

The dynamics of knowledge translation in innovation processes: The innovation program “WaterINNOvation” as ‘learning community’.

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1. Introduction

For a long time in The Netherlands water was perceived as ‘threat’ to our way of living and to our possessions. This perception led to banning – or at least controlling – water from places it was not appreciated (urban and agricultural areas and industrial sites). Currently the Dutch water policy sector is in transition: the traditional approaches and techniques for water management – stemming and containing floods by levees and dams – are no longer viable because of their extensive financial, spatial and ecological impacts. The acknowledgement that ‘controlling’ water as the key principle for ‘keeping our feet dry’ is no longer feasible results in different approaches to water management. Therefore the new policy frame work derived from ‘Water Management in the 21st Century’¹ advocates to accommodate flooding and provide water systems with more space. As a consequence of this new policy frame work new ‘technologies’ are needed that can accommodate new perspectives on water management. Deliberative innovation must see to their development and implementation. In short the required innovation must result in more ecological sound and cost effective solutions that make the water system robust for its new and still developing requirements. In a way, water managing organizations are engaged in a reframing process (Laws & Rein, 2003): the current policy frame of stemming and containing floods is being replaced by a new policy frame of ‘accommodating flooding’ and admitting water systems to play a more dominant role in spatial planning. For accommodating the desired transition an innovation program for

¹ Exploratory study of the Dutch Ministry of Public Works, Transport and Water Management, 2001.

water management was initiated by the Dutch Ministry of Public Works, Transportation and Water Management. This program is the subject of this paper and will be discussed by the following issues: the objectives, structure and functional roles in the innovation program (par. 2), the practice of knowledge translation and the need for learning (par. 3) and a theoretical reflection on the innovation practice in the described program (par. 4). Paragraph 5 discusses the approach to tackling the challenges of knowledge translation by means of ‘a learning course’. Paragraph 6 describes the implementation of this ‘learning course’ and lastly, in paragraph 7 some preliminary conclusions on the implemented approach are presented.

2. Objectives, structure and roles in the innovation program WaterINNOvation

In this paragraph the objectives of WaterINNOvation are described. WaterINNOvation (WINN) is an innovation program of the Directorate-General for Public Works (in Dutch: DG Rijkswaterstaat) of the Dutch Ministry for Public Works, Transport and Water Management. Next to the objectives, the organizational structure of WINN and the accompanying functional roles are described. Each of the functional roles comes with specific responsibilities, tasks and challenges for generating innovation as well as knowledge translation. In order to enhance knowledge translation and transfer, these responsibilities, tasks and challenges must be recognized and addressed.

The innovation program WINN is initiated to stimulate, organize and implement larger pioneering innovation in water management. Thus WINN is specifically designed to help make the change from traditional to new water management policies. WINN’s objectives are described as follows:

“based on a solid future perspective WINN is laying the foundations for the organization, policy and management of water and of the Dutch infrastructure under the direction of the Ministry. At the same time, WINN is looking to make a concerted effort to find innovative and durable solutions for the use of water and the water infrastructure in the Netherlands. The programme is developing long-term perspectives, specific test projects and demonstrations and is aimed at

linking long-term planning to short-term realisations”².

WINN is initiated to stimulate, organize and implement larger pioneering innovation in water management. Currently this policy sector is in transition: the traditional approaches and techniques for water management – stemming and containing floods by means of levees and dams – are no longer viable because of their financial, spatial and ecological impacts in river basins and estuaries. As a consequence of the new challenges new ‘technologies’ that can accommodate and support ‘new approaches to water management’ are needed. WINN must see to their development and implementation. Technologies is put between brackets deliberately because it is not only about ‘hard technologies’ such as constructions, inlets, canals, etc but also about ‘softer approaches’ like multiple land use and alternative functions of water that appreciate the altered perspective on water in our society. For a long time, water in The Netherlands was perceived as ‘threat’ to our way of living. This perception led to banning – or at least controlling – water from places it was not needed or appreciated (urban areas, agricultural areas, industrial sites). The banning of the water expanded throughout the whole water system: from coastal zone and estuaries, to river basins and lakes. The acknowledgement that banning and/or controlling water as the key principle for water management is no longer feasible, has to result in a different approach to research that supports water policy and management. WINN is launched to help make that change by stimulating so-called ‘demand oriented innovation’. This means that the need for innovation must be driven by perceived and/or experienced societal needs instead of the invention of new technologies or concepts. Too often innovations of Rijkswaterstaat (here after RWS) are supply oriented: water experts within the organization come up with new solutions and try to ‘sell’ them to society. An extensive mismatch between supplied and demanded solutions occurs from this approach, not to mentioned processual discrepancies in solving water problems. Actors in water management, like water boards, municipalities, provinces and e.g. farmers, were often ‘overwhelmed’ by yet another new solution from RWS. No wonder why RWS is often referred to as ‘the state within the state’. As a consequence,

² Cf: <http://www.waterinnovatiebron.nl/cgi-bin/toonlijst.pl?config=config&var=volgnr&val=3&layout=index&confignr=3> (June 2005).

the effectiveness and efficiency of innovation were fairly low (high costs, low benefits) and the record on the implementation of new technologies and concepts in regular, everyday practices in water management was poor.

To tackle these issues WINN should start by exploring the need for societal problems that demand an innovative solution because the traditional ones do no longer apply. This exploration was carried out for four water related themes: Rivers, Sea and Shore, Sediments and Water and Housing. From this exploration tangible problems should be identified that demand an innovative solution. The tangible problems thus provide a so-called 'landing place' for the development and implementation of innovations. This is a vital stage in the innovation process: only through implementation an innovation can prove its practical value for 'canonical' water management. In short, WINN is intended to be bottom up driven.

The implementation of WINN-innovations is organized by launching so-called 'pilot projects'. Pilots are carried in one of more geographical locations in which the innovative technology is tried out. Pilots thus presuppose the involvement of local actors, such as other water managing parties (water board, municipality and province) and citizens, farmers and businesses.

