

Decisioning between scenario schools in health

Abstract

Purpose: Scenario is the most important method in Futures Studies and improper use of Scenarios can undermine the credibility and claims of the results of the Futures Studies. Varieties of Scenario types exist and we want to know whether these scenarios are used appropriately in Health field or not.

Design: For this study, a combination qualitative method based on survey and Historical, Comparative and Discourse Analysis is extracted to accommodate needs of the health sector with capabilities of the main type of Scenarios.

Findings: Scenario planning has evolved along with Futures Studies paradigms; and Trend-based Scenarios, Intuitive Logic and Structural Analysis Approaches have the most uses in futures scenario and health section. Quantitative techniques which are close to the positivist paradigm most widely used and participatory methods of Futures Studies paradigm have the lowest usage in the Health sector. Health Scenario writing in its current state is targeting short to medium-term futures; and do not responsive all requirements. It should be considered other backup methods; especially in ways that deepening; making images and create the norm.

Originality: There are different Schools in Scenario field, and each has their own distinct approach. According to the paper, based on the Time Horizon, Scoping and Research needs, appropriate type of Scenario could be chosen.

Keywords: futures studies, health section, school of scenario, shell, la-prospective

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Introduction

Decisions are about the future and how a subject is important its decision will be made more critical. Health sector due to vast resources and so many users is one of the most important futures era. Futures Studies (FS) is an interdisciplinary field; because it is crosses and combines various disciplines and has numerous rooted in knowledge; particularly in the areas of engineering, basic sciences, social sciences, philosophy of science etc. In other word FS is Multidisciplinary because when entering on a particular topic pays a holistic and macro view that goes beyond the scope of disciplines. But FS become a historical evolution to present. At the beginning of the 20th century FS more than else is just expert-driven and expert opinions about the future (Prediction). However, the predict due to growth of the Multi-specialized needs was not enough. Later, with overcoming the Positivism the trend studies attempted to be the main future study (Forecast). But the trend studies because of happening what is called trend-breaker events not support our growing needs. Therefore, about the 70's planning based on the consensus of experts was considered (Foresight). Finally, in the late twentieth century, the importance of target group's participation and according to the stakeholders needs rise to the current paradigm of Futures Studies (Figure 1).¹ Similarly, and with the development of FS Paradigms, its methodologies also increased. Within the paradigm of Prediction, intuitive methods, data mining and the mind mapping and interviews had priority. Within the paradigm of forecasting, quantitative methods, time series and trend extrapolation are founded most important. Within the paradigm of foresight, techniques such as Delphi, Road-map and Scenario are the most important. And in Futures Studies paradigm attempted that all previous developed methods be implemented in workshops

and participatory. Nevertheless, in Futures Studies methodology the Scenario is unique. All methods of Futures Studies (more than 40 common methods)¹ can be input and introduction of Scenarios; and the main output of FS processes are Scenarios.² Each approach that used in foresight or prediction has capacity to lead scenario production. Now, according to common practice, the results of Futures Studies are often presented in the form of scenarios.² Scenarios are ideal output of Futures Studies and in terms of methodology, unifying various approaches in this area. According to the Bain's annual survey² statistics of usage of Scenarios that before 1990 was tracked only in 40% of firms, in 2006 climbed to more than 70%³ and this trend continues to grow. Since the beginning of the new century, several attempts have been made to understand and develop the theoretical foundations of scenario. In Scenario Planning literature several approaches have been used to categorize their activities; Most of them are discussed by conventional research classified methods; such as Explorative - Normative; Qualitative - Quantitative; Expert-driven - Data-driven; Creative - Participation. At the beginning of the twenty-first century that Wendell Bell mentioned it as a period of transition and deepening in the foundations and epistemology of Futures Studies⁴ numerous attempts to classify and deeper understanding of the range of Scenario Planning were done (Table 1). These articles were presented with the same goal and reviewed the domain of Scenario so that if possible achieving organization and understanding of these areas. For this purpose various ways of thinking about the Scenario actions presented.

Most theorizing and macro view to future scenarios fall into three categories:

1. Studies shown the Schools of Scenarios.^{5,6}

¹Nowadays foresight in engineering sciences and FS in social sciences are more common.

