

Promoting Diversity in Long Term Policy Development: The SMARTT Case of Norway

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Abstract

Through the description of significant challenges of Nordic educational and research policy with a particular focus upon the role of knowledge enhancement and innovation, this paper presents both a vision, a backcasting scenario approach and a political roadmap for future possible research and innovation policy at the Nordic level. Applying the methodology of Foresight we emphasize the cognitive and debating stages of developing a longer term vision and the framing of an aspirational scenario of a learning intensive society. Based on input from the Nordic higher education institution (HEI) policy experts, an image - acronymed SMARTT - for the next 15-20 years, encompassing Science, Mobility, Advancement, Research and Technology Transfer, is presented. The paper emphasizes the stages of the foresighting process, including both the development of mini-scenarios and backcasting, by analyzing the interplay between HEIs and their swiftly changing environments and futures. The concrete process steps are also related to the contemporary discourse on the relations between theories of path dependency, path breaking and path creation.

Keywords: Futures studies, foresight, higher education policy building, strategic planning, sociology of knowledge

Introduction

It is a common view that the modern society of tomorrow will be 'learning intensive'. Knowledge, seen as research, innovation and education, will occupy the centre court. However, the thoughts, ideas and images of how this vision will be accomplished differ. During the next couple of generations major critical challenges will be to understand why some forms of knowledge tends towards specialization and others towards variation and diversification (Young & Muller, 2010). Do we have the appropriate knowledge policies, the financial strengths, the capable institutions and the optimal ways of learning, innovating and disseminating ideas and technologies? What are possible, probable, plausible, and preferable images of potential knowledge futures? In addition, to discuss such alternate images of the future, there is also a need to explain the paths that lead to specific futures (deJouvenel, 2000, p.63). The process demonstrates how a Lock-In situation of contemporary Nordic HEI system and research policies could be de-locked (Schreyögg et al., 2003), further developed through a discussion of possible new paths, before a preferred situational scenario is created, as a virtual new Lock-In beyond the year 2025. The applied backcasting process is therefore presented as a virtual path dependency analyses, in which both possible path breaking events and new paths are integrated (path creation).

Methodology and Data

The paper assesses information from an initial electronic expert oriented participative workshop (named E-lab) in Norway, June 2010 on images of future Nordic public sector knowledge policy, and two successive Nordic meetings supported by European civil servants and researchers during September and December 2010, elaborating the images of the initial working group assessments. The process was a part of a project carried out by The Nordic Network for International Research Policy Analysis (NIRPA) which aims to help Nordic Policymakers in their development of futures research, innovation and higher education policies. What kind of knowledge and what kind of competencies will we need in the future, and how do we build these competences? The state of the art within the Nordic cooperation when it comes to research- and innovation policy issues, was considered to be unsatisfactory, a kind of lock-in situation. The foresight process aimed at changing that situation. By use of foresight methods the experts addressed the challenge of describing and debating various images and visions in which knowledge could pave the way for a better society. The number of experts involved varied between 10 and 30. In this field a foresight project is an arena for the triple helix of education, university and governmental institutions (Ughetto, 2007). The methodological idea of our series of workshops was to elicit experience and ideas elaborated from the groups of experts about the shaping of future knowledge policies (Karlsen & Karlsen, 2007). Path breaking and path creation challenge the assumption of path dependence and stress the possibilities of shaping the future (Tiberius, 2011, p.9).

Foresight and Futures Studies

Foresight and Futures studies comprise projections or explorations of different

futures and alternatives, based on insights from today's knowledge and expectations of the future. Foresight exercises in many cases use expert-qualified estimates of, for instance, technological or social development, as they also in an increasing degree take account for perspectives by so called non-experts. An expert, however, is a fuzzy notion. An expert in one field could act as a non-expert in another and vice versa. The process of foresight also includes the understanding of the opportunities and possibilities of a technology or an organisational device, however uncertain, as well as the pitfalls. Therefore the foresight process is also a way to define the system and a constituting of the field with regards to stakeholders, system boundaries, possible consequences and impacts of the field and its development. It is also – if the primary goals and objectives are met – a roadmap for choosing the desired way and balance to attain the potential benefits, and minimize or exclude possible negative outcomes for the stakeholders. One important success indicator of a foresight project is the outcome; that is, the implementation of foresight knowledge in policies, strategies and actions.