Idealistic, the innovation strategy of WINN has the following sequential structure: programme → themes → exploration → problems and solutions → pilots. However this strategy is top down and supply oriented in itself. And therefore more or less established and organized by a supply oriented approach: an internally conceived idea is translated into an innovative technology that has to be 'sold somewhere'. The challenge is to convince some actor to co-work with the innovative programme in achieving the 'ready-to-implement' technology, rather than trying to jointly develop a desired innovative solution. As a consequence, demand oriented innovation is not really achieved yet in WINN (June 2005) and we might conclude that the programme has a bottom up intention but a top down practice.

For achieving the objectives WINN has an idiosyncratic organizational structure which can be best described by explaining the functional roles in the program. There are six functional roles distinguished for achieving the desired innovations:

1. Program manager: is responsible for the internal and external legitimacy of the program by steering its the substantial progress.
2. WINNlab: assistance of the program manager and linking pin between program management and the theme leaders. WINNlab's controller is also responsible for the formal administration and accountability of the activities in the program.
3. Theme leaders: the WINN-program is composed of four substantial themes – mentioned above – and two processual themes Platform and Forum Ervarum. Theme leaders are senior professionals that work most of their time at RWS's specialist agencies³. Only one fifth of their time they participate in WINN. The theme leaders for the substantial themes are responsible for progress of the theme by generating and developing new innovative concepts and technologies. In addition they take care of the internal and external legitimacy of the specific theme. The Platform leader is responsible for developing and sustaining internal and external contacts for the program. The Forum Ervarum manager is responsible for the knowledge translation and transfer in WINN and back and forth between WINN and the 'standard' organizational parts of RWS. In addition the acquirement of external knowledge and experiences for the benefit of WINN-innovations is also part of the tasks.
4. Pilot managers: pilot managers are responsible for managing innovative projects in which new concepts and technologies are tried out. Pilot managers report their 'substantial' progress to the designated theme leader, the financial and administrative progress is reported to WINNlab's controller. In 2005 six pilots were up and running;
5. Program Board: internal progenitors of the innovation program, monitoring its progress and results. The Board is composed of three professionals: the executive manager of one of the specialist agencies (RIKZ), the executive manager of one of the regional directorates and WINN's program manager.
6. Director-General of Rijkswaterstaat: the CEO of the Directorate-General of the Ministry. The CEO considers WINN to be an instrument for developing new

³ Three of the six specialist agencies of RWS are involved in WINN: national institute for fresh water research (RIZA), national institute for shore and sea (RIKZ) and the national institute for construction research (Bouwdienst).

concepts and technologies which must enable RWS to meet the new challenges in water management.

Decisions on the development and progress of the program as well as on taking on new innovative initiatives are made in the core team of WINN that is composed of the program manager and all theme leaders.

The role division within WINN is not clear and uniform at present. In addition, within a functional role, different tasks must be carried out at the same time (for example, analysing, networking, creating, organising, taking responsibility and monitoring). Furthermore, the role perception of the defined roles is not the same. WINN's professionals have different views about each other's functional roles. It appears that professionals who have the same functional role think differently about how their task should be carried out. It also appears that role perceptions are subject to changes, depending upon which phase of the program they occur and the theme of the pilot. For example, the initial phase (of the program, theme and pilot) concerns content where roles like development and stimulation are important whereas, the implementation phase is more about process (externally directed) and procedures (internally directed), with roles like monitoring, responsibility and reporting.

The elaboration and explication of the functional roles is one of the 'learning subjects' that have to be tackled in the 'learning course' (see paragraph 5).

3. Knowledge translation and the need for learning

The practice of innovation within RWS has no favourable record. Many efforts show failing knowledge translation in innovation processes. Previous experiences with innovation programs within RWS show that new knowledge and practices are developed, yet somehow they were only scarcely transferred, translated and dispersed from innovation programs to everyday routines and practices. The barriers and obstructions in knowledge translation follow from the characteristics of the organization and seemed to be present on both work floor and management levels. The reasons for not applying the learnings can be found in the culture of RWS. The description and analysis of the

organizational culture are discussed in this paragraph, as well as its consequences for knowledge translation.

For tackling the problems with knowledge translation the program management decided to design a 'learning course' for putting knowledge translation in the heart of the program. This learning course was invented and organized with experience based learning as its key objective. An additional objective is that learning should be 'real time and on the job' which means that the 'learnings' that emerge from WINN must be ready to implement in every day water managing practices, within and outside the innovation program. Discussing the learning course, called Forum Ervarum, is the key objective of this paragraph.

From previous experiences and currently running innovation programs of RWS WINN management concluded that innovation itself did result in 'learnings' (new or altered concepts and technologies) but that these 'learnings' were not automatically shared, stored and used in subsequent policy practices. Innovation resulted in tangible new artefacts but these largely failed to have an impact on the RWS-organization and its policy practices; business as usual prevailed. The reasons for not applying the learnings can be found in the organizational culture. This culture can be characterized by a focus on taking up new tasks and challenges instead of reflecting and contemplating on the experiences of accomplished tasks and challenges. The culture of RWS is one of doing instead of thinking. RWS is inhabited by action-oriented professionals whose main focus is 'getting things done' in water management, road construction and maintenance and other public works projects. A consequence of this action-oriented culture the challenge of innovation is often perceived as starting a new (technology driven) project. Thinking things through, based on previous experiences before starting something new, proves to be very difficult. This difficulty is based on the appreciation of acting / doing over thinking and analyzing. Other difficulties for a more reflective approach to innovation within RWS's organizational culture are:

- Acceptance and support for innovation in an organization that appreciates its professionals most for making and implementing policies and executing maintenance tasks;

- Internal orientation over external focus;
- Attention for the tangibility of costs over the avoidance of tacit benefits;
- Preoccupation with risk management over maximizing revenues – focus on control over dealing with uncertainty. As a consequence, continuity is more appreciated than the capacity for ceasing opportunities;
- A not-invented-here attitude. Knowledge that is not entirely generated from within the own organization, has less chance of being applied;
- A focus on ‘hard technology’ and cognitive measurable knowledge.