²Bain & Company's annual survey of management tools

2. Studies looked at backup methods of Scenario.⁷
3. And Studies spoken about the logic of Scenarios.^{8,9}

So 'School' is the important keywords in scenario theorizing. Many thinkers and main sources¹⁻¹¹ have used 'Scenario school' term. Scenario is only part of Futures Studies that some of its streams mentioned with the words 'School'. 'School' (School [of Thought]) is a common phrase in history of thought³ and seems, at least at the level of required study accuracy, we can express features of set of ideas and

³E.g. in online Wikipedia: A school of thought (or intellectual tradition) is a collection or group of people who share common characteristics of opinion or outlook of a philosophy, discipline, belief, social movement, economics, cultural movement, or art movement.

https://en.wikipedia.org/wiki/School_of_thought (available 12 2016)

Table 1 Comparative literature review of theorizing about Scenario

R	Year	Author(s)	Title	Subject / Result
1	2003	Van Notten et al	Scenario development: a typology of approaches	Typology "of the scenario" based on (1) purpose; (2) project and (3) content
2	2005	Bradfield et al	The origins and evolution of scenario techniques	The historical approach design / development, scripting three schools
3	2006	Börjeson et al	Scenario types and techniques: towards a user's guide	Scenario technique Classification based on Amara's model
4	2007	Biggs et al	Linking futures across scales: a dialog on multiscale scenarios	Layout and content of the Scenario
5	2007	Bishop, Hines & Collins	The current state of scenario development: an overview of techniques	Comparative Study of methods
6	2008	Wilkinson et al	Evolving practices in environmental scenarios: a new scenario typology	Methodology
7	2011	Turturean	Classifications of foresight methods	Methodology
8	2013	Amer & Daim	A review of scenario planning.	Literature Review
9	2014	Ramirez & Wilkinson	Rethinking the 2x 2 scenario method: Grid or frames?	Design, content and the question from Scale

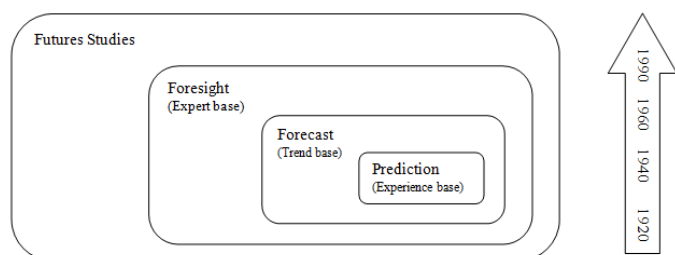


Figure 1 The evolution of the future paradigm in the twentieth century.

In summary there are some general conditions on the use of Futures Studies methods; that often are checked at the beginning of project in the Scoping and then suitable combined method will be derived. The most important considerations are as research (or project) needs, types of data input and output, the accuracy required in output, Time-line, Cost, Facilities, Readiness level (especially for implementation), Absorption Capacity, Organizational Culture, Project implementation, Feedback and participation etc. Imprecision in selection and combination of methods will be resulted to the incomplete project so Futures Studies cannot attract protection and changing in status. From another perspective, however thread/area of futures studies is sensitive, then it will be more important; and Health has always been

thoughts that converts a 'current of thought' into a 'school' (or in a sense, the main character of a school of thought that is distinctive it) as follows:

- i. Having clear purposes of intellectual activity
- ii. Having distinctive intellectual axioms
- iii. Having determined Methodology
- iv. Having clear relationship between teachers and students for a long period that containing its underlying dynamics
- v. Having a set of intellectual and cultural achievements

And etc.

one of the most important.⁴ Now the research question is that Scenario maturity level - as the primary method & index of FS - in the Health field is how much?; Are Scenarios used appropriately?; Which kind of Scenarios in the field of Health is considered more?

The necessity of this research especially is from the fact that improper uses of Scenarios can undermine the credibility and claims of the results of the Futures Studies.

Methods

Futures Studies is a very methodical knowledge; design and application of new combination methods is from capabilities and strengths of futurists.¹ From the perspective of futures research as instrumental knowledge, each project requires its own unique Method. The important note is that the mix of methods must be such that respected the balance between the uses of Expert-driven; Participatory; Data-driven and Creative approach (Popper's Diamond Allegory)¹² and preferably to be provided both describes and appropriate prescriptions of the future.

