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Futurist in policy making process:
Philosophical foundations and methodological considerations on the role
of professionals analysed by the Futulogic method

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ABSTRACT

The aim of the article is to present a new typology of paradigms of futures studies with specific focus on decision-making. Possible roles of futurists and other actors in long-term planning and decision-making processes are formed using the Futulogic method. The participatory actors and phases of the decision-making process are broken down to sub-categories, the space of possible alternatives is opened, the open space is cut with a theoretically grounded continuum, and finally a relevance analysis is made in order to achieve a comprehensive and comprehensible typology. The resulting seven schools of thought are interpreted in the light of literature of futures studies and planning theory. Connections to the philosophical discussion on the role of knowledge and values in policy recommendations are presented as well. Some futures studies methodological applications are attached to the paradigms. The new typology forms a gradient from technocracy performed by professionals to direct citizen participation.

TIIVISTELMÄ

Tulevaisuudentutkija julkisessa päätöksentekoprosessissa – asiantuntijan roolin filosofiset ja metodologiset perusteet Futulogic-menetelmällä analysoituna

Artikkelin tarkoituksena on tuottaa uusi typologia tulevaisuudentutkimuksen koulukunnista Futulogic-menetelmää soveltaen. Typologian perusteena on eri toimijoiden osallistuminen päätöksentekoprosessiin. Toimijat ja päätöksentekoprosessi jaetaan alaluokkiin, mahdollisten kombinaatioiden avaruus avataan, mahdollisuuksien avaruus leikataan teoreettisesti perustellulla jatkumolla ja lopulta käytetään olennaisuusanalyysiä, jotta typologia saataisiin sekä mahdollisimman kattavaksi että myös ymmärrettäväksi. Tuotetut seitsemän koulukuntaa tulkitaan tulevaisuudentutkimuksen ja suunnitteluteorian kirjallisuuden perusteella. Samalla tarkastellaan näiden yhteyksiä filosofiseen keskusteluun arvojen ja tiedon roolista toimintasuosituksissa. Kuhunkin koulukuntaan liitetään myös tulevaisuudentutkimuksen käytännöllisiä menetelmiä ja metodologioita. Tuotetut koulukunnat muodostavat jatkumon asiantuntijavaltaisuudesta kansalaisten suoraan osallistumiseen.

1. SIX TYPOLOGIES OF FUTURES STUDIES PARADIGMS

Several typologies of futures studies paradigms[1] have been formed in the last two decades. We begin with a short review on six typologies and conclude that the six typologies are limited to three schools of thought. When applied to actual long-term planning and decision-making processes, a question can be raised whether the multitude of alternative ways 'to do the job' is encompassed? We suggest that the role of the futurist as a professional, as well as the roles of other actors, could be characterised in a more diverse way in the process.

Then, applying the Futulogic method, we open the space of logically possible roles of professionals and other actors in policy processes. After forming 343 logically possible hypothetical schools of thought we cut the open space with the continuum of extreme technocracy to extreme citizen participation. The scanning will produce fifteen hypothetical schools of thought, which are analysed in terms of relevance and hence reduced to seven.

Finally, we show connections of the seven paradigms of the role of professionals and other actors to some practises in futures studies. We also attach the paradigms to the philosophical discussion of the role of values and knowledge in making policy recommendations. The approach is illustrated in Figure 1.
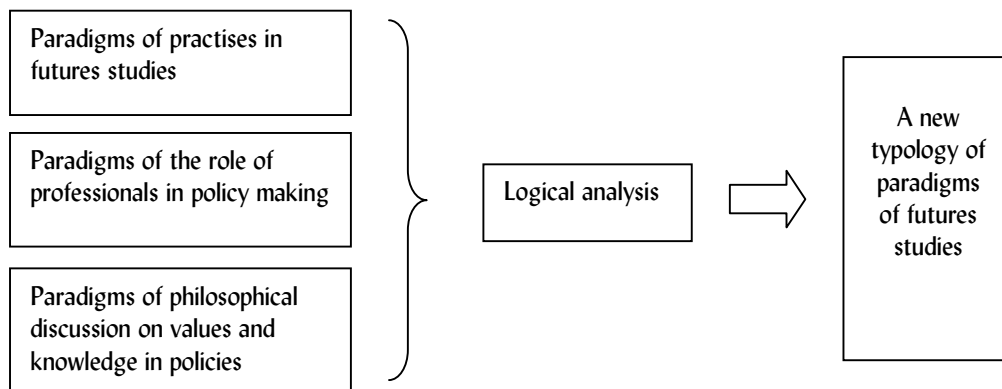
Figure 1. The approach of the article

1.1. Probable, possible and preferable

Roy Amara (1981, p. 26) made his famous typology of the three "goals" of futurists twenty years ago. For the goal of *possible*, futurists form perceptions of the future by conceiving and describing possible paths which is an image-driven and visionary "role". For the goal of the *probable*, futurists

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[1] In this article we use the concepts of paradigm and school of thought interchangeably. Especially the concept of paradigm developed by Kuhn (1970, p. 1-51) has been criticised often. Kuhn (1978, p. 271-272) later suggested the concept of 'disciplinary matrix' to mean the shared symbolic generalisations, metaphysical and heuristic models, values and exemplars (*i.e.* concrete problem solutions) of a research group or discipline. A concept has no intrinsic value and we use the ones that seem to be understood generally. When describing the typologies by different authors we use their own concepts.

study likely alternatives by examining particular paths in detail, which is an analytically-driven and exploratory role. For the goal of the *preferable*, futurists make choices to bring about a particular feature. They express preferences for and work to implement particular paths. Amara argued that the goals are not mutually exclusive and that many futurists perform all the roles. However, the goals are of different nature and Amara's typology seems to be the starting point for further typologies of different schools of thought in futures studies.

