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EVIDENCE- AND FORESIGHT-BASED POLICY: DICHOTOMY OR OVERLAP?

Rudy Aernoudt[1*]

[1]Ghent University, Belgium & European Commission

* Correspondent author: Rudy Aernoudt - Rudy.AERNOUDT@Ugent.be

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ABSTRACT

"Economic research determines economic policy, which determines economic politics" could be a summary of the basic philosophy of the World Complexity Science Academy (WCSA) applied to the field of economics. Such an evidence-based policy is lively in academic circles but still absent in the political world. However, there is more: looking back in order to extrapolate and forecast tendencies for the future, as the evidence-based policy does, needs to be complemented by forward-looking attempting to identify megatrends based on change drivers that should be translated into concrete policy action today. Therefore, to narrow the gap between economy, policy and politics, foresight thinking on top of evidence-based policy could be the best option for more accurate policy and law-making. Black boxes should be avoided in the evidence-based approach as it makes policy unexplainable to the citizens and politicians unaccountable. Black swans could be integrated into the foresight-based advice in an attempt to foresee the unforeseeable and think the unthinkable.

Keywords: PCTEE model, foresight-based policy, evidence-based policy, scenario-thinking, black swans, black boxes, artificial stupidity, loyal playing field.

1. Introduction

Often evidence-based policy and foresight-exercises are conceptually confounded and considered as overlapping. Both are indeed tools used to rationalise policy decisions, and both should be embedded in the policy cycle. Nevertheless, there the resemblance stops, and this paper argues that both approaches are dichotomic. Evidence-based policy refers to empirical, mostly past-based, data and finds scientific ways to extrapolate and forecast, with a certain degree of confidence, tendencies that are useful for policy action. Foresight thinking is based on how the future(s) could look like and trying to identify future megatrends which might be relevant for policy action today. In this paper, we will start by explaining the evidence-based policy and underline its limits. In the second part, we will develop the concept of foresight thinking and how it can concretely work. Finally, we will illustrate the complementarity of the two policy tools by developing a concrete case.

2. Evidence-based policy in a new world

Evidence, from the Latin word, Evidens, infinitive of video, means literarily what you can see. It implies the presence of visible signs that lead to a definite conclusion. The Latin antonym evident means what you cannot see, in other words, what is obscure.

The word "Policy" refers systematically to the link with the people: both the Greek politeia, polis and the late Latin word politia, polites means citizen. Members of the Parliament are hence elected to represent the people. This re-presentation should not imply the absence of the people but a mandate to speak and act in the name of the people. Therefore, fundamentally politics should work for the common interest, not for the Party-interest of their interest. As former President Truman of the US summarised it: "You cannot get rich in politics unless you are a crook". In order to work for the common interest, and in order to need to know what to decide on rationale-based, and not opinion-based information, an integer politician need to have access to evidence.

2.1 Evidence-based policy

The idea of using evidence to inform policy is not new. As far back as ancient Greece, Aristotle put forward the notion that different kinds of knowledge should inform rulemaking. This would ideally involve a combination of scientific knowledge, pragmatic knowledge and value-led knowledge (Flyvbjerg, 2001; Ehrenberg, 1999).

In the 15th century, the concept of policy gradually changed into the political organisation as a plan of action, as a way of managing the civil administration. This semantic, non-neutral, transition of significance can lead one to forget the origins of policy as being the citizen. Those who plead for more participative politics refer to the gap between policy and the citizen. However, the policy is (was) by definition, the citizen. Policy without a link to the citizen is not policy. This evolution paves the way for individual interests or political party-interests becoming more important than citizens' interests, or let us call it general interest.

Evidence is the available body of facts or information indicating whether a belief or proposition is correct or valid. Evidence-based policy means what is evident that should be done for the citizens. Science, and in particular social sciences, should highlight these evidence. The movement for evidence-based policy is an outgrowth of a movement in the United Kingdom in the 1990s calling for "evidence-based medicine," which argued that only those treatment modalities, such as drugs, that are grounded in laboratory experimental evidence should be used. Evidence-based is opposed to opinion-based.