In this study, based on research needs we are extracting a new method using a combination of methods appropriate to each step of

⁴E.g. in the Millennium Development Goals and also The Millennium Project, STATE OF THE FUTURE INDEX (SOFI) METHOD, Health is the main topic of Attention.

the project (Figure 2). General Phases of research include:

- Scenario Survey Phase (Thesis) in three steps
- Health needs assessment Phase (Parallel) in four steps
- Comparative Analysis Phase (Antithesis)

Outline of Steps

Thesis Phase:

Step 1: Establishing the position of Scenarios in the Futures Studies through descriptive analysis.

Step 2: Typology of Scenarios via survey.

Step 3: Characterization of the types of Scenarios through discourse analysis.

Parallel Phase

Step A: Selecting a Public model that represent Health field in a major view through a panel of experts.⁵

Step B: Deriving the general features of each part of the Public model through experts query.

Step C: Prioritizing the general features based on the Key technologies analysis method.

Step D: Extracting related future needs with regard to general features for each part.

Synthesis Phase

1st step: Comparative analysis of Health needs with Scenario types.

Result step: Recommending and prescribing Proper type of Scenario for each part of Health sector.

Pathology steps: Analyzing current situation of Health sector's Scenario.

In other hand most Futures Studies processes are designed within the General framework with the frequent periods of feedback,¹³ so here we have chosen a simple model of Health care that fits the same pattern (Figure 3) to derive the futures needs of Health. These needs in macro level include the need to description, exploration, norms, planning, etc. Finally acceptable and practical definition of discourse that in this study has been accepted is by Laclau⁶ and Mouffe⁷; often called 'Cultural-Critical Discourse Approach' or 'Discourse Theory'⁸. Advantage and cause of Laclau and Mouffe Discourse Theory selecting is in their success and attention to the general and inclusive patterns. In this theory, discourse analysis (through analysis of means generating institutions and mechanisms of reproduction) focuses on the conditions of meaning production. Also, as well as Jørgensen & Phillips conclusions from types of Discourse Analysis, 'Discourse

Theory' can provide a map of common discourse in a given time period and specific social domain. (see Jørgensen and Phillips, 2002: p. 20) According to this theory all objects and actions historically find meaning and identity by special system of rules; and specific bases that social actors are identified by them. Social phenomena are open and never finished and will not be completed; So the task of discourse analysis is design of conflict to stabilize the meaning in all social levels. Discourse theory than other types of discourse analysis has more power in two cases. First at competing discourses dispute to consolidate its position and second when a discourse is evolving and expansion over time; in other words, when dynamic studies be considered (not static and in a certain period of time). In the implementation of discourse theory determining the 'Nodal point' and 'Elements' and 'Discourse Articulation' scrutiny is required (Steps of above method are shown in the Figure 4 in short).

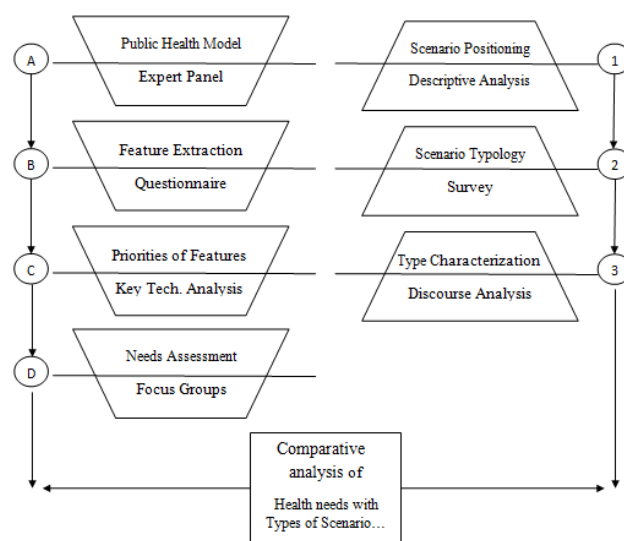


Figure 2 Diagram of research methodology.

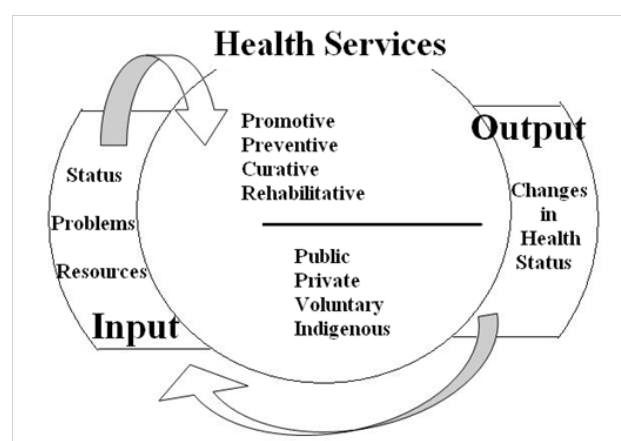


Figure 3 Simple health care system model.