For tackling complex problems in water management dealing with contrasting, even opposing frames of reference is inevitable. For RWS-professionals it appears to difficult to deal with actors with various, sometimes opposite frames of reference within one single project or program. As a consequence, (the same) problems are perceived so differently that productive communication with regard to its solution seems to be impossible. That makes it hard to share experiences and lessons learned among colleagues and fellow innovators within RWS.

For tackling these reasons the WINN program management decided to establish a ‘learning device’ for putting learning and reflection in the heart of the program. The name of the learning device – Forum Ervarum – points accurately at its purpose. ‘Forum’ is a metaphor for ‘joint and open’. ‘Ervarum’ metaphorically refers to the Dutch word ‘ervaring’, that means experience. Experience is the focus of attention of this learning device. Experience based learning is the key objective of Forum Ervarum. Thus Forum Ervarum’s objective is to stimulate the joint and open exchange, discussion and reflection on experiences that are gained in the innovation program and the practices that follow from that. Another objective of Forum Ervarum is that learning should be ‘real time and on the job’ which means that the ‘learnings’ that emerge from WINN must be ready to be implemented in every day practice, within and outside the innovation program. An important additional objective of Forum Ervarum is providing structured reflection on the experiences in WINN during the execution of the tasks that follow from the functional roles in this program.

For these objectives and ambitions a tailor made ‘learning course’ was designed and implemented. This approach was aimed at ‘educating the WINN-professionals while they act in the WINN-program’ and ‘at empowering the WINN-professionals in pursuing their objectives and executing their tasks’. The functional roles and tasks in the program must be supported by Forum Ervarum. The implementation and preliminary results of Form Ervarum are discussed in paragraphs 5 and 6.

4. Theoretical intermezzo: reflection on the innovation practice within WINN

Engaging in new innovation programmes such as WINN almost ubiquitously means engaging in new social practices (Wenger, 1998). Especially in the case of developing, organizing and implementing deliberative innovation – aimed at developing new, alternative knowledge and ways of conduct – abandoning espoused (cf. Argyris), formal canonical routines seems almost obligatory. For doing things differently while working in the social context of an innovation programme, the deliberations of Brown and Duguid (1991) on working, learning and innovation may be essential for a thorough reflection on what is going on in the WINN-program. First, with regard to *working*, Brown and Duguid advocate that canonical and non-canonical practices (Orr, 1990) will evolve from acting in a larger social, organizational setting. While emphasis is often put on the formal (canonical) practices and routines, in their view, it’s the informal (non-canonical) practices that determine the success or failure of organizations and their programmes. Second, Brown and Duguid address *learning* by elaborating on the theory on Legitimate Peripheral Participation (Lave & Wenger, 1990) that points at the importance for (new) workers to become ‘insiders’. In addition, the innovation practices within the program may result in situated learning, generating new idiosyncratic knowledge for future practices (situated cognition, Bredo, 1994). Third, *innovation* is discussed by Daft and Weick’s ideas on interpretative innovation which addresses different ways of looking at the relationship between organization and its environment. These three highly intertwined activities are described in this paragraph and mirrored against the evolving practices in the WINN-program. In addition the question is raised whether the evolving practices lead to the development of communities within this innovation program. Note that Brown and Duguid advocate that innovation is stimulated by the emergence of communities of

practice. The question here is reciprocal: can the emergence of learning communities (of practice) be stimulated by deliberative innovation, and can deliberative innovation be stimulated by learning communities?

An interesting angle for discussing the concept of practice is the variance between a major organization's formal descriptions of work and the actual work practices performed by its members. Orr's (1990a, 1990b, 1987a, 1987b) elaborate research illustrates how an organization's view of work can overlook and even oppose what and who it takes to get a job done. Based on Orr's insights, Brown and Duguid (1991) make the more general claim that reliance on espoused practice (referred to as canonical practice) can blind an organization's core to the actual, and usually valuable practices of its members (including non-canonical practices, such as "work arounds"). It is the actual practices, however, that determine the success or failure of organizations. Orr (1990a, 1990b, 1987a, 1987b) paints a clear picture of the divergence between espoused practice and actual practice, of the ways this divergence develops, and of the trouble it can cause. Orr notices that the canonical work instructions are not enough to keep an organization performing effectively. Canonical work instructions are nothing more "a single predetermined route with no alternatives" (Orr, 1990a). The abstractions of formal tasks fall short of the complexity of the actual practices from which they were abstracted. As a consequence the inadequacies of an organization's directive approach actually tend to make work more difficult to accomplish and thus perversely demands more, not fewer, improvisational skills. According to Orr (1990a) workers thus develop "sophisticated non-canonical practices to bridge the gulf between their corporation's canonical approach and successful work practices, laden with the dilemmas, inconsistencies, and unpredictability of everyday life". The burden of making up the difference between what is provided and what is needed then resides at the work floor, where bridging the gap between precepts and practice is executed to actually protect the organization from its own shortsightedness. If workers would precisely follow formal work instruction the organization's performance would be seriously endangered. If we translate Orr's observations to any working organization we find that workers have to make sense of their actual tasks themselves, in order to perform in way that is

appreciated by the organization's environment (stakeholders, clients, etc). the process of bridging the gap between formal instruction and training – provided by the organization, i.e. by management – and actual practice – ‘invented’ and executed by the workers is captured by the concept of learning. As Orr puts it “Thus they develop their understanding of the *tasks* not in the training programs, but in the very conditions from which the programs separate them--the authentic activity of their daily work. For the *workers* (and for the corporation, though it is unaware of it), learning-in-working is an occupational necessity” (my italic). The confrontation between the canonical task descriptions and the idiosyncratic requirements that are put in front of the workers by the environment of the organization calls for ‘working around standard procedures’. Orr (1990b) observed that a way of establishing a non-canonical approach between co-workers that goes beyond the formal tasks, is entering in an extensive story telling process: “Solving the problem in situ required constructing a coherent account of the *undesired situation*⁴ out of the incoherence of the data and documentation. To do this, *the co-workers*⁵ embark on a long story-telling procedure”.