Evidence-based policy is about making decisions based on knowledge with a certain degree of confidence what works, at achieving which outcomes, for which groups of people, under what conditions, over what period, and at what cost. For policymaking and implementation purposes, it is as essential to establishing that an intervention does not work, as it is to know that it does work. Hence, we need information and data that can confirm, or reject, our assumptions about a policy's anticipated effectiveness and how it is best achieved.

Evidence-based policy advocates a more rational, rigorous and systematic approach and is based on the premise that policy decisions should be better informed by available evidence and should include rational analysis. This is because a policy which is based on systematic evidence is seen to produce better outcomes.

Research has the potential to influence the process at any stage – both informing and correcting planning and implementation. Ex post evaluation can, in turn, give input for further evidence-based policy. Evidence-based policy is hence not limited at the policy-conception stage but can be relevant at any moment of the policy cycle (figure 1) (based on Young & Quinn, 2002).

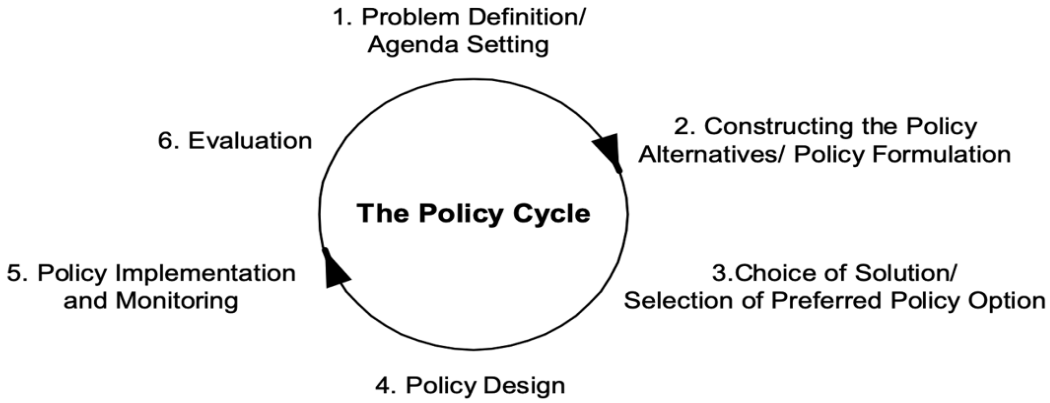

Figure 1. Policy Cycle

The evidence-based policy will hence interact across policy issues. It may well be that success in influencing an agenda, for example, often requires a different kind of approach than that needed for influencing the implementation of the policy.

2.2 Evidence policy: necessary conditions

As a consequence of evidence-based policy, ideologically driven politics could be, at least partly, replaced by rational decision making (Sutcliffe and Court, 2005). This fundamental characteristic of the evidence-based policy explains the double-bonded position of most politicians against the evidence-based policy. As soon as evidence-based policy becomes more than a mere tool but interferes in rational-ideological choices, it becomes the enemy of the politicians.

Therefore, evidence-based policy supposes that research focuses on ideologic-neutral and policy-relevant recommendations. Unfortunately, the number of research outputs generated by researchers is often used as their evaluation criteria. This pressure to publish affects all academic staff members. Moreover, the policy-relevancy is not a criterion for editors or peer reviewers to evaluate the research paper. So, researchers must find intrinsic motivation to spend time in making their papers policy-relevant or even include policy recommendations. However, this intrinsic motivation should not be politically biased but only motivated by objective research-relevancy.

Politicians from their side must have the courage and the integrity to realise policies that only focus on the well-being of the citizens, that are shaped by evidence rather than being a response to short-term pressures or personal advantages.