In addition to extrapolations, cross impact analyses, simulations etc. a considerable number of foresight studies are open, participative and action oriented activities where participants 'think, debate and shape' their images of the future (EC, 2002). Such a methodology has both strengths and weaknesses. The strengths reside in its focus on how we may understand captivating and plausible probabilities, how various societies and actors anticipate, which performative role expectations play out, and that futures as temporal abstractions, narratives and discursive strategies are parts of a social reality. As Ramsey (1926) and de Finetti (Galavotti, 2008) already stated back in the 1920s and 1930s and modern constructivists states today (Øverland, 2000b), probabilities are purely subjective and should be considered as post-positive constructions, but nonetheless it is a strength of foresight methodology. A weak point, however, may be that foresight projects can lack independent and original theory building processes. Foresight is neither a sociological theory about the future, nor offers us yet an elucidating discussion on the connection between time, uncertainty and anticipation (Karlsen & Øverland, 2010, p.74).

In the case of foresight it is evident that there is also a gap between the complexity and ambiguity of futures options and pathways, which is addressed in foresight studies and the analytical tools applied to map the complexity. And – there is no consensus on an appropriate methodology balance between the qualitative and quantitative approaches. The lack of a common and approved methodology stems, at least partly from the fact that the inherent ontological and epistemic characteristics of qualitative and quantitative methods differ when it comes to capturing the complexity of issues addressed in foresight exercises (Karlsen et al., 2010). Still, having all these precautions in mind and aiming at changing situation of lock-in, an expert oriented participative workshop is a good starting point to develop images of the future, based on well informed and evidence based knowledge from the field.

Path Theories and Futures Studies

Path dependence theory, ascribed both to contingent and deterministic views of social change, is often discussed by technologists, economists and sociologists. As newer theoretical developments, path breaking and path creation challenge the assumption of path dependence and stress the possibilities of shaping the future.

In many ways path dependence on the one hand and path breaking/creation on the other represent different, almost opposing views on how development occurs. Below we will try to resolve this contradiction by presenting both positions as part of the backcasting foresight analyses within the expert based working groups and the E-Lab technologies used. Historical (in our case virtual historical) developments may be explained as both persistence (history matters) and change (breaks), as both determinism, chance and voluntarism (here: political decisions). In line with the concept of “planned path emergence” (Tiberius, 2011). In his contribution Tiberius elaborates on the relevance of this approach to futures studies. In the literature there are, however, only a few distinct models of path dependence, most are concrete case studies. The FU Berlin scholars Schreyögg and Sydow describe the path dependency approach as a three phases process (Schreyögg et al., 2003; Sydow et al., 2009):

Phase I (Preformation Phase)

This phase elaborates on the situation before the establishment of a path. Here the situation is wide open and actors have a lot of possible options to choose between.

Phase II (Formation Phase)

Phase II is the beginning of the establishment of small historic events or critical juncture.

Phase III (Lock-In Phase)

This phase represents a path dependency in a narrow sense. Emergent paths are now settled in a way that actors have no remaining alternatives and have to reproduce the set path with no way of escaping (Vergne & Duran, 2010; Tiberius, 2011; Djelic & Quack, 2007).

Schreyögg et al. (2003) also add a fourth phase to their path model which they call “de-locking”. The rationale behind this is that path dependency theory mainly argues that only exogenous shocks can dissolve a path. The argument for a fourth phase is the necessity to look at agents or actors role in the change process as such. Gradual succession and the combination of a series of incremental changes, between other made by a different decisions made by a number of agents or actors (Ref. our actor analyses below), may lead to new paths.