⁵Expert Panels have been held in tow meeting by focus discussion group method with combining these ten members: 4 in Health sciences, 2 in methodology, 2 in social sciences and 2 in IT.

⁶Ernesto Laclau (1935-2014)

⁷Chantal Mouffe (1943-)

⁸Laclau, E., & Mouffe, C. (2001). Hegemony and socialist strategy: Towards a radical democratic politics. Verso.

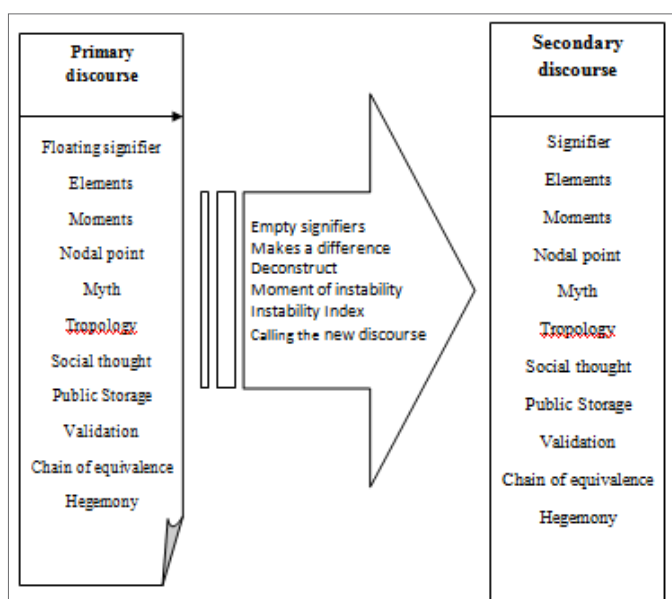


Figure 4 Image of discourse dynamic based on Laclau and Mouffe 'discourse theory'.

Results and discussion

Most theorizing and macro view to future scenarios fall into three categories:

1. Studies shown the Schools of Scenarios.^{5,6}
2. Studies looked at backup methods of Scenario.⁷
3. And Studies spoken about the logic of Scenarios.^{8,9}

According to the needs of our present study, we have noticed three common approaches to Scenarios based on the process and its inputs and outputs:

- 1) Trend based Scenarios.
- 2) Structural Analysis
- 3) Intuitive Logic⁹.

⁹Intuitive logic or Shell School is a stream in Scenario-planing which formed by activities of a group of experts in the 1960s in Royal Dutch Shell

Table 2 Comparison of the principal scenario approach^{5,9}

Scenario characteristics	Intuitive logics	La prospective	Trend-Based
Purpose	Multiple, from a one-time activity to make sense of situations and developing strategy to an ongoing learning activity	Usually a onetime activity associated with developing more effective policy and strategic decisions	A onetime activity to make extrapolative prediction and policy evaluation
Scenario type/perspective	Descriptive or normative	Generally descriptive	Descriptive
Scope	Can be either broad or narrow, ranging from global, regional, country, industry to a specific issue	Generally a narrow scope but examines a broad range of factors within that scope	Scope is narrowly focused on the probability and impact of specific events
Tools	Generic tools like brainstorming, STEEP analysis, and stakeholder analysis	Proprietary and structural tools like Micmac, SMIC and Mactor analysis etc.	Proprietary tools like trends impact and cross impact analysis etc.

- i. Trend-Based Scenarios are well-founded on the extrapolation process. In these Scenarios, a Trend derived from past events will be extended to future. This approach assumes that the basic elements of the future are as in the past and are unchanged. Trend analysis, quantitative methods, time series, and some type of modeling are main inputs of Trend-Based Scenarios.¹
- ii. Structural Analysis is a powerful tool boxes that developed in the La-Prospective School by Michel Godet et al.¹¹ Scenarios based on Structural Analysis in their input use stakeholders and actors analysis, ranking the influencing factors and cross impact analysis.
- iii. Intuitive Logic is the main branch of Scenario Planning now; started by Herman Kahn and developed mainly by Royal/Duch Shell School. The core of Scenarios that based on intuitive logic is Uncertainty. These Scenarios are trying to identify the uncertainty of their future through various processes; and ultimately provide a narrative about the future with focusing on uncertainties (Table 2).^{6,8}