Let give us an example, i.e. corruption. Corruption means that two parties make a deal in order to increase their benefits while a third party is paying the bill (Aernoudt, 2012). A corrupt

politician receives bribery from a construction company in order to be selected to build roads and bridges. Who 'wins'? The one who receives the bribe. This is evident. The one who pays the bribe because this payment allows the company to receive a contract to construct roads and build bridges which they would not have otherwise received. The value of this contract vastly exceeds the costs of the bribe. If not, there would be not economic legitimation for the money spent. Who loses: the citizens who are confronted with roads and bridges with a price-quality relation being far from optimal. So, general interest suffers, private interest wins. Private vices, public interests, as the 17th Century economist Mandeville called it (Mandeville, 1732). The politician, in that case, is no longer dealing with policy, with the citizen. There is a gap between evidence and policy.

2.3. Evidence-based policy: a pragmatic approach

There are many methodologies for evidence-based policy, but they all share the following seven characteristics:

1. Tests a theory as to why the policy will be useful and what the impacts of the policy will be if it is successful.
2. Includes a counterfactual: what would have occurred if the policy had not been implemented eg the cost of non-Europe.
3. Appraise the likely effects of policy changes so we can choose between different policy options and subsequently assess their impacts.
4. Incorporates some measurement of the impact: through an ex-ante impact assessment.
5. Examines both direct and indirect effects that occur because of the policy.
6. Separates the uncertainties and controls for other influences outside of the policy that may affect the outcome.
7. Should be able to be tested and replicated by a third party.

Nevertheless, the evidence-based policy has its limits, sometimes summarised as the five's (Sutcliffe and Court, 2005):

1. Speed: policymakers are under chronic time pressure, as well as political pressure, to be seen to be acting and therefore, they are forced to process information quickly. This requires improvisation and also means that sometimes compromises have to be made. Occasionally, this leads to bad decisions.
2. Superficiality: each policymaker has to cover vast thematic fields and cannot possibly have in-depth knowledge about every issue in those areas. They are therefore heavily dependent on the knowledge and integrity of the people who inform them. This raises difficult questions about whom policymakers should turn to for advice, and how they can judge the advice given to them. This gives, of course, the power to a lobbyist who has, almost by definition, their agenda.
3. Spin: in the political world, perception is significant. For example, even though evidence has shown that putting soldiers and policeman at the corner of every street is not the most cost-effective way of using scarce resources in the fight against terrorism, this form of policy is prioritised because there is a strong public perception that it will improve security. Perception guides political decisions.

4. Secrecy: research should be transparent, but for some topics such as defence or strategic decisions, research cannot be revealed before policy implications are decided. This can counteract with the push for publication.
5. Scientific ignorance: there is a growing suspicion towards science and scientists among the public, which will affect policies. Often researchers are considered as delivering biased research-on-demand given them the best guarantee to remain in the loop. Here we should, however, make a difference between researcher and consultant. Consultants are paid to make a report on specific policy issues while research should do independent research on a topic and try to see if the research of arts of it is relevant to policy.

The scientific ignorance argument brings us to the question of defining the key characteristics of policy-relevant and useful evidence (Shaxson, 2005). Evidence should be of high quality, objective and based on tried and tested analytical methods. Policymakers should be able to rely on the evidence without the need to check it. Research and research findings from academic institutions and reputable think-tanks having a reputation in the research field are a priori more credible than, for instance, civil society groups or lobbyists having their own hidden agenda. The evidence should, of course, be accessible to policymakers and presented in a useful form in order to facilitate its translation into policy.

2.4. Evidence-based policy and artificial intelligence

In the financial world, algorithms might take over, or at least complement the human decision-capacity. Deep Knowledge Ventures, for instance, a Hong Kong venture-capital firm, has gone so far as to appoint a decision-making algorithm to its board of directors. Business units and company-wide functions will, of course, continue reporting to the top team and CEO. Nevertheless, emboldened by sharper insights and pattern recognition from increasingly powerful computers, business units and functions will be able to make more and better decisions on their own. In the banking world, algorithms decide if a credit request is refused or accepted. Local managers are often incapable of explaining the rationale behind the decision. This black box syndrome leads to irritation amongst the refused borrowers.