An important social aspect of storytelling is that in telling these stories an individual worker contributes to the construction, development and maintenance of his or her own identity as a worker and reciprocally to the construction and development of the community of workers in which he or she works. Individually, in telling stories the worker is becoming a member. As Orr notes in his study , "this construction of their identity as technicians occurs both in doing the work and in their stories, and their stories of themselves fixing machines show their world in what they consider the appropriate perspective" (Orr 1990b, 187). Simultaneously and interdependently, the workers are contributing to the construction and evolution of the community that they are joining. Brown and Duguid (1991) call these ‘identity creating collectives’ communities of interpretation to indicate that in the continuous development of these community the shared means for interpreting complex practice get formed, transformed, and transmitted.

⁴ Orr's study speaks of a malfunctioning machine.

⁵ Co-workers are in Orr's study rep (repair man) and technician.

The significance of both components of social construction have already become apparent in Lave and Wenger's theory (1990) of learning that, like Orr's analysis of work, takes formation of identity and community membership as central units of analysis. Lave and Wenger have developed the concept of Legitimate Peripheral Participation (LPP) that conceives learning as a basically social and situated affair, that is, as participation in practice. Brown and Duguid (1991) argue that LPP is not a method of education. It is an analytical category for understanding learning across different methods, different historical periods, and different social and physical environments. It attempts to account for learning, not teaching or instruction. Thus this approach escapes problems that arise through examinations of learning from pedagogy's viewpoint. It makes the conditions of learning, rather than just abstract subject matter, central to understanding what is learned. The concept of LPP recognizes the individual level of learning in a social context. It is the individual practitioners who participate in organizational processes and by doing so, learn from each other. LPP helps to understand learning in situations without visible signs of teaching activities. LPP points to the existence of implicit learning processes that practitioners undergo while applying their skills and knowledge in a social context. Learning is conceived as a basically social affair, i.e., as practitioners in practice. Therefore, Elkjaer (1999) argues that there is no difference between participation in practice and learning. Participation in any practice implies that learning in some form or another will occur. To view learning as an integral and inseparable part of social practice implies that learning a skill comes from actually engaging in the process of performance (cf. Polanyi, 1958). Or vice versa: being engaged in a process of performance results in learning (a skill, a profession, an identity). With the concept of LPP learning is no longer a process which takes place in the individual mind but within the framework of (social) participation. Does that mean that the individual level of learning is denied, that it is the community that learns and not the individual? Lave and Wenger argue that this does not overlook the individual who is merely part of the learning community. Learning involves learning an identity and a profession or a skill in addition to a sense of belonging to the learning community such as an organization.

In the last section of this paragraph an additional use of developing shared understanding and identity will be discussed in relation with Brown and Duguid's argumentation that innovation can be seen as at base a function of changes in community values and views.

To sum up, both practice as community have to deal with some kind of tension between 'canonical and non-canonical', between formal and actual. Based on Orr (1990) and Brown and Duguid (1991) we can safely conclude that both parts of the concept of Communities-of-Practice refer to the non-canonical appearance of both practice and community. It is clear that the conception of Communities of Practice essentially refers to non-canonical communities that emerge from non-canonical practices. In addition LPP as an analytical category to address learning in CoPs can subsequently be perceived as non-canonical learning.

The innovation program discussed in this paper is initiated and implemented within the public domain. This program aims at innovating specific practices, i.e. the practices designed and implemented to materialize water management policies. Based on Wagenaar and Cook (2003) and Orr (1990) we presuppose similar intricacies emerge both in 'office work' and 'manual labour' as in 'policy analytical activities'. These similar intricacies point to the fact that formal knowledge, work manuals, job descriptions are not enough for practitioners to perform accurately in the light of the problem situations that arise in networked (policy) environments. In our network society many tasks, whether it be repairing complex computerized machines (as in Orr's study) or preparing a policy advice on a highly delicate matter, cannot be executed without personal and practical judgment of the professional workers concerned (i.e. policy analysts). Especially for policy analytical activities the complexity of today's policy problems and hence of the tasks required from policy analysts. Many policy problems are 'ill structured problems' (cf. Douglas & Wildavsky, 1982; Mitroff & Sagasti, 1973) that are only worsened by ongoing reflexive modernization (cf. Beck, Giddens & Lash, 1994) in public administration caused by the continuous 'production' of policies and regulations. Next to this dominant policy practices can cause biases for policy analysts, politicians and representatives of network actors because of their capability to 'define the

moral-political landscape while pushing other experiences or possibilities out of the debate' (Wagenaar & Cook, 2003). This pitfall cannot be overcome by 'standard routines and procedures' because they are representing, or at least not challenging, the ruling policy practice. Challenging or even changing the policy practice can only be done by taking the individual policy analyst back into play. If any subjects are sensitive to 'foreign' and non-conformational experiences and insights, it is – or at least should be – the policy analyst and/or practitioner. Or as Wagenaar and Cook (2003) advocate accurately: 'the analyst needs an inside understanding of the formal and tacit knowledge that informs actors' daily activities. A lack of understanding of the practices of policy actors, in the sense of a thick description of what it takes for the actor to be an experienced practitioner, would keep the analyst from understanding the pragmatic roots of contested policy situations. People solve problems by employing their commonsense rationality, their *phronesis*⁶; even when they 'apply' general knowledge, since general knowledge can never exhaustively cover the contingencies of concrete situations'. Based on Jonsen and Toulmin (1988) Wagenaar and Cook indicate that 'the analyst must interpretatively reconstruct their point of view. One has to describe and interpret the concrete, temporal and presumptive knowledge the actor evokes to find his way through the practical contingencies of concrete situations'. Of course, in some way this observation is tributary of Dewey's process of inquiry. Wagenaar and Cook (2003) advocate that 'what the redefined role of the analyst in the network society amounts to is, above all, a stance. That stance needs to be authentic, critical, participative, reflexive and pragmatic'. In reference to the relativist/pragmatist perspective on policy analysis (Duijn & Laws, 2005) we interpret this stance as being able to develop non-canonical practices of policy analysis, and based on that, being able to enter and function in (non-canonical) communities of (policy) practice.