1.2. Technical, hermeneutic and emancipatory

Jürgen Habermas' well-known typology of the three "interests of knowledge" (1970, p. 60-65; 1977, p. 19-24) was applied to futures studies by several authors in the 1970s and 1980s. It seems that Åke Sandberg (1975, p. 25-28) was the first, although he relied on Gerard Radnitzky's (1971) interpretation of Habermas. The English volume of Sandberg's book (1976, p. 29-32) asserted the same typology of technical, hermeneutic and emancipatory interests of knowledge. Richard Slaughter presented another version of Habermas' typology (1982, p. 135-146; 1988, p. 17-20), applying practical instead of hermeneutic interest of knowledge, referring more directly to Habermas' original text. Mika Mannermaa (1986, p. 660-662) modified and cross-matrixed Sandberg's version of the three interests and Amara's goals. The result can be formed as follows:

In the *technical interest of knowledge* the aim is to search for objective trends and alternatives are considered irrelevant (possibility). Forecasting is the main task of a study (probability) and values are considered inessential, unscientific and/or self-evident (desirability). In the *hermeneutic interest of knowledge*, wrote Mannermaa (1986, p. 660), the "…main purpose is communication between people in a society and different tasks of futures research melt into a common understanding of the social reality." In the *emancipatory interest of knowledge* the aim is to increase alternatives making impossible into possible (possibility). The probable is considered a reference alternative and usually an object of criticism (probability). It is more important to act in favour of the desirable future than search for a probable alternative.

1.3. Extrapolation, utopia and vision

In the early 1980s, Eleonora Barbieri Masini (1993, p. 45-46) developed another typology of three futures studies "approaches" based on an article by Peter Henrici. *Extrapolation* is an approach including analysis of what may happen in relation to the data, information and knowledge of the past and present. It thus means wider actions than trend extrapolation extending Amara's probable with aspects of possible. We might say that what is extrapolated in this approach is the structure of the past and present.

Utopian approach means the "…building of a future different from the present" (Masini 1993, p. 45). It concentrates on invention, innovation and imagination of highly desirable or non-desirable futures. This approach seems similar to Amara's preferable goal and Mannermaa's emancipatory interest of knowledge.

The third approach is labelled *vision* combining the first two approaches. It includes bringing the value considerations of utopias down to concrete programmes by relating them to the data, information and knowledge of past and present. The approach lacks clear correspondence to Amara's and Habermasian typologies or rather presents a synthesis of them.

1.4. Predictive, cultural and critical

Sohail Inayatullah (1990) presented a somewhat similar typology of "epistemologies" as Sandberg, Mannermaa a few years earlier. Although he did not refer to Mannermaa's work it could be said that he continued the same path as Amara, Masini, Sandberg, Slaughter and Mannermaa. Inayatullah had three schools of thought[2], as well.

The *predictive – empirical approach* includes instrumentalist, rationalist ways of predicting the future accurately. The point is equal to Sandberg's, Slaughter's and Mannermaa's technical interest of knowledge. Inayatullah connected mathematical modelling strongly to this school of thought. With accurate predictions performed by the professional ("planner"), the decision-makers could better adapt to the coming state of the world. (Inayatullah 1990, p. 117-119.)

The *cultural – interpretative approach* includes understanding of different values and cultures, different ways of approaching the future, negotiating about the different alternatives and acting in order to achieve the desired future (Inayatullah 1990, p. 122-128). Inayatullah seemed to converge the hermeneutic and emancipatory interests of knowledge presented by Mannermaa to this approach. Masini's concept vision includes similar ideas as well.

What is then left for the third *critical-post-structuralist* approach? Inayatullah regarded the kind of emancipatory critical approach that Mannermaa above and Richard Slaughter (1982; 1988) had in mind as a revised version on the Enlightenment project, which appeared to be for him the actual problem instead of a source of doing things better. Rather he saw another option in the Foucauldian "post-structuralism". It includes taking distance to the concrete planning situation, analysing the historical context of the situation, analysing and revealing the power relations inherent in the language that different participants have, assessing and if needed changing the power relations and making the future problematic. (Inayatullah 1990, p. 128-136, 140-141.)[3]

In sum, Inayatullah (1990, p. 141) crystallised the difference between the three approaches by the definition that the first predictive aims at solving (technical) problems, the second cultural approach aims at identifying alternative futures and the third critical approach aims at making future problematic.

1.5. Positivism, critical realism and post-positivism

Wendell Bell (1997a, p. 196-209) also formed three "epistemologies" for futures studies, namely positivism, critical realism and post-positivism. *Positivism* by Bell means the same as the probable of Amara, technical interest of knowledge of Sandberg, Slaughter and Mannermaa and predictive – empirist approach of Inayatullah. *Post-positivism* seems to describe rather similar features to Inayatullah's critical-post-structuralist approach. The main difference is that for Inayatullah this was the ideal school of thought, whereas for Bell it was the object of criticism.

While positivism was the thesis and post-positivism its antithesis, *critical realism* by Bell was the synthesis of the two first schools of thought. It seems not to have a corresponding partner in the formulations of Amara, Masini, Mannermaa or Inayatullah. It included the ideas of forming alternative possible futures and evaluating which of them is objectively good. It includes citizen participation in forming desirable or preferable futures but it also includes the idea that the citizen may be wrong. The objective evaluation of a future image (or scenario, development *etc.*) should be

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[2] Inayatullah used two concepts for the different schools of thought: epistemologies and approaches.
[3] Inayatullah wrote that a weakness of the critical-post-structural approach was the lack of suitable methods for such an analysis. Later he has developed causal layered analysis for this purpose (Inayatullah 1998).

made by following the scheme of Keekok Lee's epistemic implication model relying on objective facts instead of subjective statements.

1.6. Descriptive, scenario paradigm and evolutionary

Later Mannermaa (1991) published another typology of futures research: descriptive futures research, scenario paradigm and evolutionary futures research. The *descriptive futures research* seems to be identical to the earlier technical interest of knowledge by the same author. The *scenario paradigm* includes forming alternative possible and preferable futures. It appears to be a combination of Amara's possible and preferable and a type of combination of Mannermaa's earlier hermeneutic and emancipatory interests of knowledge.