Will the same evolution be possible in the political world? Let us first of all point out that the complexity of policymaking is often underestimated. Moreover, policies are shown to be successful in one place often fail in others, despite reaching a gold standard of evidence. Policy processes are not purely linear as they have various stages that each take varying lengths of time to complete and maybe conducted simultaneously.

Evidence-based policy processes are complex and rarely linear or logical and merely presenting information to policymakers. Strategies must be fluid.

1. The policy is often only weakly informed by research-based evidence due to information gaps and the fact that policymakers are rarely scientists.
2. Research-based evidence can contribute to policies that have a dramatic impact on lives.
3. The need for a holistic understanding of the context in which the policy is to be implemented.
4. Policy influencers need to be political fixers, able to understand politics and identify the key players. They need to be good storytellers, able to synthesise simple, compelling stories from the results of the research. They need to be good networkers

to work effectively with all the other stakeholders, and they need to be sound engineers, building a programme that pulls all of this together.

5. Turning a researcher into a policy entrepreneur, or a research institute or department into a policy-focused think tank involves a fundamental reorientation towards policy engagement rather than academic achievement; engaging much more with the policy community; developing a research agenda focusing on policy issues rather than academic interests; acquiring new skills or building multidisciplinary teams; establishing new internal systems and incentives; spending much more on communications; producing a different range of outputs; and working more in partnerships and networks.

2.5. Evidence-based and black boxes

The analysis shows that the relationship between research, policy and practice is complex, multi-factorial, non-linear, and highly context-specific. What works in one situation may not work in another. Developing effective strategies in complex environments is not straightforward. Simple tools such as cost-benefit analysis, logical frameworks, traditional project management tools and others may not work on their own, as they fail to take into account the existing complexity.

Therefore, giving political responsibility to machines that have no consciousness, no sentience and no political sensibility might be impossible. Artificial intelligence might become artificial stupidity.

Furthermore, in a policy context, politicians should be accountable and transparent. Saying that a decision is purely based on an algorithm wherein the end nobody understands why a particular decision is suggested, is not compatible with a democracy and a standard parliamentary-based state structure. This black box syndrome may be acceptable in the financial and banking world - although I have my doubts - but is undoubtedly unacceptable in a democracy.

3. Foresight-based policy

In a complex world, phenomena cannot be understood in isolation but must be seen in a context, taking into account a range of viewpoints (OECD, 2017). Therefore, the only way to capture the complexity of politics is to develop a holistic approach based on evidence and complemented with foresight, scenario- and future-thinking.

3.1. Foresight: the concept

The most classical approach is defining foresight as the process of developing a wide range of views on how the future could develop, enabling policymakers to understand these options sufficiently well to be able to decide what strategic decisions can be taken today to create the best possible tomorrow (Horton, 1999).

So, it is not about evidence, but about possibilities. It is future-oriented and not past and present-based, and the focus is rather process-based than result-based. These are already the three main differences.

The focus on the process, rather than on results, comes back in almost all definitions of foresight. The Joint Research Centre, for instance, defines foresight as a systematic,

participatory, future-intelligence-gathering and medium-to-long-term vision-building process aimed at enabling present-day decisions and mobilising joint actions (JRC, 2006).

Analysing this definition, we can state that foresight implies a proactive shaping of the uncertain future. Furthermore, that is exactly what policy is about or should be about. Foresight can cope with the significant weakness of policy being short-term thinking with the next elections as the deadline for action. Indeed, foresight will change the perception of long-term challenges and translate long-term issues into today's policy agenda. Foresight is a process inquiring into the medium-to-long-term future, enabling present decision-making and action. Foresight bridges the gap between long term thinking and short-term action. It should allow politicians dealing with the next elections, to become statesman dealing with the next generation, as John Rawls formulated it (Rawls, 1971). Foresight methodologies are designed to help policymakers reconcile the inevitable conflicts that arise between immediate decision-making and long-term planning (Janzwood, 2019). Something which can hardly be achieved through a more straightforward evidence-based approach.