The relevance of this approach to futures studies is described by Tiberius (2011) as follow:

“In phase I, the future outcome cannot yet be predicted because many alternative paths are still possible. In phase II, after the occurrence of the “historic event”, probable futures outcome can be identified. Once the increasing return process shows a trend, a variety of alternative outcomes can even be reduced to the one most probable path. When the path is set in phase III, it, *prima facie*, easy to predict the further development; when certain technology, institution, etc. persist over time, i.e. when it no longer changes, it will more or less stay the same in the future (lock in) (Tiberius, 2011, p13).”

The de-locking (phase four) is here a supplementary perspective. For our purpose here we adapt the logic of these stages, but we operationalise it on our

virtual historic development from today (contemporary lock ins) and toward 2025 and beyond, where our situational scenario beyond 2025 represents a new lock in situation which is significantly different than the contemporary situation. Phase I and II represent different stages on the way towards 2025+, were path breaking activities and path creations as events (both expected and non-expected), options for choice, and possible research policies are discussed.

Participative Expert Knowledge Production

The project design applied a combined approach using an in-situ substantial idea generation blended with well-established foresight tools (Karlsen & Karlsen, 2007). It imbedded a series of knowledge elicitation techniques; creativity tools, decision tools, assessment instruments, consensus methods like Delphi techniques, expert group tools based on nominal group techniques, etc. This approach also supported brainstorming, developing univocal terminology, categorising of ideas, and evaluation of these, using multiple criteria and techniques.

The E-Lab consists of a methodology database and a set of laptops in a local area network, supported by experienced facilitators. It is portable and can be set up anywhere. It allows for parallel input of data from all participants, anonymity, instant availability of input data, and structures the ideas in a stepwise manner. Participants can simultaneously generate and communicate ideas, comments, oppositions, etc. This eradicates waiting to take turns to 'speak' and facilitates electronically storage of all input data. The technique is nominal in the sense that there is little interpersonal or group interaction outside the meeting itself and the expert group is composed for the exercise only. The logic of the process is comparable with following threads or paths on twitter or other contemporary social media. As this article does not allow further details about the E-Lab instrument, please find a more elaborated presentation of the tool in Karlsen & Karlsen (2007).

The methodological idea was to elicit experience and ideas about the shaping of future higher education policy governance. The point of departure was that the contemporary situation, as described in the different research policies in the Nordic countries of today, was a lock-in situation that is ineffective considering solutions to contemporary challenges and possibilities in the field. At the end of the first session, a report was generated containing everything that was written during the workshop. In this way the group was not dependent on a secretary to pick out what might be the most essential elements of the meeting. This paper is based on the recorded output from the experts' ideas and assessments. The first session, between other analyses of factors, actors and the development of so called mini-scenarios (Øverland, 2000a) represent a phase I activity along the lines described by Schreyögg et al (2003) and Sydow et al (2009) above. Here the participants identified a set of important factors and drivers (actors) and constructed through the paths (threads) four to five mini-scenarios for each of the factors and drivers. This resulted in a list of more than 20 factors and drivers, and around 100 mini-scenarios. There is no space in this article to describe these in detail. We will, however, give a brief presentation of the factors and drivers group 1 in the E-Lab workshop developed. In addition we will briefly give an example of a couple of mini-scenarios:

Table 1. *Selected factors and drivers. Examples of miniscenarios (titles only)*

Factors and drivers	Mini-scenarios (a...e)
Factor 1: EU and EUs Research policy	<ul style="list-style-type: none"> a) Free mobility of researchers b) Greater ERA with Norway c) Greater ERA without Norway d) A weak EU
Factor 2: Sources of financing	<ul style="list-style-type: none"> a) Less persons with higher education b) Lower state funding c) Increased state funding d) Increased political influence (steering) of R&D e) Alliances between institutions
Factor 3: The political system in Norway	<ul style="list-style-type: none"> a) R&D demand b) R&D based politics c) Co-evolution d) R&D crises of confidence
Factor 4: Global institutions	<ul style="list-style-type: none"> a) Global institutions b) Norwegian clean energy fund c) Global research accreditation d) Global R&D funding mechanisms
Driver 1: Technological breakthroughs	<ul style="list-style-type: none"> a) Geo-engineering b) ICT social development c) R&D for social welfare d) Nano- Bio-revolutions e) Techno-revisionism