oil company and can predict three oil crisis of Arab-Israeli war, the Iranian revolution and the collapse of the Soviet so convert Shell to Big Oil. Its most important thinkers are Pierre Wack, Peter Schwartz and Kees Van der Heidjen. As importance of this school it is suffice to say that from total of ten Scenario approaches that Chermack mentioned as existing Schools, four approaches (GBN; Wilson and Ralston; Lindgren and Bandhold and DSI) has been adapted from Shell.

Now the essence and consider from Shell Scenario, which is result of successive evolution and accumulation of knowledge in generations from 1970s so far, is as follows:

Scenario is a tool to regulate the mental perception about alternative future environments that Actions are implemented. For this purpose at first the main issue / problem is identified and then the key forces in the environment are analysis so sufficient clarification about the issue and environment is achieved. In the third step the driving forces in the macro environment are identified with the mechanism of brainstorming. Then factors are ranked on the basis of importance and uncertainties and the scenarios selection and logic development based on these are done. Peter Schwartz writes about the logic of the scenarios: "It is more like playing with a set of issues until you have reshaped and regrouped them in such a way that a logic emerges and a story can be told." (Schwartz, 1991: 229); from these quotes we can know the cause of Shell Scenario approach attributed as 'intuitive logic'. In the sixth step detailed storytelling for scenarios based on a review of the results of previous steps and 'plausibility' criteria is done. The seventh step is taken by assess of decisions and actions in the scenario spaces.

Finally, with the introduction of indicators and guidelines for each scenario work [a scenario cycle] is end.

Content analysis and Search in PubMed about Futures Studies methods related to the future's topics and issues show that the Trend analysis, Intuitive logic and Structural analysis have the most used respectively (Table 3). Although Trend-based methods that focused on short-mid time are well-established and well-known (approx. 40%) but the Schools (Shell and La-Prospective) that aim mid-long term share less than 10%.

Table 3 Top 10 FS Method¹⁰ in Use (as survey in PubMed until 08 2016)

Top	Method	Frequency
1	Prediction [forecast]	170821
2	Simulation	135125
3	Projection	44991
4	Scenario[1]	34383
5	Time series	20497
6	Structural analysis	15009
7	Delphi	6182
8	Data mining	6030
9	Expert panel	5727
10	Statistical modeling	1502

¹⁰Methods as introduced in Millennium

This study compared a simple model of Health system and its needs with capabilities of Futures Studies methods. We have focused on Scenarios because the Scenario is the most important Futures research methods. Evidence shows that the Health sector is perceived

importance of Scenario; but have been neglected to fit the future needs of Health (Table 4). The main Scenario approaches include the Trend-based, Intuitive Logic and Structural Analysis. Trends based on past evidence are going to future through judgment of experts. Various types of Scenario production methods based on Trends are used in the field of Health. These methods are often quantitative; and provided the ability to plan for the short-term to medium-term future. Pioneers of Intuitive Logic and Structural Analysis are Shell and Prospective that can be called as the English and French Schools. As result of Discourse Analysis shown Terminology and methodology of Shell School has grown in space of Business and Prospective School in space of policy (Figure 5) (Figure 6). The Intuitive logic has been used by many researchers in the field of Health, but they were simplifying and reducing it. So Scenarios are often lacking the necessary components and elegance. In particular, less attention is paid to leading indicators; Uncertainties extraction mechanism is unclear; and the logic of Scenario development is not in direction to decision-making. Recently, Structural analysis Scenarios in the health field according to publish and free access to its software is growing. But the significance of backup workshops in these Scenarios is not yet understood.

Finally, nowadays Health section Scenarios are often descriptive and normative Scenarios are few.¹¹ Quantitative techniques close to the positivist paradigm most widely used and Participatory methods of Futures Studies paradigm have the lowest usage in the Health sector. We have vacancies of illustrative Scenarios that brought new insights and deepening about the future (Table 4) (Figure 7). Often the balance between Data, Creativity, Expertise and Participation Not respected. The current scenarios in health can only cover the short and medium term the period and are powerless for intervene in the long term.

¹¹Although methods are overlap but in some sources have been investigated in normative vs. explorative (see: Gordon and Glenn, 2003; Popper, 2008).