It is a process, rather than a deliverer of products. Of course, foresight might lead to foresight reports, but the process is more crucial as its participative nature, and its methods are game-changers.

Nevertheless, foresight is not merely about analysing the future but trying to shape it. Freewheeling about the future without links to potential actions could be considered as future thinking or future studies but is not the essence of foresight.

From a philosophic point of view, foresight implies that the future is not entirely pre-determined. If not, the future cannot be reshaped, and hence foresight does not make sense. Foresight supposes that there are some alternative futures and that policy matters.

In summary, we can define foresight as a process which involves a systematic inquiry into longer-term futures, including emerging and novel issues, which in turn enables present decision-making and action (Minkkinen, 2019). Foresight is to the future what memory is to the past: a selective organising principle creating order in complexity (ESPAS, 2019).

3.2. The three-step approach

Integrating foresight into the decision-making process can be more difficult in the public sector than in the private sector. However, given that governments have to address issues of greater complexity and public importance than private companies, and that they generally possess an organisational culture that is less amenable to disruptive change, foresight is very relevant (Kakuwa, 2017).

Foresight exercises should, of course, focus on what is most relevant. Therefore, foresight should be organised in frames. A frame is an interpretative structure giving meaning to a complicated process and guide action by focusing attention to what is deemed relevant. The Finland Futures Research Centre developed a six-frame approach developed based on the levels of perceived unpredictability and pursued change (Minkkinen et al., 2019). It allows the categorisation of the different foresight exercises. The scenario frame, for instance, the most relevant for policymaking, is based on building resilience in a mid-unpredictable context exploring uncertain futures by position alternatives.

Table 1. Comparison between policy methodologies

Methodology	**Opinion -based**	**Evidence -based**	**Foresight -based**
Input	Volatile opinions	Rational evidences	Possibilities
Timeframe as starting point	Present	Past & present	Future
Timeframe as objective	Short-term	Mid-term	Long-term
Delivery	Convictions	Forecast	Foresight
Target	Common denominator	Result	Process
Method	Common knowledge	Statistical methods, Empirical observations Econometric models	Brainstorming Hackathons
Approach	Emotions	Rational & science-driven	Rational & creativity-driven
Mapping	Feelings, Perception	Data, Parameters	Megatrends, change drivers
Degree of certainty	Assumptions	Almost certain (high level of confidence)	Probable, plausible, likely
Source of knowledge	Lobby-groups, civil society	Expert groups, academics	Heterogenous participants
Outcome	Push to action	(mostly) Clear-cut advice	Scenario's

Source: Aernoudt, 2020.

In contradiction to evidence-based policy, we do not start from historical evidence, but from imagining how the future, or possible futures, could look like in the absence of a policy change. Foresight uses a range of methodologies, such as scanning the horizon for emerging changes, analysing weak signals and megatrends, and developing multiple scenarios to reveal and discuss useful ideas about the future (OECD 2019). We will work in three-steps: summarise the drivers for change, map the scenarios and deduct the policy action.

The first step: the drivers of change

The starting point will be to identify the drivers of change. In order to avoid confusion from the start, we are not speaking about stable driving forces leading to a predictable future. Identifying driving forces, putting the data in a reliable quantitative model, is a forecasting procedure (OECD, 2019), not a foresight exercise.

Foresight is assuming an uncertain future than cannot be covered by a linear or multiple regression exercise, but that fundamentally assumes that things are uncertain and that perpetual and almost unpredictable changes are the only certainty. Foresight is hence, in contradiction to evidence-based and forecasts, not based on expert-reports and academic research but need to appeal on other tools. Brainstorming sessions, hackathons, literature review, workshops, etcetera will try to look into the future(s). Indeed, in foresight, we no longer predict or forecast the future but try to imagine the different possible futures. The drivers of change are from a different nature. Producer-related, consumer-related, technologically, environment-related, ethics-related (let me call it the PCTEE-model) should be analysed.

