour of farmers. These growth factors form the many elements of a socio-technical constellation within which the 'technical' (or 'natural') and the 'social' cannot be separated; in practice they fuse together. The 'transportability and distribution of nutrients', for instance, depends on ploughing, while the availability of water is regulated through irrigation and drainage. In general, every growth factor depends on (and is calibrated by) a specific task within the labour process.

In the end, yields depend on the most limiting growth factor, as illustrated in Figure 4.3 in which the growth factors are represented as the staves of a barrel (von Liebig, 1855). The water level, i.e. the yield, depends on the shortest stave. Within their *praxis* farmers are continuously looking for the 'shortest stave', the limiting factor. Through complex cycles of careful observation, interpretation, re-organization (often initially taking the form of experiments) and evaluation, novelties are found and/or created. That is, existing routines are changed. This is an ongoing process: once the original limiting factor has been corrected,

another will emerge as the newly limiting one (an extended discussion of this is given in van der Ploeg *et al.* 2004).

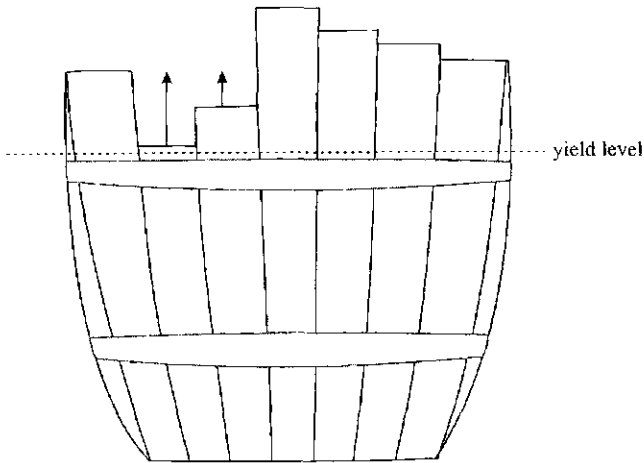
During the modernization trajectory the driving forces of agricultural growth changed in a radical and far reaching way. Whilst for centuries it was farmers who searched for and then corrected the limiting growth factors (the 'short staves' of figure 3), the era of modernization saw agrarian sciences take over this role of upgrading specific growth factors (and subsequently adjusting others). In consequence a new division of labour emerged: farming became increasingly embedded in, and dependent on, socio-technical regimes and the process of upgrading was considerably accelerated.

The accelerated upgrading of growth factors, and the associated intensification, specialization, spatial concentration and scale enlargement, increasingly ran into a range of social and ecological limits and reactions. The more so since the natural growth factors entailed in the local eco-systems were replaced by artificial growth factors: with the 'art of farming' becoming increasingly disconnected from locally available resources and the eco-system and from local socio-economic patterns and relations (Altieri 1990; van der Ploeg 1992). This has increasingly blocked novelty production by farmers (and not only farmers).

In contrast with the logic of modernization, novelty production in agriculture is a highly *localized* process: that is dependent on local eco-systems and on the local cultural repertoires in which the labour process is embedded and organized. This localized character implies that *novelty production is highly interwoven with the endogeneity of the rural economy*. The latter feeds the former; and the former often strengthens the latter. This is especially relevant today when the search for sustainability often requires a generalized and well co-ordinated 'down-grading' of growth factors, which often crucially implies (re)centring around the specificity of the local eco-system (van der Ploeg *et al.* 2004).

This localized character also implies that what emerges in one place (and at a particular time) as an interesting novelty, will probably not pop up in another place, or that if it does it might have adverse effects or hold little or no promise. Novelties are always built upon (and hence dependent on) a specific balance between tacit and codified knowledge. Before novelties can 'travel' from one area to another they have to be 'unpacked' from the specificities of the local (including local knowledge) and then to be 'repacked'. The learning processes that draw on socialization, internalization and recombination, are very important in this complex trajectory.