Below you will find an example of such mini-scenarios (ref factor 1 in table 1 above):

Factor 1: EU and EU's Researchpolicy

Miniscenario a: Free mobility of researchers

Description: The fifth freedom is now (in 2025) underlined by a regulation scheme which has comprehensive consequences for Norwegian politics. Free mobility of researchers and bilateral accreditations of education is a reality. There is an outspoken goal that a greater number of researchers should work and study in other European countries. There are common educational schemes and comprehensive co-operations between European research - and higher education institutions. Co-operation, Division of labour and concentration, is a mantra within the EU research and HEI policies (the so called CDC-policy).

This was also evaluated regarding probability, consequence/importance and impact:

Table 2. *Impact, consequence, probability matrix*

	Probability	Consequence / Importance	Impact
Great	x		
Average		x	x

Little			
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The construction of the mini-scenarios is a good example of path-breaking activities as it develops alternative perspectives on possible outcomes on the different paths/factors and drivers.

Further, the approach used by the expert group is a modified version of the scenario workshop technique (Popper, 2008, p.60; Krawczyk & Slaughter, 2010). The scenario workshop usually brings together actors for discussion, deliberation and voting. Discussion is often spurred by the presentation of an initial scenario conveying four different images of the future. The images are meant to stimulate the thinking about the problem at hand, in our case: Nordic research, innovation and higher education policy governance. They may be exaggerated or unrealistic in some respects to emphasize different goals, values and trajectories. However, they are neither predictions nor a set of winner options. The workshop actions include a discussion and criticism of the scenarios, a stage of visioning and finally input to an action plan. A ‘vision’ may be seen as a guiding idea and a relatively clear picture of what the significant players wish to do and to stand for in the future. In our context it may represent an ideal condition, a possible leading star, concrete aspirations and a declaration for action about a learning intensive society in 2025+.

Prior to the second meeting (September 2010), the moderator team had run a preliminary analysis of the input produced by the experts during the first workshop. The narratives from the mini-scenarios together with the identified drivers, timelines and significant players were used as input to elaborate more full-grown scenarios and storylines. The input was used as a starting point for an open discussion in September 2010 of a possible Nordic model of HE policies. Equipped with this kind of reasoning the third expert group discussed and gradually developed ideas which were summoned into a situational scenario, describing the scenes of 2025+ in the Nordic countries in the final meeting (December, 2010).

Framing the Future

Discussion and the exchange of experiences are the core elements of a scenario workshop. The discussions circle around a set of images that are portraits of alternative futures. The final assignment for the experts was to deliver a preferred image of the future (i.e. a situational scenario) and a brief ‘Vision 2025+’. To achieve this, the expert group project adapted the scenario workshop approach to fit the theme in several ways. Most, importantly, the first meeting (June, 2010) did not start with a provoking four-fold scenario matrix. Rather, variables that can have an impact on future (2025+) HE policy, for example economic adaptability, scientific progress, novel regulations, opinions and attitudes amongst people, etc. were put together in an initial brainstorming exercise.

Initially, the experts identified a series of challenges, drivers, actors and factors influencing the Nordic HE policy scene during the time period from 2010 to 2025. In all, 92 such factors were identified, a lot of them also actuating comments and/or comments to comments. During a voting session the experts ranked the aspects (i.e. drivers, factors/actors) about research policy, the research institutional framework and impact on the society from the HE sector. These aspects were scored and ranked on a scale from 1 to 10 according to their probability and possible consequences or impacts, and finally the added scores were calculated.