The second step: mapping the different scenario's

The non-systematic insights from the foresight sessions should lead to a description of the different scenarios. Scenarios are narrative stories of the future that outline several different

paths through various challenges to arrive at varying future states. Rather than claiming an ability to predict the future, scenario-thinkers create multiple stories that encompass a variety of futures (Chermack, 2004). As can be seen for the figure below, we can summarise for each policy issue seven possible scenarios (figure 2).

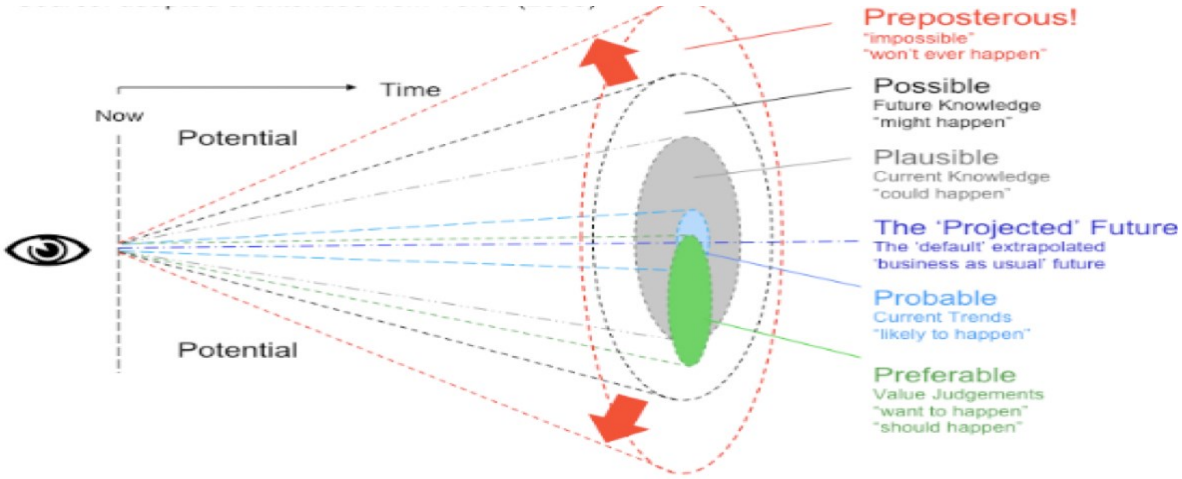

Figure 2. Scenarios based on foresight exercise

Third step: policy action

If the probable scenario is the one, we are comfortable with, there is no need for policy. Indeed, the policy should only intervene when the market fails in achieving the objectives we want to realise (Aernoudt, 2020). However, mostly the preferable scenario is not the most probable one. The policy aims to bring the probable scenario closer to the preferable scenario. This potential policy implications and actions are the core of foresight-based policy.

3.3. The benefits of foresight

The essential benefits from foresight are intangible and therefore, hard to measure. The main one is a mindset open to change. Resistance to change is often one of the main reasons why politicians and especially administrations are incapable of integrating future changes into today's decisions. The 'we have always done like that' is a predominant argument in public administrations. Foresight might be the best instrument to break this attitude and to change the mindset towards improved readiness to address changes.

Moreover, the participative method brings together people from different horizons. This leads to more agile organisations able to provide rapid and effective responses to change.

Foresight can help policymakers cope with an uncertain future and make policy more efficient. Foresight can act as a time-converter allowing the placing of long-term challenges on the short-term policy agenda.

Besides, tangible benefits arise from outputs. These outputs provide guidelines for action and evaluation and include products such as reports on scenarios and recommendations. Policymakers can use those tangibles for designing policy options and rationalise impact assessments.