Figure 4.3 The growth factors that influence agricultural production processes (von Liebig 1855, De Wit 1992)



#### *Boundary shifts<sup>4</sup>*

Thirdly, novelty production currently involves the *extension of farm boundaries*, and this is particularly the case in the context of rural development processes (described in Chapter 2). The inclusion of new domains and associated activities into the farm enterprise (e.g. food processing, food marketing, nature protection, agro-tourism, etc; see Figure 2.2 in Chapter 2) implies boundary shifts. In this respect rural development might be equated to ‘entering into the unknown’. New experiences are translated into new knowledge which in turn inspires new practices. This is necessary since a simple and straightforward adoption of e.g. industrial technologies for food processing in the (changing) farm would be absolutely inappropriate, just as the retail techniques used in supermarkets cannot be used for farm shops. New techniques, new approaches, new artefacts, new networks, etc. have to be developed. Consequently, new knowledge is needed. This applies not only to the creation of new activities and new networks that add income and employment opportunities; it is also valid for the construction of new responses that correspond to changing needs and expectations of society at large and for the reconfiguration of rural resources. Ventura and Miloni (2004:57) define this type of novelty production as a ‘*redefinition of farm boundaries*’ and emphasize that in the case of farming it is ‘*likely to be faced with complex innovation processes that ultimately might lead to a redefinition of the very boundaries of the farm/firm*’. In this respect, rural development processes currently constitute extended processes of learning and

knowledge sharing. These processes are driven forward by novelties, just as they result in novelties. Novelties are, in a way, the carrier of knowledge dissemination. Ventura and Milone specifically argue that farms that reorganize their entrepreneurial activities towards *multifunctionality* (and thus actively redefine their farm boundaries) are characterized by complex innovations of product, process and organization and are highly dependent on internalizing learning processes within the farm. This represents a remarkable contrast with conventional innovation paths in agriculture, which are far more characterized by the '*expropriation of the cognitive element of innovation, leaving the farm only the work of implementation*' (*ibid.* 2004:79).

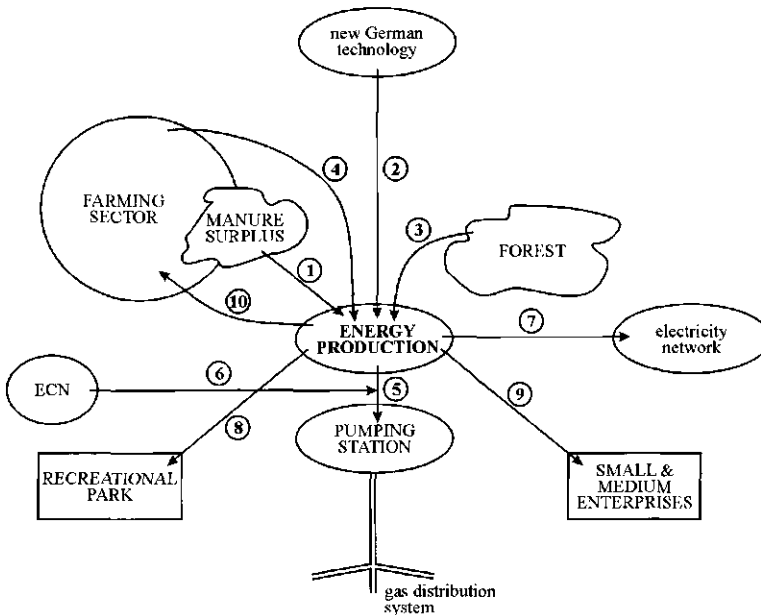
*Re-patterning of resource use*<sup>5</sup>

Fourthly, novelty production in agriculture can also refer to an active re-patterning of resource use. This can be illustrated by an initiative in the Dutch village of Zwiggelte, located in the northern Province of Drenthe (this illustration is derived from van der Ploeg 2008). From the early 1990s onwards, 7 farmers from this village started to look for alternative farm development opportunities. Their initial proposal is illustrated in Figure 4.4. It highlights an important design principle: that the art of farmer-driven innovativeness centres on *the creation of new, as yet not existing connections*. Of particular interest here is that the *territory*, instead of the *sector*, is both the context for and the locus of the construction of such new connections.

A first connection (at that time not widely known) was the one between manure surplus and energy production. However, the efficiency of a straightforward conversion of manure into energy turned out to be very low. Here a second connection turned out to be decisive. They came to find about a new technology – developed in Germany – that considerably increases the efficiency by fuelling the process with carbon. After a study tour to Germany (this is the second connection) they concluded this could be applied to their own situation, especially as they had a possibility to create a third and fourth connection: by maintaining the local forests they could 'harvest' a lot of the required carbon, and could also use agricultural waste. Conversion of carbon enriched manure provides gas. This provoked the fifth connection: an ancient pumping station could be re-used to pump the gas directly into the delivery system. To convince the company (*Gasunie*) that controls gas distribution, a sixth connection was created and used: the *Petten* research institution (ECN) was asked to make a chemical and physical analysis of the gas to be produced. It turned out to have the same characteristics as natural gas; hence it could be introduced without into the delivery system any inconvenience.