As a newer theoretical invention Mannermaa discerned a paradigm of *evolutionary futures research*. It was based on the complexity discourse of system theory and especially works of the "Brussels school" (Prigogine and Stengers 1984) and Ervin Laszlo (1989). It included the idea that society evolves through phases of linear development with fairly accurate predictability as well as through chaotic bifurcations where predictability is very low and human decisions and actions are essential. The goal of evolutionary futures research is to make forecasts in linear phases, identify bifurcations and make future assessments.

It is interesting that all the six typologies described the first paradigm to be the same, Masini's concept of extrapolation being a little wider however. The similarity implies that there really is a discernible positivist-technocratic-extrapolative-predictive-descriptive school of thought among futurists or at least in governmentary and business practises. The two other paradigms in the typologies differ although the ideas presented in Amara's framework seem to be included also in the latter typologies. One school of thought presented in the typologies differs significantly and seems to represent the ideas that the author him/herself was in favour of.

These features lead us to two questions: Why are there only three schools of thought presented in these six typologies? Could there be more paradigms, even relevant paradigms? We find it important to continue the work of the above mentioned authors and construct a more delicate typology.

2. ANALYSIS USING THE FUTULOGIC METHOD

Next we will produce more schools of thought for futures studies applying the Futulogic method.[4] We are especially interested in futures studies as a tool in social decision-making process. The way the process is organised implies deep philosophical premises and gives a reasonably exact formulation for interpretation as well as criticism. The phases of the Futulogic method are as follows:

- dividing two categories of interest into sub-categories,
- cross-matrixing the sub-categories,
- opening the space of logically possible alternatives,
- cutting the open space by theoretically grounded criteria,
- removing less relevant (non-understandable and almost overlapping) alternatives,
- theoretical interpretation of remaining alternatives.

2.1. Dividing and cross-matrixing categories

First, long term planning and decision-making is broken down into three main phases:
1) formation of the alternatives (problem formulation, production of policy alternatives and forecasting the impacts of the alternatives),
2) evaluation of the alternatives,
3) making the decision.[5]

Another point of interest are the roles of different actors involved in the process. The main actors involved in the process can be divided into three groups as well (see Gál and Fric 1987, p. 679):
a) decision-makers (politicians, managers, judges and other formal authorities),
b) professionals (futurists, consultants, administrative officers, researchers and other substance experts),
c) the public (governmental and non-governmental interest groups as well as individual
d) citizens and media).

The phases can be cross-matrixed with the actors so that each actor can be positioned to any phase of the process (Table 1).

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[4] The method can be used also for other purposes than forming schools of thought, for example to create scenarios. The phase of cutting the open space by theoretical criteria would then be substituted or supplemented by random sampling of alternatives to systematically get new ideas. The relevance analysis can be made by manipulating one or two sub-categories after cutting the sample.

[5] The distinction of the phases could be broken down to more phases as well, for example separating the first phase to problem formulation, production of alternatives and forecasting the impacts. Then the open space of logically possible schools of thought would be increased from 7^3 to 7^5 i.e. from 343 to 16 807 hypothetical schools of thought. We argue however that further distinction would hardly include important philosophical implications but would make the analysis too complicated to be illustrative.

Table 1. The main actors and phases of a decision-making process

	Phase of process		
Actors	Formation of the alternatives (1)	Evaluation of the alternatives (2)	Making the decision (3)
Decision-makers (dec)			
Professionals (pro)			
Public (pub)			

2.2. Opening the logical possibility space

To start with, we suggest that these premises form a relevant starting point. Because there are x^y ways to combine the three phases (y) logically with the three groups (x), it follows that there are $(3^3) = 27$ alternative ways of defining the role of professionals, the public and decision-makers in a long term decision-making process:

(1), (2), (3)	(1), (2), (3)
dec, dec, dec	pub, pub, pro
dec, dec, pro	pub, pro, pub
dec, pro, dec	pub, pro, pro
dec, pro, pro	pro, pub, pub
pro, dec, dec	pro, pro, pub
pro, pro, dec	pro, pub, pro
pro, dec, pro	
pro, pro, pro	dec, pro, pub
	pub, pro, dec
dec, dec, pub	pro, pub, dec
dec, pub, dec	pro, dec, pub
dec, pub, pub	dec, pub, pro
pub, dec, dec	pub, dec, pro
pub, dec, pub	
pub, pub, dec	
pub, pub, pub	

These premises are not yet sufficient, however, because two or three of the groups may in practice participate in the same phase. This raises the number of alternative solutions within a phase to seven (Table 2). It follows that the number of alternative logical solutions to the whole process is increased to $7^3 = 343$.

It is important to note here that if professionals are mentioned together with public it means that professionals have a special role in the process. If the professionals do not have a special role in the process, they are categorised here as the public, no matter how much expertise they possess.

Table 2. The multitudinal actors and phases of decision-making process

| | Phase of process | | |
Actors	Formation of the alternatives (1)	Evaluation of the alternatives (2)	Making the decision (3)
dec			
pro			
pub			
dec & pro			
dec & pub			
pro & pub			
dec & pro & pub			

Now we have opened the space of logically possible hypothetical schools of thought from the matrix. It is obvious that some of the logical possibilities are irrelevant at least from a Western societal point of view. 343 possibilities are also too many to be practically analysed or illustrated one by one. Thus, we will proceed by scanning the open space with explicit selection criteria.

2.3. Cutting the logical possibility space

Some criteria are needed to exclude the less relevant schools of thought, or rather the ones that are not of concern in this paper. Riner (1987, p. 318) provides one criterion in his continuum of "*'Softer', more qualitative, synthetic*" vs. "*'Harder', more quantitative, analytical*" objectives and methods in futures research. Another tool is adopted from Tapio (1996), namely the gradient from technocracy to citizen participation. These two continuities seem to converge rather than cross each other.