Communities of practice and their contribution to change and innovation

Brown and Duguid (1991) advocate that one of the central benefits of self-constituting, self-organizing communities is that they evade the rigid procedures of large

⁶ Based on Dunne's concept of practice in western philosophy, Wagenaar and Cook point out that policy analysis has become ridden with what they call *technê*, that is technical reason. They advocate to bring *phronesis*, practical reason, back into policy analytical practice.

organizations. Canonical accounts of work are not only hard to apply and hard to learn. They are also hard to change. Yet the actual behaviors of communities-of-practice are constantly changing both as newcomers replace old timers and as the demands of practice force the community to revise its relationship to its environment. Communities-of-practice continue to develop a rich, fluid, non-canonical world view to bridge the gap between their organization's static canonical view and the challenge of changing practice, induced by 'the outside world'. This process of development is inherently innovative. "Maverick" communities of this sort offer the core of a large organization a means and a model to examine the potential of alternative views of organizational activity through spontaneously occurring experiments that are simultaneously informed and checked by experience. These, it has been argued (Hedberg, Nystrom and Starbuck 1976; Schein 1990), drive innovation by allowing the parts of an organization to step outside the organization's inevitably limited core world view and simply try something new. Unfortunately, people in the core of large organizations too often regard these non-canonical practices (if they see them at all) as counterproductive. For a theoretical account of this sort of innovation, Brown and Duguid turn to Daft and Weick's (1984) discussion of interpretive innovation. They propose a matrix of four different kinds of organization, each characterized by its relationship to its environment. They name these relationships "undirected viewing," "conditioned viewing," "discovering," and "enacting." Of these four types of organizations the enacting organization is proactive and highly interpretive. Not only does it respond to its environment, but also, in a fundamental way, it creates many of the conditions to which it must respond. Daft and Weick (1984) describe enacting organizations as follows: "These organizations construct their own environments. They gather information by trying new behaviors and seeing what happens. They experiment, test, and stimulate, and they ignore precedent, rules and traditional expectations." Innovation, in this view, is not simply a response to empirical observations of the environment. The source of innovation lies on the interface between an organization and its environment. And the process of innovating involves actively constructing a conceptual framework, imposing it on the environment, and reflecting on their interaction. Interpretive or enacting organizations, aware as they are that their environment is not a given, can potentially adopt new viewpoints that allow them to see

beyond the closure-imposing boundary of a single world view. The question remains, however, how is this reregistering brought about by organizations that seem inescapably trapped within their own world view? Brown and Duguid (1991) claim that 'the actual non-canonical practices of interstitial communities are continually developing new interpretations of the world because they have a practical rather than formal connection to that world'. An enacting organization must also be capable of reconceiving not only its environment but also its own identity, for in a significant sense the two are mutually constitutive. Again, this reconceptualization is something that people who develop non-canonical practices are continuously doing, forging their own and their community's identity in their own terms so that they can break out of the restrictive hold of the formal descriptions of practice. Enacting organizations similarly regard both their environment and themselves as in some sense unanalyzed and therefore adjustable. They do not assume that there is an ineluctable structure, a 'right' answer, or a universal view to be discovered; rather, they continually look for innovative ways to impose new structure, ask new questions, develop a new view, become a new organization. Daft and Weick (1984) argue that the interpretation can shape the environment more than the environment shapes the interpretation. Enacting and innovating can be conceived of as at root sense-making, congruence-seeking, identity-building activities of the sort engaged in by the workers. Innovating and learning in daily activity lie at one end of a continuum of innovating practices that stretches to radical innovation cultivated in research laboratories at the far end. Alternative world views, then, do not lie in the laboratory or strategic planning office alone, condemning everyone else in the organization to submit to a unitary culture. Alternatives are inevitably distributed throughout all the different communities that make up the organization. For it is the organization's communities, at all levels, who are in contact with the environment and involved in interpretive sense making, congruence finding, and adapting. It is from any site of such interactions that new insights can be co-produced. If an organizational core overlooks or curtails the enacting in its midst by ignoring or disrupting its communities-of-practice, it threatens its own survival in two ways. It will not only threaten to destroy the very working and learning practices by which it, knowingly or unknowingly, survives. It will also cut itself

off from a major source of potential innovation that inevitably arises in the course of that working and learning.

Reflection on the innovating process in the WINN-program

Brown and Duguid's deliberations on working and learning place the innovation process within the WINN-program in a specific perspective. First Brown and Duguid note that many organizations largely rely on formal job descriptions for organizing their 'production' and measuring their performance. This formality in considering work is caused by the need for certainty and predictability by management. However certainty and predictability are not possible, even not desirable, in innovative work. Innovation means abandoning standard routines in searching for new approaches and technologies. Trying to find new objectives and/or doing things differently is likely to be an uncertain and uncontrollable process. In addition innovation takes place in turbulent environments – organizations have to adapt to new conditions whether these are caused by changing societal preferences or intensive competition – that call for active entrepreneurship. It is not clear how innovation – as a new practice – can be managed and trained. In spite of the non-canonical character of innovation management often tries to 'squeeze' innovative work into formal procedures. Such seems to be the case for WINN, based on our elaboration of the formal innovation process in paragraph 3. New ideas have to be delivered by submitting formal management reports and with consent of the formal organizational parts of RWS. Running innovation pilots are confined to formal procedures with regard to their progress, accountability and results.