Being shrewd operators, the Zwiggelte farmers immediately realized that one of the main risks would be their nearly complete dependency on the *Gasunie* network, which controls all gas distribution. Thus a seventh connection was studied: the possibility of using a turbine to convert the gas into electricity and to channel it into the regional distribution network for electricity. This would provide them with more flexibility. However, their conception of a new pattern did not stop here. Producing electricity from gas produces a lot of heat, which is normally lost. Hence connection number eight was invented: channelling the heat towards the local bungalow park and its swimming pool for continuous heating (implying that the open air swimming pool could be used for a far more extended period in the year which in turn made the park more attractive). A ninth connection that was explored was the *direct* delivery of electricity (through a new cable) to the local small and medium enterprises. Connection number ten regards the use of the Value Added realized within the local community.

Figure 4.4 Re-patterning of resource use by Zwiggelte farmers (derived from van der Ploeg 2008)



Although we have certainly not mentioned all of the relevant interconnections in the Zwiggelte case, our main point is clear. Novelty production proceeds through the re-patterning of resource use and the capacity to make new territorial connections that strengthen the local setting. These connections are not only material (or technical); each and

every link simultaneously involves negotiations, renegotiations, and possibly the creation of new *institutional* relations (Rip and Kemp 1998; Roep *et al.* 2003).

As indicated this re-patterning is not strictly limited to farming, but flows over sectoral boundaries. In Figure 4.4, the agricultural sector interlinks and increasingly intertwines with the industrial the energy and the tourism sectors, and establishes important interrelations with forest management as well. As a result, considerable synergies (at the level of the rural economy as a whole) are created.

It is interesting to note that novelty production currently enters domains that have previously been hardly explored, such as e.g. meadow bird protection (Swagemakers 2008). The particular combination of the tacit knowledge of farmers and bird watchers and the organizational skills of staff members of new territorial co-operatives allows for novel approaches that go far beyond the standard routines advocated and adopted by specialist nature organizations. Here the interrelations between novelty production and new institutional arrangements came to the fore as a strategic driving force (see Hees *et al.* 1994; Stuiver *et al.* 2003 and 2004; Wiskerke *et al.* 2003; Stuiver 2008).

### **The relevance of novelty production and its interrelations with other domains**

The relevance of novelty production, as illustrated in this chapter, can be synthesized into the following points:

- 1 Novelty production strengthens the transformation of (potentially) available resources into *territorially specific* resources; it supports territorial distinctiveness.
- 2 Novelty production creates capacity to '*perform better*' and in that way increases the competitiveness of agriculture and rural economies (OECD 1996).
- 3 Novelty production allows sustaining and extending local control over resource valorization.
- 4 Novelty production can be a stimulus for further developing contextual knowledge.
- 5 Novelty production can mobilize creativity that is underutilized or completely denied within conventional Research and Development systems.
- 6 Since novelty production strongly intertwines with endogeneity, it tends to construct more sustainable solutions.
- 7 Novelty production increasingly crosses the borders of the agricultural sector and puts 'the territory' centre stage.

The interrelations between novelty production and the other dimensions of the 'rural web model' (see Chapter 1 for a general discussion) can therefore be summarized as follows:

#### *Endogeneity*

Novelty production is intrinsically interwoven with endogeneity: as conclusion explicitly drawn by Belussi and Pilotti (2000), who state that *contextual knowledge*, as the locally constructed mix of tacit and codified knowledge sources for novelty production, is a 'strategic but immaterial resource, which is essentially *territorial specific*' and, therefore, an *endogenous resource*. The empirical examples provided in this chapter made it clear that novelty production is often also about *escaping from control* imposed by the state, expert-systems, vested farmers' unions, food chain partners, etc. This struggle for (relative) autonomy, further illustrates the close relation between novelty production and endogeneity.

#### *Sustainability*

The *good manure* case (discussed above) clearly demonstrates that the translation of environmental progress into economic gains (as implied by the new balance) was primarily secured through farmers themselves creating new relations of sustainability that both reconstitute rural resources and re-ground farming practices within *local eco-systems*. This is in stark contrast to decades of highly institutionalized productivist perspectives on Dutch agriculture, which considered diversity and local specificity to be obstacles to development and growth. Today, novelty inspired solutions offer new alternatives, because they combine the dynamics and malleability of farming with new societal demands and expectations.