On the basis of the added scores the most prominent drivers, actors and factors were assumed as input into the writing of mini-scenarios. 16 such mini-scenarios were produced as output of the workshop. Based on expert knowledge, published reports and statistics, the mini-scenarios present informed views of possible outcomes, but do not attempt to predict precisely what will happen. Consequently, the mini-scenarios (as qualitative narratives) are not designed to provide clear-cut forecasts of the HE policy of the Nordic countries. What they are designed to do is to raise awareness that the future could go in very different directions and alert people to the potential impact and wider implications of a variety of trends across the board. The narratives allow users to ask questions, see connections and raise issues that might otherwise not get raised. They provide a context based on plausible outcomes, they are there to explore not predict those outcomes, and they aim to challenge current thinking and raise further questions.¹ As such, the mini-scenarios (which are not presented further in this paper) were used as input in the making of a vision and a situational scenario, both placed in the Nordic countries in the period of 2025+.

A Situational Scenario – The New Lock-In

Vision 2025+

Vision 2025+
A Learning Intensive Society

The expert group engaged in a type of retrospective thinking and backcasting when discussing elements of a vision for the 2025+. *Foresighting* as a reconstruction of the past means a sort of backcasting while at the same time applying a perspectivistic approach (Neumann & Øverland, 2004). The backcasting is an elaboration of the virtual history, stepwise identifying the pathway from 2025+ to the current baseline. Our decision using a backcasting approach also follows to a certain degree Dreborg (1996) as he argues in favor of this approach if the issue of reflection is complex, if there is a need for substantial change (path breaking activities), and if the time horizon is long enough to legitimate such changes. In the conclusion of the third workshop the experts engaged in integrating their best hindsight and foresight in aligned action. The challenge was to extract a vision, possibly embedded in the prior thinking and debating of future HE policy. The goal was not to find the majority opinion, but to arrive at a vision that reflected the thinking of the diverse experts participating.

This is what made consensus for the experts:

A vision is a sort of best case scenario, a future that is preferred and desired and it may lead to a goals statement. Of course, it is a normative statement, it includes ideology, but with a 15-20 year horizon as in our case, visioning also may set a strategy for achieving the goals. Visioning is imagining a very clear and desired future. A good vision is both realistic and stretches the possible. If it is too far into

1. When reading the (mini-)scenarios, it is important to remember that they are written as though we are in the future, we should think of them as stories that might appear in the science section of a newspaper review of the year. All of them are set 15 years into the future, i.e. 2025+.

the future it does not create pull. Too close to today and it is just another plan. The experts were explicitly directed towards the chosen time line in their discussions, and were asked (if imaginable) to name inflection points for the time 2010-2025+. However, the end point of the workshop was to create the vision, thus leaving out the strategy and planning to implement the new ideas (Øverland, 2010).

Consequently, as a final step the experts were asked to construct a main scenario about the situation in 2025+ and the road from today towards that year. In doing so they should include relevant stakeholders and actors as part of the descriptions. The point of departure were the narratives (mini-scenarios) developed in the first workshop, together with the initial main scenarios and backcasting ideas developed in the second workshop. If appropriate the experts could combine mini-scenarios and other ideas to construct the different main images. However, the preferred main scenario would need a storyline, i.e. a narrative that presents the important aspects of the image, including the relationship between driving forces and events of the scenario. The goal of this scenario material was to generate discussions regarding what has to be done to reach some overreaching objectives that we believed we had in common:

- The development of economies that can serve as the foundation of welfare and sustainable growth
- Ensuring the continuing development of democracy, cultural and social creativity, dynamism and variety in the Nordic area and the world at large.
- Working for peace, health, well being and social justice everywhere.
- Avoiding harm to our environment.

The storyline of a situational scenario: Learning Intensive Society in 2025

The third workshop session developed a situational scenario attached to the vision of a learning intensive society. This scenario was positioned in the year 2025+ as assumed and located to the Nordic countries. The storyline of the desirable future for Nordic research and innovation policy in 2025+ runs like this:

‘The Nordic countries have found a balance between the three arenas – Science for science, society and business. We have avoided a classical control hierarchy while still making sure that research responds to societal needs in a good way. We have found successful ways of funding risky research, implying that we have many parallel research funding systems and great heterogeneity in the way research and innovation is funded. The Bill Gates Foundation is one type of actor in today’s research funding system, but in the future, such actors will be much more proliferate. Individuals will to a much greater degree pay researchers directly for carrying out research. Cancer research is one example of a research field where civil society organizations are important players in funding research, but in the future this type of research funding will be much more common in a wide variety of research fields.