¹⁰ Methods as introduced in Millennium

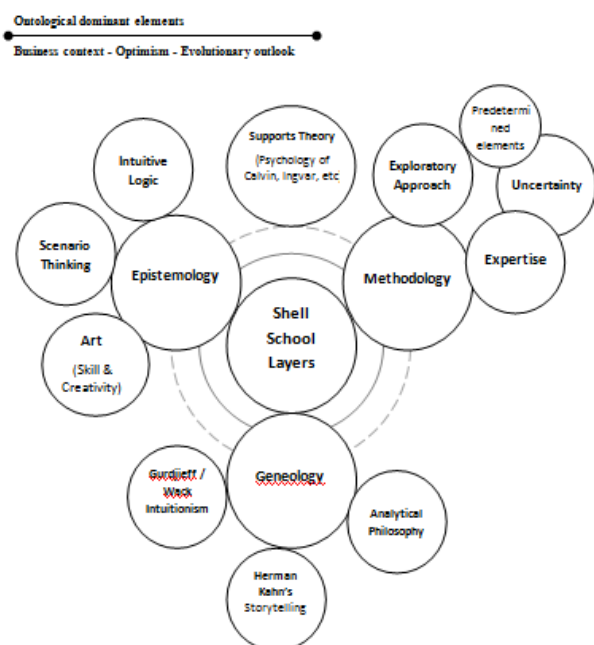


Figure 5 Macro model of shell school.

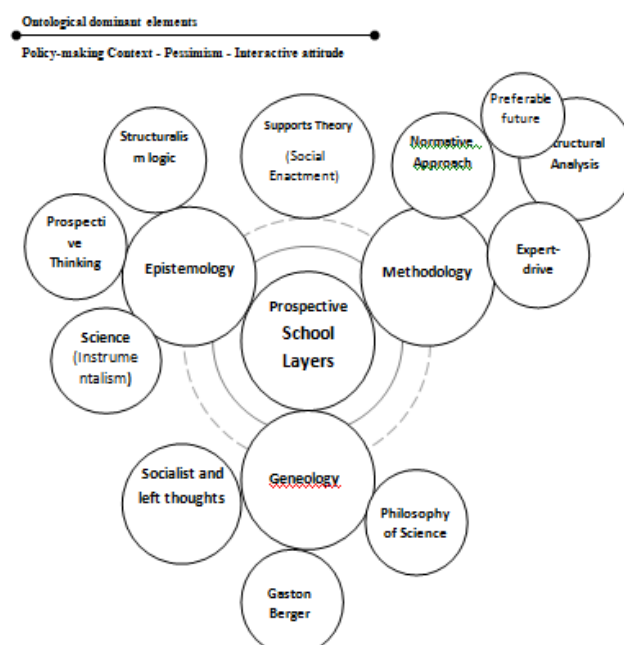


Figure 7 Compare between health needs & types of scenario.

Table 4 Neglected FS methods in health field (as survey in PubMed until 08 2016)

R	Method	Frequency
1	Road mapping	1161
2	Visioning	121
3	Multiple perspective	37
4	Robust planning	14
5	Mega trend	< 10
6	CLA (Causal layered analysis)	< 10
7	Trend impact analysis	< 10
8	Morphological analysis scenario	< 10
9	Back casting	< 10
10	Workshop	< 10

Conclusion

Scenario Planning is a powerful tool for foresight in Health Sciences. The main three approaches are Trend-based, Intuitive Logic, and La-Prospective Scenarios. All Types of Scenarios in Futures Studies are associated with its paradigms evolutionary; and each paradigm is responsive to certain needs. So focusing on some method of Scenarios and ignoring the rest are our vulnerable. It seems that Futures Studies in Health still remains enclosed in the positivist paradigm. It is better to use Trend-based Scenarios in the short-term; Structural analysis in the medium term and Intuitive logic in part by the long-term needs. Scenarios based on Structural analysis are more appropriate for Policy areas. Particularly as these Scenarios consider role of all key players and stakeholders; and also measure cross impact and higher-order interactions. In order to intervene in the long-term future in the Health field should pay more attention to the normative Scenarios. Also necessarily have to use Imaging and the deepening future methods; such as Perspective and Causal Layered Analysis (CLA), which unfortunately still not grown in the Health Section.

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None.

Conflict of interest

Authors declare no conflict of interest.

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