#### *New institutional arrangements*

New institutional arrangements are intrinsically related to novelty production and novelties may even take the form of a new institutional arrangement, as in the example of the Dutch territorial cooperatives. These cooperatives aim to significantly improve the relations between farmers and the state through introducing new forms of local self regulation and new strategies for 'negotiated development' so as to overcome the existing institutional barriers. The WRR (2003) argues that constructing sustainable rural economies requires new forms of regional cooperation, and that only through such new forms of cooperation can the many frictions and limitations inherent to the general rule sets defined by expert systems and the state, be successfully redressed. At the same time 'rural estates', a classical but nearly forgotten institutional arrangement, are re-emerging as potentially valid responses to modern problems

(Broekuizen and van der Ploeg 1999 and 2006; FPG 2005)<sup>6</sup>. They offer the promise of being a highly relevant mechanism for ‘governing the commons’ (Ostrom 1990).<sup>7</sup>

#### *Governance of rural markets*

If sufficiently protected and facilitated, novelties can contribute significantly to the competitiveness of rural economies. The presence and ongoing unfolding of novelties can lead to production, distribution, etc., becoming more efficient, improving the quality of products and services on offer and/or contributing to new forms of synergy (Brunori, *et al.* 2000, Swagemakers 2002). This is particularly relevant when novel products, processes of production and/or re-assembled resource bases create uniqueness (unique products and services of known and valued origin, etc.). This in turn is associated with ‘embeddedness’ (see Chapter 8) which can result in the creation of ‘nested markets’ (markets that by virtue of their specific and normative networks set themselves apart from the mainstream and ‘anonymous’ markets), thereby adding a new or additional component of competitiveness.

#### *Social capital*

Different forms of social capital are needed at different stages of the life cycle of novelty production. When novelties are *emerging* the presence of *bonding* social capital is particularly important, as shown by empirical evidence on novelty production in Italy (Scettri 2001). The emergence of novelties is strongly dependent on strong, territorial and trust based networks. Subsequently, the availability of *bridging* social capital becomes important in the *unfolding* of novelty promises and the associated processes of negotiation and obtaining recognition for them.

Secondly, (different forms of) social capital might also be an outcome of, as well as a prerequisite for, novelty production. Novelty production can also contribute to the active re-construction and/or strengthening of trust based relationships, which are a key component of social capital.

#### **New tendencies**

Sawhney *et al.* (2006) recently argued that the innovation efforts of large companies are often undermined by management approaches that perpetuate various ‘*myths*’ about innovation. These myths are summarized below:

- 1 *we need more ideas* (lack of recognition of the innovativeness of direct stakeholders);
- 2 *innovation exclusively takes places in specific departments* (*idem*);



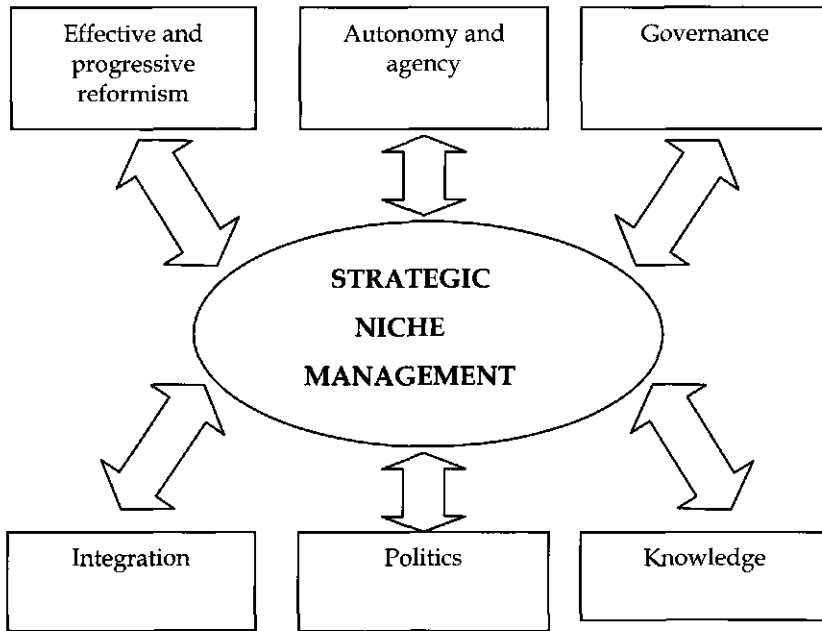
- 3 *people just need space to innovate* (denial of the relevance of institutional embedding of innovations);
- 4 *innovation entails radical breaks with the past* (successful innovations would be mostly all but radical);
- 5 *mistakes are expensive* (instead of recognizing that early experiments allow for fine-tuning);
- 6 *avoid by-passes* (instead of recognizing that alternative directions could at later stages become promising application fields).