One line of samples from the logically open space can then be formed by starting from extreme technocracy (pro – pro – pro) towards including decision-makers and then the public. The other end of the continuum consists of extreme direct public participation (pub – pub – pub).

Let us assume that it is relevant to start the widening of actors involved from the phase of the final decision by including decision-makers into the scheme and move on to include decision-makers to earlier and earlier phases of the process. This is because the claim for increasing participation in the earlier phases of the process implies important epistemological foundations and the claim for maintaining the phase of forming alternatives in the hands of professionals seems to be 'the last resort' of realistic and positivist epistemologies.

Importing public to the process can arguably be formed differently. Final decision-making can be seen as 'the last resort' of the point of having decision-makers at all, especially in a representative system. Importing public to the process would probably mean a broader base for decision material at the first stage. Therefore, when dealing with the decision-makers and public only, we would start importing public from the beginning of the process.

With the two 'last resort' arguments mentioned above we can start by dropping the professionals from the final decision phase and holding them as long as possible as the only actor in the first phase of forming the alternatives. Thus we start importing the public to the middle of the process, *i.e.* evaluating the alternatives. In the latter stage there are two alternatives: to first exclude professionals altogether or to first include public in the final decision phase. We leave the scheme open for these options for now.

Figure 2 illustrates the alternatives that have so far been cut theoretically from the open space of logical possibility. The alternatives form a gradient of fifteen hypothetical schools of thought making the gradient from technocracy to citizen participation logically well-argued. We have thus reduced the alternatives under scrutiny from 343 to 15 with fairly few assumptions.
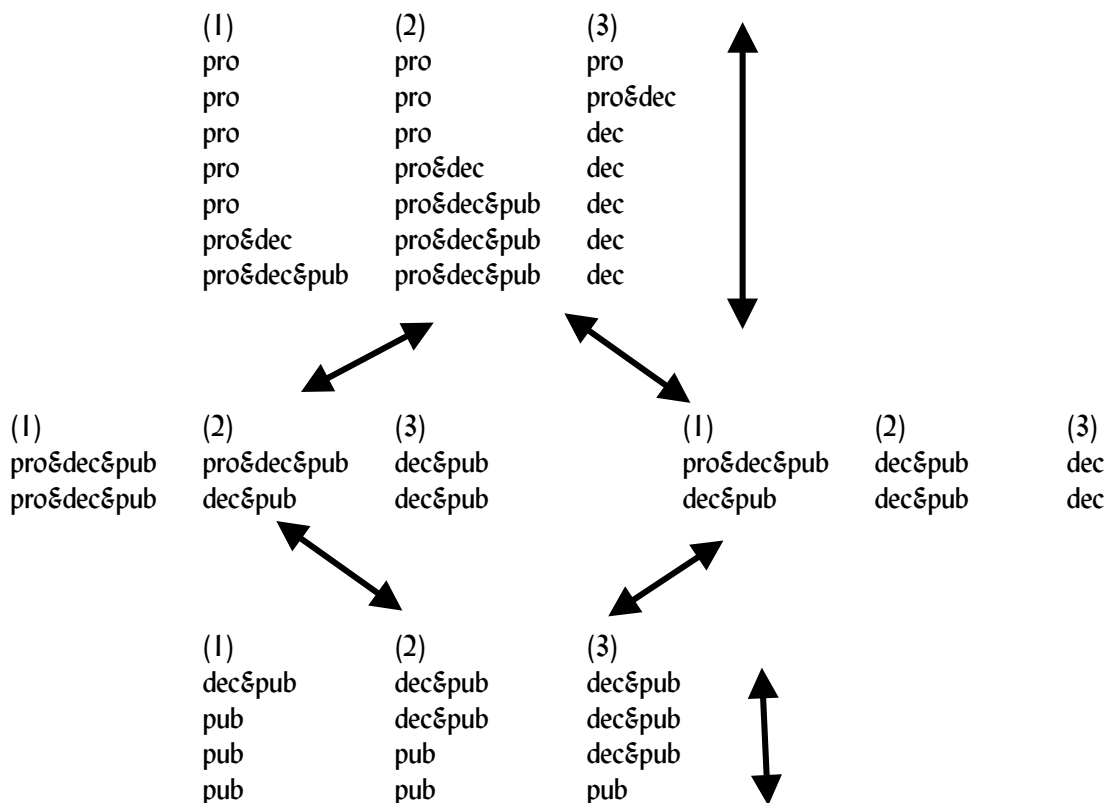
(1)	(2)	(3)
pro	pro	pro
pro	pro	pro&dec
pro	pro	dec
pro	pro&dec	dec
pro	pro&dec&pub	dec
pro&dec	pro&dec&pub	dec
pro&dec&pub	pro&dec&pub	dec

(1)	(2)	(3)		(1)	(2)	(3)
pro&dec&pub	pro&dec&pub	dec&pub		pro&dec&pub	dec&pub	dec
pro&dec&pub	dec&pub	dec&pub		dec&pub	dec&pub	dec

(1)	(2)	(3)
dec&pub	dec&pub	dec&pub
pub	dec&pub	dec&pub
pub	pub	dec&pub
pub	pub	pub

Figure 2. The continuum from technocracy to citizen participation based on cutting the logically possible space theoretically

2.4. Relevance analysis

In the next phase we will exclude those options that seem to have no relevant interpretation.[6] 'Not relevant' here means two classes: First, the ones that seem not to have an understandable interpretation. Second, the ones, that do not imply differences in underlying philosophy (practically overlapping).

Of the fifteen hypothetical schools of thought the six that had more than one actor group in the last phase of final decision-making seemed to lack understandable interpretation. It is difficult to grasp the idea and point of, for example, a voting system capable of simultaneously combining elected decision-makers and the public. Thus we are left with the following nine schools of thought:

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[6] This phase is similar to the Field Anomaly Relaxation (FAR) and other morphological cross-impact matrix methods in which the user is supposed to exclude logically impossible alternatives. However, in FAR the judgement is in fact made on subjective rather than logical basis. As futurists we should be careful when writing about impossibilities. An analysis of relevance seems a more adequate concept.