Second Brown and Duguid advocate that innovation is largely about interpretation and sense making. Organizations have to make sense of changing societal challenges, of altering consumer preferences, of new institutional arrangements and procedures. Sense making usually takes place at strategic levels. The interpretation of 'what is going on' and the consequences for the organization are interpreted at top level. Then these interpretations are translated in objectives for professionals to come up with new concepts and technologies that must enable the organization to deal with these 'outside challenges'. These concepts and technologies then have to be 'taught' to and implemented by the work floor. However as one can imagine with Orr's deliberations in

mind, the actual interpretation of what is going on resides at the work floor level and not at the strategic level. In developing non-canonical practices workers have to interpret the new challenges themselves – e.g. by story telling – without help from management, with ‘accidental’ innovation as result. In the implementation of the non-canonical practice their innovative value becomes clear. To what extent are the new approaches and technologies meeting the new ‘requirements from outside’? The workers are the first to know how this works out and – if necessary – can decide to adapt the implementation tasks to meet the actual requirements.

It is doubtful if this is the case in WINN for the objectives for innovation and the substantial themes were conceived by RWS-management, and not by the professional workers. In addition, as we have elaborated in paragraph 3 innovation in WINN is largely a top down and supply oriented process. Innovation is certainly not driven by identifying and ‘nurturing’ non-canonical practices in water management developed by professionals ‘on the work floor’ of the RWS-organization. WINN-professionals who try to work around the formal process and managerial procedures are considered to be counterproductive and non-corporative. However in time WINN could advance into an instrument with which the whole organization is capable of ‘reinventing’ itself. In achieving this WINN should abandon its formalistic way of conduct and must develop into a what Brown and Duguid call ‘maverick community’. For formalistic public agencies such as RWS substantial and committed support from top management of the Ministry will be essential to do so.

5. Tackling knowledge translation in innovation processes through a learning course

This paragraph discusses our approach to tackling the challenge of knowledge translation. The WINN-professionals are assigned to their job of stimulating innovations in water management. They are developing specific practices in fulfilling their tasks. It is our proposition that the intended ‘learning course’ will be most effective when it is designed for supporting the evolving practices within WINN. Therefore learning is aimed at empowering the WINN-professionals in pursuing their objectives and executing their tasks. Prior to designing the actual learning course, an analysis of the need for learning was carried out through in-depth interviews with all WINN-professionals. In this

paragraph the results of the analysis on the need for learning in the innovation program are also briefly described. In addition we will discuss the way we have translated these conclusions into the working methods with which the learning course for WINN was executed.

The desired 'learning course' is largely inspired on an analysis of the professionals needs for learning and reflecting. The analysis was based on in depth interviews with the intended participants of the learning course that also fulfil most of the functional roles in the WINN program (program management, theme leaders, project managers and WINNlab). WINN-board and DG RWS are not actively involved in implementing the 'learning course' but are kept up to date with its progress by WINN management. The analysis produced the following results covering two components for designing the 'learning course' Forum Ervarum:

1. Learning subjects which represent the needs for learning and reflecting.
2. Working methods with which the objectives of Forum Ervarum could be reached.

The first component of the 'learning course' Forum Ervarum are the learning subjects that will have to be addressed. The information gathered about the need to learn and reflect can be divided in the following seven subjects:

1. Operationalisation of the notion innovation;
2. Necessity to work (more) 'from the outside to the inside';
3. Role division inside and, organization of the program;
4. The effects of WINN on RWS and on 'the outside world';
5. Tension between content and processual innovation;
6. Tension between routine work and innovation work, between systematic work and innovation;
7. Personal knowledge and skills (competences).

Item number seven, personal knowledge and skills, runs through all learning subjects. All of the subjects are related to personal competences of those active within WINN.

Because of the importance of this learning subject, it will be the principal element of the approach to the learning course in 2005 and is instrumental for the choice of method (see next section).

An important challenge for the 'learning course' is to develop joint interpretations for all these subjects. Thus an important objective for Forum Ervarum is to develop a joint understanding of the external challenges WINN must face and 'solve' in achieving the desired innovations. The development of these joint interpretations can be perceived as learning. Subsequently if WINN is capable of reaching these joint interpretations, the program can be denominated as a learning community. An more or less 'maverick' learning community as WINN may be key to be able to develop RWS into an enacting organization that is – in line with Daft & Weick's concept of interpretative innovation – capable of effective, societal viable innovation.

Component 2.

The second component of the 'learning course' is the working methods with which the learning subjects can be presented and discussed. The information obtained from document analysis, in-depth interviews and progress discussions showed a need for experience based learning. Experience learning can be supported and stimulated by choosing active work types to reflect on real experiences undergone by the WINN-professionals. There are good reasons for choosing two types of working methods for experience based learning: master classes and reflection sessions.

The master classes are aimed a knowledge transfer of knowledgeable, experienced persons (the Masters) to the persons who act in the innovation programme. The reflective sessions are supporting the sharing of and reflection on experiences of the WINN-professionals with regard to the tasks they have in 'demand oriented innovation'. We used two forms of reflection: intervision and case consultation³.

³ Intervision is aimed at colleague support or counselling for problems that emerge from the lack of personal competences of personal hindrances in carrying out the functional role and the tasks that belong to it. Case consultation is aimed at colleagues help each other in trying to find solutions, both inside and outside their organisation, to new and complex challenges with which they don't have any experience. By jointly dissecting the problem and sharing experiences with similar problems, colleagues can actively help each other in finding a solution.

The master classes are expected to be suitable for accommodating the knowledge translation from external sources to internal application. It is expected that master classes provide an inspiring and constructive method for gaining alternative knowledge from external sources – i.e. knowledgeable and experienced persons from outside the innovation program – and for discussing the value of the gained knowledge for the development of WINN. In addition WINN-professionals can learn from the experiences of knowledgeable professionals who have dealt successfully with one (or more) of the selected subject(s). They can together discuss and elaborate the (external) experiences with their own experiences as reference.

The reflection sessions are for smaller subgroups of WINN professionals and in a more or less closed and safe situation to be able to reflect on specific subjects such as personal competences and skills. The reflection sessions are added to the ‘learning course’ for providing in the expressed need for reflecting on personal competences and skills and on specific questions that arise from carrying out a functional role in WINN. The reflection sessions were aimed at knowledge translation between WINN-professionals for these ‘non-substantial’ questions, such as how can be dealt with personal hindrances in fulfilling the functional roles and tasks? The reflection sessions were carried out by intervision and/or case consultation.