Institutional settings can respond in different ways to changing ideas on innovation processes. In The Netherlands, especially in the past decade, a variety of multiple stakeholder innovation networks have been created in agriculture and rural development. Some of these networks actually function as ‘communities of practice’ (Wenger, 1998 and 2002), actively searching for and facilitating ‘practice’ driven novelties that contain specific sustainability promises (Wolleswinkel *et al.* 2004). For a number of reasons (including a lack of institutional and professional interest in field research, the complexity of multidisciplinary research, ideological preferences, etc.), many of these networks are primarily driven by ‘top-down’ approaches, ‘high tech’ biases, and rely on the dominant doctrines of scale based efficiencies, etc.

The literature increasingly recognizes that the barriers can be conceptualized in terms a need for strategic niche management (SNM). SNM has been defined as ‘the simultaneously managing of both technical and institutional change and smoothing the diffusion process of promising novelties’ (Hoogma 2002; Moors *et al.* 2004). Roep *et al.* (2003) emphasize that SNM is about bringing together the knowledge and expertise of users and other actors, such as policy makers, researchers or representatives of public interests into a process of *smart experimentation* that actively creates and maintains sufficient space for novelty production and experimentation by farmers or others (Wiskerke 2002; Roep and Wiskerke 2004).

In recent years comparative international research has focused on a range of successfully managed strategic niches in which a wide range of novelties have been produced and given the required protection in order to mature (see for example Roep, *et al.* 2003; Milone 2004 who compares Italian and Dutch cases; Ventura and Milone 2005b, who compare different municipalities; and van der Ploeg 2008 for an overview). In all these studies the success of strategic niche management is related to the 6 dimensions summarized in Figure 4.5<sup>8</sup>.

Figure 4.5 Dimensions of strategic niche management



The *governance* dimension refers to the capacity to play simultaneously on different chess boards and to co-ordinate the differently located ‘moves’ within an adequate and progressively evolving flow through time. Governance is about negotiated development in the different domains of state regulation, about the creation of exemptions to certain of these rules and/or about other ways of dealing with highly disarticulated routines and procedures. If governance of the strategic niche is successful, it can provide the space to unfold and tie together promising novelties, thereby enhancing the capacity to deliver. In Figure 4.5 this is referred to as *effective and progressive reformism*. This refers to newly induced *practices* (hence, reforms) and to the associated *results and outcomes* that are superior to the ones normally realized (hence, effective). Effective reformism refers to the capacity to get things done, it strengthens the strategic coalitions required for governance as well as those within, for example, the realm of *politics*.<sup>9</sup>

*Integration* refers to the need to glue different activities together in a seamless pattern. It implies going beyond the many contradictions and ambivalences engendered by the generic and segmented regulatory schemes of the central state. Integration might also occur within a wider

network, by for example coordinating local activities in such a way that they fit into provincial programs.

*Knowledge* is the next crucial dimension. In today's 'knowledge based societies' it is increasingly the case that the only things that are allowed are those that have been 'proven' to function well. Thus, a timely construction of new knowledge (or at least the timely design of appropriate research proposals) becomes crucial, not only at the interface between the territorial constellation and the state apparatuses, but also for the participating actors: as indicated earlier, novelties have to be 'unpacked' and to be understood, if they are to be developed further.

Strategically managed niches as outlined in Figure 4.5 require considerable *agency* and (relative) *autonomy* is crucial in unfolding this agency. If novelties are moulded, within such niches, into potentially effective reforms, then these niches can, indeed, be understood as *spiders* (see Chapter 1) that strengthen and unfold the rural web.

## Notes

1 Some novelties arise by 'accident' or through 'errors'. Even so, contextual knowledge is crucial to recognize the potential value of the 'error'. See e.g. Remmers (1998) for a beautiful example on how a local cheese specialty in Andalusia can be partly traced back to the recognition of unexpected opportunities from 'accidents' that occurred during the labour process.

2 The following section is based on Ploeg, Verschuren, Verhoeven and Pepels 2006

3 The following section is derived from van der Ploeg, Bouma, Rip, Rijkenberg, Ventura and Wiskerke 2004

4 This section draws heavily on Ventura and Milone 2004.

5 The following section draws on van der Ploeg 2008 (Chapter 6)

6 The same applies to e.g. *comunità montane* in Italy (see Ventura and Milone 2005b).

7 The 'commons' is used here to describe public goods such as attractive and accessible landscapes, a high level of biodiversity and valuable but non-commoditized resources, such as clean water.

8 Figure 4.5 and the following discussion are derived from Transforum 2007.

9 *Politics* refers to the capacity to involve, engage, mobilize and use the support of 'others' in order to create, to defend and to expand the required room for manoeuvre.