Besides, we have an influx of young researchers which will be open to communicating their research, with strong ethics and extensive experience in trust-based ways of working. At the Nordic level we have a population of scientists that have a set of basic Nordic values in common. We have a

common committee for misconduct on the Nordic level. We have greatly enhanced mobility between the Nordic countries, and we cooperate to a much greater degree on a Nordic level when it comes to research infrastructure. We also cooperate to a greater degree at the Nordic level in the field of health care. In the future, health care is very diversified and nanotechnology is supplying a lot of the solutions allowing for a more user-centric, dynamic provision of health care services. For example, self-diagnosis will be much more common. Nordic countries have the right framework conditions to be frontrunners in this development – we have highly educated technology savvy populations. Human bio-banks and extensive registries add to the competitive advantage for the region in this field.

The Nordic region, with their populations of early technology adopters, has developed into a region for technology evaluation and experimentation. Likewise, the Nordic region functions as a successful research and innovation policy experimentation. The Nordic welfare state models have many similarities, but Nordic research and innovation systems are quite different. This makes the Nordic region a fruitful platform for learning and discussing about policy alternatives. In addition, the Nordic countries are small, agile, open countries with high levels of trust and long traditions of cooperation, meaning that experiments can be planned and carried out very rapidly.’

This storyline is a narrative that presents the important aspects of the situational scenario, including the relationship between driving forces and events of the future image. It is written as if it was presented in a science section of a magazine or journal in 2025.

How did we get there? The policy options

The expert group was asked to address the plausible steps to achieve the visionary situational scenario of 2025+, by applying a backcasting technique (Dreborg, 1996; Höjer & Mattsson, 2000, Karlsen & Øverland, 2010). The objective is to apply the preferred future as described in the situational scenario as a starting point, and then work backwards to identify major events and decisions that generated that image of the future, as depicted in figure 1 below.

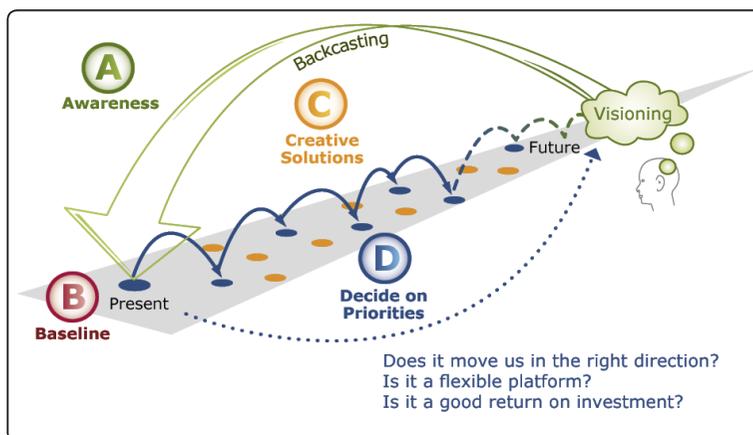


Figure 1. Backcasting the intensive learning society vision

Adapted from: the Natural Step. Retrieved 8 August, 2011, from <http://www.naturalstep.org/en/abcd-process>

This procedure allows the experts to consider what actions, policies and programs are needed today that will connect the future to the present. Backcasting reminds us that the future is not linear, and can have many alternative outcomes depending on decisions made and the impact of external events on the trajectory of this policy field. Usually, when developing such aspirational scenarios as the Vision 2025+, the backcasting is looser when it comes to the timeline than we usually find when applying road-mapping as a foresight technique. The major purpose of backcasting is to identify possible policies and strategies to reach the future state, and to give plausible explanations to why this future is achievable, not to envisage the estimated timeline of the various steps forward (Popper 2008, p.55).