(1)	(2)	(3)
pro	pro	pro
pro	pro	dec
pro	pro&dec	dec
pro	pro&dec&pub	dec
pro&dec	pro&dec&pub	dec
pro&dec&pub	pro&dec&pub	dec
pro&dec&pub	dec&pub	dec
dec&pub	dec&pub	dec
pub	pub	pub

We further combine the ones in braces, because they seem similar to each other in terms of philosophical implications. The point will be illustrated further in chapter 3. Thus we finally end up with seven schools of thought:

(1)	(2)	(3)
pro	pro	pro
pro	pro	dec
pro	pro&dec	dec
pro	pro&dec&pub	dec
pro&dec&pub	dec&pub	dec
dec&pub	dec&pub	dec
pub	pub	pub

3. THEORETICAL INTERPRETATIONS

There are obvious connections of the formed seven schools of thought about the roles of different actors in a long-term planning and decision making process to the epistemological, methodological and social philosophical debate found in futures research as well as philosophy. We use this discussion next as a framework of interpreting the above mentioned concrete ways to define the roles of different actors in a long-term decision-making process. Especially the role of (expert) knowledge and values in making policy recommendations are analysed. Some aspects of planning theory are also added to the analysis to further define the approaches to participatory democracy. The analysis is focused on the logical connections rather than the socio-historical context of the schools of thought which is important but beyond the scope of this article (see *e.g.* Rubin 2000).

3.1. Comtean positivism (pro – pro – pro)

In the first school of thought we assume that the whole decision-making process is carried out by professionals. The professional forms the alternatives, finds out the most probable one which is then implemented as a fact in the more detailed planning process. Implicitly, the professional has then also made the most important decision.

The positivist philosophy would serve as the most adequate supporting argument for this rationale. We are thinking Comtean positivism rather than the logical positivist school of thought of the Vienna circle, which did not concentrate on making rules on making policy recommendations. Another well-argued source would be the naturalistic value-objectivism which has been criticised harshly by for example Ulrich Beck (1986, p. 31-32). The main line of argument is that with sufficient research professionals will find out the invariances of society the same way natural scientists find out the laws of nature. In this way decision-makers can adapt to the natural laws of society. No value considerations nor democracy is needed. (Comte 1974, p. 410-437, 459-473; Töttö 1996, p. 62-64).

Among futures researchers the positivist school of thought is often criticised but seldom defended and not even explicitly stated. However, numerous practises have been organised according to the positivist principle, such as the role of transport and energy forecasts in various countries (Kraus 1987; Kokkarinen 1991; Batty 1994; Tapio 1996). The approach is similar to the concepts of probable by Amara, technical interest of knowledge and descriptive futures research by Mannermaa, predictive-empiristic approach of Inayatullah and positivism by Bell as described in chapter 1.

Comte himself did not favour mathematics but direct empirical observations. However, his philosophy was imported to the United States by the logical positivists of the Vienna circle. It was then adopted to legitimise the American empiristic tradition of social sciences, which relied heavily on mathematical tools. (Turner 1992, p. 1510-1511). Thus trend extrapolation and other types of deterministic mathematical modelling has both historical and epistemological connections to Comte's thinking. Another connection of positivist futures research can be traced back to Rostowian unilinear developmental theory (Rostow 1960).

3.2. Optimistic Humanism (pro – pro – dec)

The second school of thought states that the professionals formulate the possible alternatives and also evaluate the alternatives. Final decision-making is left for the decision-makers.

This approach seems to have connections to the "critical realism" stated by Wendell Bell (1997a; 1997b). According to him futures researchers should not only outline possible alternatives but also assess which one of the alternatives is best (Bell 1997b, p. 1). The justification for this task is that values are suggested to be able to be evaluated objectively. Bell seems to think that (liberal) democracy is one of the objective values and therefore the decision-makers are supposed to make the final decision (Bell 1997a, p. 236). This line of argument has one problem that Bell seems not to have solved yet: If the goodness of a given alternative is already objectively assessed by the futurist what is left for the decision-maker to decide upon – right and wrong decision?

Not many practices of futures studies follow this school of thought. A tryout is Bell's own work applying Keekok Lee's "epistemic implication model" for analysis of which of future alternatives are truly good. Lee (1989) has made a program for social ethics based on a "naturalistic" and "rational" analysis of and conclusions from the laws of thermodynamics. Some applications of cost-benefit analysis might be regarded as practical tools for rational evaluation (see *e.g.* Hayashi and Morisugi 2000).[7] The rational planning doctrine in planning theory seems to strive for the same goal as well (Friedmann 1973). Bell's approach seems unique with regard to the five other typologies reviewed in chapter 1, but this approach might have been connected to the predictive-empirist approach by Inayatullah, evolutionary futures research by Mannermaa and extrapolation approach by Masini.

3.3. Pluralistic humanism (pro – pro&dec – dec)

In the third school of thought the professional forms the alternative futures, the decision-maker evaluates them with the help of the professional and the decision-maker chooses one alternative.

There is a fundamental philosophical difference between this approach and the optimistic humanism described above as Pentti Malaska (2001) has noted recently. The approach implies that there are no objective values to conduct the evaluation. A connection can therefore be established to the Humean 'guillotine': values and knowledge ought to be separated and decisions cannot be made on the basis of knowledge alone (1989, p. 415, 457).[8] Also Popper (1962, p. 378, 383-396) spoke for a more open society with less respect for authorities and criticised strongly historicism, i.e. determinism (Popper 1960)[9]. von Wright has formed principles of deontic logic, "technical norms", that can be seen as a compatible basis for this school of thought. The purpose

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[7] Cost-benefit analysis has also been criticised of anti-democratic features (Nyborg and Spangen 2000).