3.4. Black swans

One of the significant difficulties for foresight is black swans. It is an event that comes as a surprise and was even not considered as a possible scenario but has a significant effect on all outcomes. The term is based on an ancient saying that presumed that black swans did not exist.

The Coronavirus crisis or 9/11, for instance, had a major impact on the economy but could not reasonably be foreseen. However, the advantage of foresight might be that even in black swan situations, the foresight mindset could lead to improved coping with the situation. An excellent and well-known example is Shell experience. As part of possible scenarios, they considered in the early seventies, an oil crisis. Once it occurred, the company as better prepared than their competitors (Shell, 2013). So, listing the unforeseeable black swans could be part of a challenging foresight exercise.

3.5. Pre-conditions for successful foresight

Based on an analysis of foresight exercises that were realised in UK, Finland, USA and Germany, the OECD concluded that in order to reap the potential benefits of foresight, six pre-conditions need to be fulfilled (OECD, 2017):

1. Be embedded in the decision-making process: It is essential to embed foresight appropriately in decision-making processes to make it useful. This requires changes to both organisational structures and strategy formation processes.
2. Be linked to the policy-cycle: Foresight processes need to be linked to policy cycles to ensure that futures intelligence is available at the right moment in time.
3. Interaction is crucial: Foresight is about more than delivering a report. The participatory elements of foresight are demanding in terms of time and resources, but the interactions among stakeholders and decision-makers are essential for triggering change processes in policy governance, society and the economy.
4. Sustained approach: A sustained effort is needed to create the competences, and a conducive environment, for carrying out foresight effectively and efficiently. One-off exercises are unlikely to yield the expected impacts on policymaking. It takes time, and possibly specific measures, to nurture and diffuse future-oriented thinking.
5. Institutionalisation: Some form of institutionalisation – through regular programmes and the establishment of dedicated organisations – is needed to create a foresight culture and thus exploit its benefits in a sustained manner. As electoral cycles tend to be significantly shorter than the time horizon of the issues considered by foresight, this condition is of particular importance.
6. Intellectual autonomy: Without intellectual autonomy in developing new insights, foresight cannot fulfil its vital function of pointing to major emerging challenges and opportunities and novel ways to address them.

4. Case-study: the future of EU-industry

In order to illustrate our views on the complementarity of evidence-based policy and foresight, we will illustrate by applying our approach to industrial policy. Industrial policy has, for a long time, been perceived as an old-fashioned post-war policy intervention technique, referring to the old steel and textile plans. Consequently, industrial policy has been – in several governmental circles – a taboo word for the last thirty years. Based on evidence (D. Birch, 1987) SMEs – small and medium enterprises – mainly active in the service sector, were assumed to form the backbone of the European economy and they needed to be protected from the significant industrial policy.

Moreover, services were considered more important for the economy than goods. Similarly, it was presupposed that the tertiary and quarterly sector would rule the economy. Big was no longer beautiful. Much industry went off-shore, mainly to lower-wage countries. Europe was no longer supposed to be the place for mass production. Environmentalists considered that there was no more place in Europe for the polluting heavy industry.

4.1. The industrial decline

No wonder that over the past twenty years (from 1995 to 2015), the share of industry's contribution to GDP decreased in Europe from 23,3% to 19,3%; while the share of the public administration increased from 17,5 to 19,1%. Consequently, the GDP share of the public administration became as big as the share of the industry. Moreover, in some countries, like Spain, France or Belgium, the industry came to represent far less than this European average of 19,3% of the GDP. Moreover, in those countries, the share of the administration in the economy ended up being more significant than the share of the industry. Such a situation leads us to the question of how such a model can be sustainable?

Table 2. Share of industry in % to GDP compared to the share of administration

Countries	Share of industry	Share of administration
EU	19,3	19,1
Belgium	16,7	22,5
France	14,1	23
Spain	18	18,8
Germany	25,5	18,2

Source: Eurostat, 2019

Only recently, the European Commission has tried to restore the importance of industry (European commission 2017). The vision was clear and quantifiable: we need more industry in Europe. The commission stressed the need to bring industry's weight in the EU GDP back at least to 20%, both at the level of Member States and regions, and we have a common understanding go further in the future.