The response from the expert group was the concept SMARTT, which stands for:
Science – Mobility – Advancement – Research – Technology Transfer

As stated by the experts, in order to reach the learning intensive society in 2025+, the Nordic region developed a ‘**SMARTT**’ policy for using existing Nordic level institutions more efficiently in order to successfully position NORIA (Nordic Research and Innovation Area) in the framework of the ERA (European Research Area). The ‘**SMARTT**’ policy could be seen as a metaphor of both a path breaking strategy and path creation, also as the idea came up in the mini-scenario exercise described above and in the following scenario construction. To get out of the poor co-operation between the Nordic countries in the research- and innovation policy area, there is a substantial need for a redefinition of policies, arenas of co-operation and tools. In the process of doing so the Nordic region in the path breaking scenario has successfully created a new path as they renewed and reinvigorated the ERA in the following fields:

‘Science Advancement: The Nordic region has successfully developed into a research policy experimentarium – Nordic actors jointly carry out common foresight exercises at regular intervals. There is common development of policies in certain fields. There are common network arenas in the field facilitated by organizations such as NordForsk and Nordic Innovation Centre (NICE). There is common funding of research on research and innovation.

An extensive branding strategy to launch this strength to a greater degree at the European level has been developed, enabling the Nordic region to set the agenda for European research and innovation policy development.

A comprehensive branding strategy for positioning the Nordic region as a technology experimentarium has also been developed. While previously the strengths of the Nordic region in this field were little known to the global business community, the potential of the Nordic population as early adopters and evaluators of technology is now known worldwide. This enables the

Nordic region to successfully attract substantial private research investment as companies prefer to locate their R&D departments in the region where they can easily and inexpensively test their prototypes and products’.

‘Mobility and Technology Transfer: It is all about competence development. We do not only think in terms of mobility of researchers, but also mobility between the silos. There is a good balance between the three sectors science for science, business and society. We have developed well-functioning new arenas of interaction between the three sectors. These are not just arenas for discussion but also for more substantive negotiation- type interactions. There is broad involvement of society in the setting of research and innovation priorities.

The infrastructure for promoting knowledge transfer within the Nordic region has been harmonized. The new infrastructure is modeled along the lines of the former Danish network called Techtrans and is administered as a joint effort between NordForsk and NICE. The Nordic network is the only support framework for such activities in the Nordic countries, the national programs in the field have all been closed down and the financing transferred to the Nordic network.

Mobility policies for researchers are organized in such a fashion that they take account of the fact that researchers have families. The new mobility policies have been modeled along the same lines as existing programs in the field of diplomacy and high level athletes. There are also mobility programs in place which ensure that young researchers who have done research abroad have the possibility to continue their research when they return home.’

‘Research: All Nordic research programs are open to all Nordic researchers. This means that within some fields of research, some countries are more successful in obtaining funding than others. However, this is considered strength of the system, not a weakness. This development has enabled NORIA to truly cultivate the individual countries’ and regions’ strength, finding their individual niches of specialization. As a first step in achieving this, the Nordic institutions NordForsk and NICE took on a prominent role in raising awareness of existing options for cross-border funding within the Nordic region and identifying options for true opening up of funding in certain fields. This new role for the two institutions contributed to greatly raising awareness of them among the Nordic research and business communities.

The Nordic region has also found alternative ways of funding research and innovation. The old funding mechanisms were not sufficiently successful in mobilizing innovation in industry, in encouraging cooperation between the silos and in funding risky research. All these issues have been solved through various mechanisms and research initiated within the Nordic research policy experimentarium. For example the peer review process has been substantially

revised, allowing for the participation of relevant stakeholders to a much greater degree.’

In this phase of the backcasting analysis, the experts were asked to brainstorm potential solutions to the issues highlighted in the baseline analysis without any constraints. What are the dependencies of the new 2025+ path? What kind of path breaking activities happened in the period 2011-2025? Which new paths were created? With these questions in mind and armed with their vision of success and potential actions, the participants look backwards from the vision to develop strategies toward the visionary image of the learning intensive society. This is the essence of the backcasting and it prevents the experts from developing strategies that just solve the problems of today. Instead, they begin with the end in mind (a different Lock-In), moving towards a shared vision, with each action providing a platform for further improvement.