[8] Hume (1989, p. 415) declared: "Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them." Hume is maybe more famous of his promotion of *a posteriori* reasoning to *a priori* reasoning, *i.e.* being 'the father of empirism', but this feature of his philosophy is not of primary concern here (see *e.g.* Hume 1949, p. 42-50).

[9] We have the ideas of Popper and Bell in different categories although Bell explicitly states that his critical realism is in line with that of Popper's. The reason is that Bell is in favour of objective values that can and should be evaluated by logical analysis of objective observable criteria. Popper (1962, p. 387-388) did argue in line with Bell that a policy discourse should not end by accepting different contradictory statements equally good, but a critical discussion should always be continued. But this is different than saying that a policy is objectively better than another. Popper (1962, p. 386) seems to rather emphasise the incrementalist process of trial and error than that of logical proof. This separation is not perfectly satisfactory, however.

of applied scientists is to analyse and produce means to certain ends, *i.e.* 'if you want to achieve that goal, you should take this kind of action' (1983).[10]

The idea is present in the "what…if" approach in futures studies (*e.g.* Schwarz *et al.* 1982, p. 37-40)[11], or "secondary forecasts" as de Jouvenel (1967, p. 55) called them. Scenarios are typically made for this purpose, where the futures researcher makes the scenarios and the decision-maker is supposed to choose one, or in some cases several. The French school of *la prospective* includes similar features as well (Godet 1986; de Jouvenel 1996). The approach is similar to Mannermaa's concept of scenario paradigm and almost similar to Amara's possible and Inayatullah's cultural-interpretative approach. Masini's vision-oriented approach seems to encompass this as well.

3.4. Polling democracy (pro – pro&dec&pub – dec)

A step to a more participatory direction would be the scheme in which professional forms the alternatives and the evaluation of the alternatives is based on, for example, weighing of criteria by decision-maker and surveying public opinion. The form of gathering data of opinions, say, by questionnaires or computer programmes, is performed by the professional. The final decision is made by the decision-maker.[12]

The relation between values and knowledge is similar to the pluralistic humanism described above. The emerging assumption in this paradigm is that maybe the parliamentary democratic system is reacting too slowly or in a biased way to citizens' changing values and attitudes. That is why an inquiry on public opinion is needed to complement the contribution of the decision-maker (Tapio 1996, p. 466-468); (Coates 1996, p. 71); (Slaton and Becker 2000, p. 202-203)[13].

This approach is highly logical but the authors are not aware of many empirical experiments made in the discipline of futures studies. Some public hearing procedures of the Environmental Impact Assessment (EIA) processes in the US as well as televoting might be understood as examples (Slaton and Becker 2000). An urban motorway construction process in Finland also included opinion polling (Tapio 1996). Some decision analysis and risk assessment methods include weighing of consequences of the alternatives and calculating the subjective optimum alternative Buehring *et al.* 1978; Kamppinen *et al.* 1995; p. 57-78). This school of thought is on the borderline of Amara's possible, probable and preferable. Mannermaa's scenario paradigm, Inayatullah's cultural-interpretative epistemology and Masini's vision approach encompass this school of thought as well. It is difficult to determine whether it could be based in Bell's category of critical realism because of the emphasis on 'what people *think* is right' instead of 'what *is* right'.

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[10] This idea could also be formed as *'pro – dec – dec'*, but the forming of technical norms is partly evaluation and thus *'pro – pro&dec – dec'* seems more adequate.

[11] The 'what…if' concept includes also other kinds of interpretations. For example Ravetz (1997) defined it as an approach that focuses on highly uncertain impacts of an action which cannot be modelled or otherwise predicted, *i.e.* what if something goes wrong.

[12] Another way to form this school of thought could be *'pro – pro&pub – dec'*, which would perhaps underline the polling aspect better.

[13] Coates (1996, p. 71) reminds that poorly constructed polls are less worthy than no information at all.

3.5. Critical pragmatism (pro&dec&pub – dec&pub – dec)

In this approach the basic assumption of the professional's capacity to outline the 'real' possible alternative futures is abandoned. The professional is only helping decision-makers and the public to form alternatives, which they themselves consider relevant. The evaluation of the alternatives is be made by public discussions between decision-maker and the public and the final decision is made by the decision-maker.

The philosophical point is that the separation of knowledge and values is not seen as possible at least when forming recommendations. Because all knowledge relevant to decision-making is seen as theory-, interest- and value-laden, the division of labour in forming technical norms is not considered functional. Thus it is best to invite the public to the beginning of the process as well. The position has been suggested clearly at least by planning theorist John Forester from whom the concept of critical pragmatism is adopted here (Forester 1993, p. 1-14, 24-35, 124-125). The approach combines the doctrines of pragmatist philosophy and critical theory. The goal of consensus is not adopted here. A package of acceptable rules of social discourse is usually recommended in the critical-pragmatist tradition such as the ideal communication[14] of Apel (1990) and Habermas (1970, p. 38-40; 1981, p. 97-169; 1982, p. 369-452; see also Thompson 1982).

This kind of approach has been practised quite often in futures research, for example future workshops (Jungk and Müllert 1987; Dator 1996), scenario workshops (Meristö 1991) and visionary management (Malaska and Holstius 1999). Also the Delphi method can be applied in a way that supports such rules for argumentation (Turoff 1975, p. 88-89; Kuusi 1999, p. 83, 131-132; Tapio 2002). Recently Keskinen (1999, p. 248-252) has developed a model of "porous decision making" emphasising organised citizen participation in the information society. Of the typologies presented in chapter 1, the school seems to be similar to Sandberg's, Slaughter's and Mannermaa's hermeneutic/practical interest of knowledge and Inayatullah's cultural-interpretative approach and be under category of Masini's vision approach. It seems to be in the borderline of Bell's critical realism and post-positivism.

3.6. Relativistic pragmatism (dec&pub – dec&pub – dec)

The next approach would be to abandon the belief in professional's capacity to organise the process of forming the alternative futures as well, and 'reduce' her/him to an ordinary citizen. Then the decision-maker and the public would be forming the alternatives as well as evaluating them and the decision-maker would be making the final decision.