The selected working methods will address the learning subjects discussed above. The indicated learning subjects each serve as a basis ‘to fill in’ the working methods. The objective is definitely not to go through the list of questions individually at each meeting in order to find a definite answer. In a dynamic environment like that of the WINN program the list of subjects require, as one would assume, to be asked in a different way so that ‘to be able to deal with something’ has a more value than ‘being able to give a definite answer’ . In this sense, learning has an ‘ironic’ connotation (cf. Rorty, 1989): what is learned has a fundamentally temporary relation with the inducement to learning. Learnings are never definite but are highly volatile, evolving around emerging practices that follow new (external) challenges.

6. Implementing the learning course

This paragraph describes the implementation of the ‘learning course’ Forum Ervarum. This course is aimed at supporting the translation new knowledge that follows from the innovation practice among the WINN-professionals and throughout the entire RWS-organization. For achieving this, the learning process is aimed at enhancing the knowledge, skills and competences the designated professionals need for carrying out their tasks.

The WINN core team decided to cluster the proposed Master Classes and reflection sessions into two-day sessions so as to combine these and make more efficient use of the time planned for program management, program support, theme leaders and pilot managers.

During 2005 four two-day meetings were held, each addressing specific subjects. The learning course program is divided into two parts. In the first half of 2005 two two-day meetings were held. For the second half an equal series was planned but a definite decision would be based on an evaluation after the first series of Master Class/ Reflection sessions to assess the applied methodology. On the basis of this evaluation, the WINN core team decided to choose the same approach in the second half of 2005.

Master classes: masters and subjects

In 2005 we ‘hired’ external experts on selected the subjects listed above and subsequently organized eight master classes:

1. Innovation within RWS – experiences of the ‘Road to the Future’ innovation project Route 26; by mr. Stoelhorst, former project manager at RWS.
2. Working from outside to the inside – the Overdiepse Polder case; by Dr. Slootweg, researcher at SeVS consultancy.
3. The effects and implementation of innovations; by prof. dr. Hellendoorn, innovation manager of Siemens Netherlands and professor at Technical University Delft.
4. The organization of innovative style of work; by mr. Ploegmakers, business unit manager at Irmato and Philips.

5. Motivation and influence analysis in a political-administrative context; by mrs. Bierman Beukema toe Water, current member of the Dutch Senate.
6. Roles and responsibilities in project teams; by mrs dr. Vaas, senior researcher at TNO Quality of Life.
7. Result-oriented work in teams. Mr. Gerbrands, director of football club AZ and former innovation manager at RWS.
8. Effective performance in the political-administrative context; by mr. Van Gijzel, consultant at Politea and former member of the Dutch Parliament.

The above shows those subjects listed in 2004, although the ‘Masters’ often covered several subjects at the same time. Discussions were often not just restricted to a particular subject. Discussions followed after the presentation of subjects by the Masters concerning the appreciation and relevancy of the presented views for (parts of) the WINN program. Some of these discussions were led by TNO and others by the Masters themselves. Discussions were recorded during the meetings, both by the WINN-professionals themselves and by the facilitators.

Appreciation of the master classes

The following was the role of the master classes in the learning courses:

- Source of inspiration: the master classes have provided an insight into new approaches to embed and organize innovations (“it can also be done like this”) and, have also served to develop alternative perspectives regarding innovation as an assignment;
- The ‘mirror effect’: how can WINN be benchmarked with other innovation initiatives?
- More insight into the difference between content oriented and processual innovations, i.e., ‘struggles’ which are inherent to innovation and change;
- Reflection on the performance of the program as a whole: on a regular basis time was spent on collective reflection on daily activities within WINN. Reflection offers insight into the program’s successes and failures. The

learning course offers the participants an opportunity to distance themselves from the frenzy which is a part of innovation work at RWS;

Collective reference framework: shared experiences (the master class) provide a stimulus to (want to) collectively share a reference framework and language. This has proven valuable for the subjects which are relevant for present-day situations at WINN. In their own way each Master has provided contribution to constitute a collective framework. The master classes also provided the basis for contacts between the WINN-professionals themselves.

Remarks

The external stimulus given by the Master made it easier to create an opportunity to openly discuss assignments and WINN's progress. In addition, questions such as, 'what does it mean to be a WINN-professional?' and, 'at RWS what links us to innovation?' could be asked. One of the drawbacks of open discussions is that 'those who are verbally strong' seem to rule the roost. However, it is not really clear whether this caused problems. The master classes were considered to be noncommittal, inasmuch that the presentations and discussions were scarcely transformed into specific actions to improve the participant's own innovation practices at WINN. According to the respondents this can be attributed to the WINN-professionals as well as the support. The reflection activity and interpreting this in practice, needs reinforcing. One way of doing this was obtaining a quicker feedback from the master class results i.e., reports, presentations, preferably within a week, so as to increase the chance of something actually being done with the findings, for instance, at the core team meetings. Even though, on the whole the subjects are considered to be 'recognizable' they are not all relevant for each and every WINN-professional. Some members value innovation-content subjects whereas others value context-oriented, processual innovation subjects.

Reflection sessions: Intervision and case consultation

The reflection sessions – whether executed by intervision or case consultation – were held during the afternoons after the Master classes in the morning. During the afternoon sessions there was room for reflection on personal performance as a WINN-professional;

These took place in two subgroups and were led by staff from the training institute 'Publiek Domein' with the assistance of staff from TNO. These groups generally comprised of the program management and WINNlab personnel on the one hand and, on the other, theme leaders and pilot managers. The group 'program management and WINNlab' choose mainly for the intervision method while the team leaders indicated that they preferred the case consultancy method because it suited their own real-life specific problem (cases) and their need to deal with these together with colleagues.

The subjects dealt with were introduced by the group members themselves. For example, these were based on their personal experiences with WINN, or were the result of the events during Master Classes that morning. At the participants' request, the afternoon sessions were not recorded because they were often about personal matters.