In a full sequence of a backcasting exercise, after identifying the opportunities and potential solutions, the experts usually should prioritize the measures that move the policy field toward the preferred situation fastest, while optimizing flexibility as well as maximizing social and economic returns. This step supports effective, step-by-step implementation and action planning, preferably connected to the forthcoming legislature periods (8-10 years). At this stage, the policy players can pick the 'low-hanging fruit' - actions that are fairly easy to implement and offer a rapid return on investment in order to build internal support and excitement for the planning process. This *foresighting* exercise deliberately did not comprise such a planning and implementation stage.

Some Theoretical Considerations

Foresight, and especially scenario building, is usually considered conducive to strategic reasoning, research processes and policy development. The status of futures literacy, however, is both undefined and under-communicated as part of both scientific research process itself and policy development (Karlsen & Øverland, 2010).

Foresight comprises projections or explorations of different futures and alternatives, based on insights from today’s knowledge and expectations of the future. Foresight exercises in many cases use expert-qualified estimates of, for instance, technological development. The process of foresight also includes the understanding of the opportunities and possibilities of a technology or an organizational device, however uncertain, as well as the pitfalls. Therefore the foresight process is also a way to define the system and a constituting of the field with regards to stakeholders, system boundaries, possible consequences and impacts of the field and its development. It is also – if the primary goals and objectives are met – a roadmap for choosing the desired way and balance to attain the potential benefits, and minimize or exclude possible negative outcomes for the stakeholders. The ultimate success of a foresight project is in most projects in the outcome; that is, the implementation of foresight knowledge in policies, strategies and actions (Karlsen et al., 2010).

Foresight carried out along the lines presented in this article also demonstrates an integrated and creative use of path theories, in which path dependency analyses

occur, path breaking activities are demonstrated and new paths are created. Our approach here is also aimed at showing the relevance of path theories for futures studies, not as a real historical trend analysis and contemporary path explanations, but as tools for futures oriented backcasted story telling. In addition, however, backcasting approaches could also be used as a tool for new interpretations of real pasts, real historic events, either as a part of a contrafactual historic analyses or as historical research through perspectivist historical research methodologies (Neumann & Øverland, 2004).

Discussion and Preliminary Conclusion

This series of expert group workshops prove ample information and ideas about future policy development in the field of knowledge. Our findings indicate that it gives meaning to analyze how future characteristics of knowledge might change and the most effective future responses might be constructed to ‘think, debate and shape’ the future implications of knowledge policy over the next 15-20 years. It also make sense of path dependency, path breaking and path creation analyses. The first workshop represents a phase I, while the second correspond to phase II. The workshop 3, through the development of a new Lock-In, the situational scenario in 2025, is a direct impendant to phase III. Throughout the whole process the original situation is de-locked and path breaking activities and new paths are created within the storyline as such (phase 4). HEI policies at the Nordic level needs to be de-locked from contemporary dependencies and must be recreated as a new and common policy representing the Nordic region as such. HEIs and the university sector, not only at national or at Nordic level, but also at European and global level, are areas very well suited for long term thinking. The way Kolleck et al. (2011) argue in favor of long term analyses in the area of Education for Sustainable development, we should make the HEI sector and research policies at different levels object for foresight and futures research.

Has anyone heard of a real university that has gone out of business? Hardly! Universities are apparently deemed necessary for and immanent to society. As long as we have a social societal formation we will have universities and other higher education institution should be objects. Over their 1000 years’ long history they have gradually gained importance, both in size, members and functions. And they prevail. Arguably, they are excellent candidates for long term thinking and *foresighting* (Øverland, 2010). In the Nordic context this paper does not allow itself such a long prospect, however a scant generation’s perspective gives us a glimpse of what we presently would like to achieve; a learning intensive society supported by long range planning and suitable policy.

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