Philosophically the difference between this approach and the previous critical pragmatism can be understood as the difference between the positions of Jürgen Habermas (*e.g.* 1981; 1982) and Richard Rorty (1980, p. 343-344, 377-389; 1982, p. 173-174). Habermas believes in a systematic organised discussion following the principles of the ideal speech act whereas Rorty believes in a relativistic non-systematic discussion,

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[14] Several concepts have been used in different stages to mean the rules of acceptable discourse developed by Apel and Habermas, such as the ideal speech act, undistorted communication, universal pragmatics and transcendental pragmatics. A closer analysis on the criteria and concepts is not of concern in this paper, however.

because he cannot find any universal truth in a rigorous process.[15] Rorty's influences come from Quine (1960, p. 23-25).

It is somewhat difficult to imagine examples for this school of thought in futures studies domain, although self-organised futures workshops might serve as a case. Some methodological connections to this approach might be found in the methods of story-telling, purely heuristic scenario writing, communication camps and causal layered analysis (Inayatullah 1998; Viherä 1999, p. 351-352). This school of thought has qualities of Inayatullah's critical-post-structural approach, Masini's utopia, Sandberg's, Slaughter's and Mannermaa's emancipatory, Amara's preferable and Bell's post-positivism.

Relativism has been criticised to lead to nihilism by Popper (1962, p. 381-382) and later Bell (1997a, p. 236). They thought that if no moral position can be considered better than another people could act any way they pleased and might oppress each other without a ground. The line of thought is logically possible but not the only one. One might as well claim that because there are no generally approved criteria for goodness, we must have democratic society to decide upon what kind of laws and norms we need to live in. In fact, the second view is usually promoted by relativists (Feyerabend 1994; Tapio 1996; Rorty 1980; 1982).[16]

3.7. Democratic anarchism (pub – pub – pub)

In the last school of thought all the phases are performed by the public. In other words a total direct citizen participation would occur and the situation could be most apparently called anarchism or some sort of ideal democratic civil society such as Aristotle's "politeia".[17]

Philosophically, the last school of thought seems to present an extreme version of relativism, where anything goes as an argument because there cannot be any substantial nor procedural principles to guarantee a good decision. Some connections can be traced back to the thinking of Paul Feyerabend (1994, p. 18-19) who supported the 'anything goes' principle for all inquires. He also disfavoured argumentation rules and preferred an open process (1994, p. 268-270). And, like Rorty above, he also insisted that his rule, or rather anti-rule, would lead to a more democratic society (Feyerabend 1994, p. 12, 251).

But is there a philosophical difference between this democratic anarchism and the former two pragmatist schools of thought? We suggest that the extreme relativist anarchist school would include a metaphysical claim that the reality itself includes many truths, not only different interpretations of one truth as the pragmatists argue (Feyerabend 1994, p. 270). The position has obvious connections to the Leibnizian metaphysics called "monadology" (Leibniz 1985, p. 215-271). There is no logical connection between the theory of truth and theories of participatory democracy, but this assumption makes the gradient complete from the most strict analytical

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[15] Calling this and the former school pragmatism has some problems, because the concept originates from Charles Sanders Peirce who was not a relativist but was in favour of the realist theory of objective truth (Rescher 1977, p. 77-78; Niiniluoto 1987, p. 47-49; Peirce 1998, p. 353-357). The concept of pragmatism was made famous especially by William James, whose thinking included more relativistic subjective aspects and are of concern here (James 1916, p. 37-54; Niiniluoto 1987, p. 48-50).

[16] Rorty (1982, p. 166-168) did not call himself a relativist because for him it was the name of the 'anything goes' principle.

[17] Anarchism can be interpreted in two ways: First, it can be seen as an overly individualistic and egoistic enterprise. Second, it can be seen as a form of communicative civil society where social life-world has been emancipated from distorting institutions. The latter perspective is adopted here, hence the pre fix of 'democratic'. Both views can be presented in the 'pub–pub–pub' form.

positivist thinking to the most loose heuristic relativism. A second argument for separation is Rorty's argument against the 'anything goes' type of discourse (Rorty 1982, p. 166).

Extreme relativistic thought and anarchism can seldom be found in the texts of futures researchers. Some traces of it can be found in for example utopian texts,[18] science fiction literature and movies (Wark 1996). Of the typologies reviewed in chapter 1, Inayatullah's critical-post-structural epistemology, Masini's utopian approach and Bell's post-postivism seem to be closest to these ideas and Amara's preferable seems to encompass also the most radical version of relativism.

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[18]For example the utopia of the ideal communism was meant to emancipate citizens from the "realm of necessity" of together planned highly productive material production. The high productivity was supposed to result in reduction of deterministic new left branch of Marxism developed in the 20th century (see *e.g.* Haila and Levins 1992, p. 225-235, 241-242, 252).

4. SUMMARY AND CONCLUSIONS

The purpose of this article was to form several schools of thought of futures studies as a tool in policy-making. We examined how the role of professionals, decision-makers and the public could be defined in a long-term planning and decision-making process. We opened the logically possible space of schools of thought totalling 343 possibilities and cut the space with a gradient from extreme technocracy to extreme public participation. Thus we ended up with seven schools of thought which we further connected to futures research practices (Table 3) and typologies of futures studies paradigms presented by other reviewed authors (Table 4).