Appreciation of the reflection sessions

b. Intersivision

Intersivision is mainly applicable to the WINNlab program management group. This method and support are well rated. Participants showed participative reflection, good (in-depth) questions were asked and, created a safe environment. Intersivision generated the following aspects for this group:

- Reflection on personal performance and bottlenecks;
- Reflection on mutual relationships within WINN;
- Contemplation on each other's roles and how these roles should be realised;
- Revelation of tension between personal and program targets.

c. Case consultation

Case consultation is particularly appropriate for the theme leader group. Case consultation is seen by this group as a good way of starting discussions. The informal consultations that theme leaders often have at present are seen as a direct result of case consultation. Case consultation also has the following roles:

- Exchange of ideas and experiences on approach to themes and pilots;
- Exchange ideas and experiences regarding the steering of WINN;

- Collective analysis into embedding WINN better in an (internal) environment, in particular in specialist agencies of RWS where theme leaders work on a daily basis;
- Collective analysis into introducing innovations through WINN to ‘shop-floor workers’ (e.g. within the regional agencies of RWS);
- Collectively learn from the information provided by the Masters and apply these lessons in their own work.

Remarks

There is one remark about the afternoon reflective sessions (interview or case consultation) and that is that perhaps too little reflection was given to the question as to how the Master Class lessons could be applied to WINN. Perhaps interview is not suitable. Interview seems to be ‘isolated’ from the master classes. Case consultation seems a better working method for participants’ to be able to reflect on their own personal practices and to follow ‘lessons from the Master’. Case consultation as a working method for reflection proved to be specifically valuable for tackling new challenges for WINN. This is best illustrated by the fact that the reflection sessions of the third two-days meeting was entirely devoted to the preparation of the talks the WINN core team had with the Director-General of RWS about the progress and direction of the innovation program. The reflection session of the fourth two-day meeting was then, not surprisingly, dedicated to the interpretation of these talks and the consequences they have for the program.

7. Brief reflection on (preliminary) results of the implemented learning course

In this paragraph some preliminary observations on the implemented learning course are presented. Thusfar two observations can be drawn. First the learning course shows some evidence of improving the knowledge translation among WINN-professionals. Effective and situated knowledge translation and transfer – within WINN as well as back and forth between the innovation program and the standard organizational parts – seems to require two dominant activities: reflection and connection. Reflection is needed for assessing to ‘know where you stand’, as a professional individual, as a team and as a program. Connection includes the involvement of others, particularly those who are able to

implement new practices and provide the innovators with new challenges. It is interesting to investigate into the question whether the ability to organize reflection and connection is vital to enhancing knowledge translation from innovators and innovation programs to practitioners and policy programs. Second the implemented learning course may be considered to be highly relativist and pragmatic. The pragmatism of the learning course Forum Ervarum is vested in taking the intricacies of the practice in the innovation program and the specific functional roles as key drivers for its design. The idiosyncratic needs for learning in the program were translated in specific requirements for the Masters and tailor made and adjustable forms of reflection.

With regard to the first observation the preliminary results show that the learning course indeed stimulates knowledge translation. This is mostly the case for knowledge translation within the program itself. Knowledge translation among WINN-professionals is actively stimulated by the discussions in the master classes and with the intervision or case consultation in subgroups.

But is it doubtful whether the learning course in this stage of development is capable of stimulating knowledge translation back and forth between the WINN-program to the broader organizational surroundings. Both WINN as the learning course Forum Ervarum seem to be more or less isolated from the 'canonical' practices in the RWS-organization. Thusfar only the WINN-professionals themselves are capable of meaningful knowledge translation to other organizational parts of RWS. An evaluation of the 'learning course' by the WINN-professionals (Fall 2005) indicates that some of them do that actively while others are not (yet). For the coming year it is a challenge to improve the knowledge translation and transfer back and forth between the WINN-program to the broader organizational surroundings.

Can WINN be considered to be a learning community and can this learning be attributed to the learning course Forum Ervarum? Did the learning course succeed in changing some underlying 'features' of the organizational culture and/or managed to mitigate its negative impact on innovation?

In general, the support provided by the learning course to the WINN-professionals can be described as an opportunity to create awareness, to acquire knowledge and to create

understanding. This cannot always immediately be translated into specific actions because those interviewed described WINN as a continuous pursuit during which it gradually became clear where the program's focus lay. The learning course was also considered as a means of providing support during the program's formal consultations, for instance, during the core team meetings.

If we take a closer look at the observed effects of the learning course, we see that respondents name specific task changes such as, responsibilities, role perception, environment perspectives, changes in (external) contacts and relationships and, changes in knowledge used and information. The professionals interviewed state that changes have indeed taken place. It is striking that WINN's focus is more external, does more both inside and outside RWS to actively involve others in innovation, is more involved with strategic and processual innovations instead of pure content, steers more towards creative and favourable preconditions and also develops new contacts and relationships to highlight innovations. In addition, there are changes in the definition of the notion 'innovation' which is now seen as a long-term process rather than something that can be achieved in the short term through new techniques. The observed changes can definitely not be traced back item by item to the learning course alone. The WINN innovation program is not the only social environment in which WINN professionals are actively involved and gain hands-on learning experience. The learning course is only part of that program. Initiatives which lead to changes or adaptations in the performance of individuals or a group have also come from standard organisations, many of which are departments within the specialist services.

With regard to observation two it is striking that in the course of 2005 Forum Ervarum became more and more 'owned' by its participants. As a consequence each of the two-day meetings were adjusted to the specific needs of the program and its professionals at that particular moment. Although the Masters were selected in advance – based on the identified learning subjects – the content of their performance was adjusted to the specific needs of WINN at that time. In addition the issues put forward in the reflection sessions were 'coloured' accordingly. This relativis/pragmatist approach to the implementation of the learning course is perhaps best illustrated the need to interpret and assess the intervention by the Director-General of RWS to which two two-day meetings were

devoted. Both the external Masters as the participating WINN-professionals as the external facilitators were dedicated to regain focus and move the innovation program ahead.

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