Table 3. Seven paradigms of the roles of professionals, decision-makers and the public in a long-term decision-making process and some corresponding methodological applications

Phase of planning and decision-making process / School of thought	Formation of possible futures	Assessment of desirability	Final decision-making	Examples of methodological applications	
Comtean positivism	Professional	Professional	Professional	Deterministic models	*Analytical, non-participatory*
Optimistic humanism (e.g. Bell's 'critical realism')	Professional	Professional	Decision-maker	Epistemic implication model	
Pluralistic humanism (e.g. scenario paradigm)	Professional	Professional & decision-maker	Decision-maker	What-if models	
Polling democracy (e.g. policy analysis)	Professional	Professional & decision-maker & public	Decision-maker	What-if models including opinion polling	
Critical pragmatism (e.g. Forester)	Professional & decision-maker & public	Decision-maker & public	Decision-maker	Future workshops	
Relativistic pragmatism (e.g. Rorty)	Decision-maker & public	Decision-maker & public	Decision-maker	Story telling, heuristic scenario writing	
Democratic anarchism (e.g. Feyerabend)	Public	Public	Public	Science fiction	*Heuristic, participatory*

Finally, we interpreted the seven schools of thought in the light of the philosophical discourse on the role of knowledge and values in making policy recommendations. Philosophically, the seven schools of thought seem to form a gradient from strict, analytical, deterministic, value- and knowledge objectivist positivism to loose, interpretative, non-deterministic, value- and knowledge subjectivist relativism. (Table 5.)

Table 4. A meta-map of six typologies of futures studies paradigms in relation to the new typology: An analysis of the differences and similarities[a]

	Amara 1981	Mannermaa 1986	Inayatullah 1990	Mannermaa 1991	Masini 1993	Bell 1997
Comtean positivism	Probable	Technical	Predictive-empirical	Descriptive	Extrapolation	Positivism
Optimistic humanism	Probable, possible & preferable	Technical	Predictive-empirical	Descriptive & evolutionary	Extrapolation	Critical realism
Pluralistic humanism	Possible & preferable	Hermeneutic	Cultural-interpretative	Scenario paradigm	Vision	Critical realism
Polling democracy	Possible & preferable	Hermeneutic	Cultural-interpretative	Scenario paradigm & evolutionary	Vision	Critical realism
Critical pragmatism	Preferable	Hermeneutic & emancipatory	Cultural-interpretative	Scenario paradigm & evolutionary	Vision	Critical realism
Relativistic pragmatism	Preferable	Hermeneutic & emancipatory	Cultural-interpretative	Evolutionary	Utopia	Post-positivism
Democratic anarchism	Preferable	emancipatory	Critical-post-structural	Evolutionary	Utopia	Post-positivism

[a] The connections relate only to questions of forming alternatives, evaluating the alternatives and making the decision as well as the views on knowledge and values in forming policy recommendations (see Tables 3 and 5). The six typologies present also other characteristics, which are outside the scope of the map, such as theories of change, futurist's individual morals, theories of social development, perceptions of time *etc*. Thus, this table should not be regarded as a complete summary of the typologies of futures studies paradigms.

Table 5. The role and essence of knowledge and values in making policy recommendations in different schools of thought in the new typology

School of thought	Knowledge and values in policy recommendations
Comtean positivism	Recommendations are derived from objective knowledge, values are not needed.
----	*---- the line between determinism and indeterminism ----*
Optimistic humanism	Recommendations are derived from objective knowledge and objective values.
----	*---- the line between value objectivism and value relativism ----*
Pluralistic humanism	Recommendations are derived from objective knowledge and subjective values.
Polling democracy	Recommendations are derived from objective knowledge, including knowledge on subjective values.
----	*---- the line between epistemological realism and relativism ----*
Critical pragmatism	Recommendations are derived from intersubjective knowledge and intersubjective values.
Relativistic pragmatism	Recommendations are derived from subjective knowledge and subjective values.
----	*---- the line between argumentation and 'anything goes' ----*
Democratic anarchy	Recommendations cannot be derived at all because knowledge is biased and values are too subjective.

The two gradients from technocracy to citizen participation and from objectivism to relativism seem to have a tendency to converge. However, based on a closer analysis we have to conclude that this convergence is not inevitable. Different philosophical positions can lead to same practical social conclusions and from the same philosophical starting points it is possible to end up with different practical conclusions. This happens because in order to establish the connection one must (explicitly or implicitly) also apply some other social premises. For example, extreme relativism can lead to nihilism or to democratic public participation, depending on the other premises.[19]

We have added Table 6 in order to respect these alternative interpretations of the links between the philosophical and the practical schools of thought. Most obvious connections have been marked with an 'O' and possible connections with a 'P'. Empty cell means that there seems to be no possible connection between a practical school of thought in the column and the philosophical school of thought in the row.

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[19] Thus notions declaring, for example, that value relativism leads to nihilism include something else than pure logic. This 'something else' in Popper's thinking seems to be the historical fact that the relativistic Hegelian thinking was adopted to legitimise nihilistic and non-democratic Nazi propaganda. Although there was an empirical connection in history it does not follow that the empirical case would be typical and certainly not a logical necessity. If it were, we might as well argue that adopting Christian ethics leads to nihilism, because there was an empirical connection at the time of the crusades from the 11th to 13th century. Probably most nihilistic abuses are legitimised by twisting some high ethical standard from its original (or logical) meaning. In argumentation theory this fallacy of argumentation is called *non sequitur*, 'it does not follow' (van Eemeren *et al.* 1996, p. 68).

Table 6. The obvious (O) and possible (P) links between the practical and philosophical schools of thought

| (1) | pro | pro | pro | pro | pro&pub&dec | dec&pub | pub |
| (2) | pro | pro | pro&dec | pro&dec&pub | dec&pub | dec&pub | pub |
(3)	pro	dec	dec	dec	dec	dec	pub
Comtean positivism	O						
Optimistic humanism	P	O	P	P	P		
Pluralistic humanism			O	P			
Polling democracy				O	P		
Critical pragmatism					O		
Relativistic pragmatism					P	O	P
Democratic anarchism						P	O

What useful can be drawn from the analysis and formulation made in this article? First, the new typology can be used as a tool for analysis of empirical policy processes; which school of thought does a case represent? Second, it can increase self-understanding and learning in more practical works; are we involved in policy processes implying philosophical positions which contradict our own basic assumptions? Third, it can be used as a yardstick for normative analysis (depending on one's position); how far are we from our own ideal? Or as a value objectivist might ask: how far are we from the true ideal?

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