4.2. Evidence-based policy applied

From a perspective of evidence-policy, one started by analysing why so many industries left Europe. Different studies and surveys analysed the obstacles for industry development in Europe. Some are academic-research type, others rather perception-based and a third category

is lobby-driven. However, all came to similar conclusions and based on these obstacles, countries and regions tries to find measure-made solutions.

Table 3: Obstacles and policy measures for the industry in Europe

Obstacles	Desired policy measures
Investment cost high and ROI low	Investment grants
Lack of skilled labour	Tailor-made training schemes
Lack of demand	Achievement of the internal market
Lack of money	Public guarantees and public financing
Interest too high	Interest subsidy schemes
Low innovation	Innovation support schemes
Lack of cooperation	Clusters and pools of competence
High corporate and other taxes	Flat tax system; tax exemptions

Source: Aernoudt, 2020

Econometric models can then calculate correlations (R2) between the quantifiable policy impact of the reduction of obstacles (ln obstacles) on the one hand and the industry investments and divestments on the other. Those correlation coefficients can, with a high level of confidence, determine which policy options deliver the best cost-benefit ratio.

However, due to the policy constraints (see the five's' s), such an evidence-based approach often leads in practice to a patchwork of measures, some more efficient than others. Moreover, new governments often add new measures, without abolishing old ones, adding complexity to the patchwork. This evidence-based policy can be considered as an excellent first step, but the reality is too complex to simply use policy based on the inventory of obstacles in order to determinate what should be done. Moreover, the implementation is often a compromise leading to second-best policy options.

4.3. Foresight applied: the drivers of change

Instead of this segment-based approach, in a complex world, we need a holistic view based on a mapping of the drivers of change. These drivers of change might give us an insight into what the future could be. Again, it is no longer a simple extrapolation or forecast or regression, but a way to imagine how the future could look. As it is unpredictable, we will need to develop several scenarios.

The drivers of change are different. We use our previous developed PCTEE-model: producer-related, consumer-related, technologically pushed and pulled, environment-considerations and ethics & value aspects.

In what follows we explain, as a pure illustration, how foresight could work in a particular field. The aim is that such considerations should be made and finetuned in a participative way through brainstorming and hackathons sessions as described before by heterogeneous groups. Similar drivers of change can be mapped in other long-term topics such as climate change or energy management. The starting point should, of course, be a vision, and if possible, a quantifiable target.

4.3.1. Producers drivers of change

First of all, there is digitalisation. This implies that the factor of labour becomes less critical. To give an example: thirty years ago, labour cost represented up to 20% of the production cost of a car; anno 2020 it was less than 5%. Nevertheless, in the future, we might have cars without drivers, and without people needed to build them. In such a scenario, skills and labour cost becomes irrelevant. Today, nobody knows whether, and if so, how fast, it will go.

Secondly, further robotization, new technologies such as 3D printing and the internet of things, may completely change the production process.

4.3.2. Consumers drivers of change

Until about ten years ago, the property was a value as such. We wanted to own our car, own our house, own our bicycle. Nowadays the value is in its use. We do not want a car as long as we can use one at any time, we need one. Carsharing and collective car-renting become the new norm. This, of course, completely changes the market. However, we could go further: will youngsters in 20 years-time still want to obtain a driving licence? Will they still need it? Will they still want to sit alone in a metal box bumper to bumper to go from one place to another?

4.3.3. Technology drivers

New technologies will break the dichotomy between producer and consumer. The world where there are producers on the one side and consumers on the other, as we can still find in all economic handbooks, shall be gone entirely. The invisible hand based on a significant number of anonymous consumers and many producers trying to get distinguished by marketing campaigns is an obsolete model. Mass production will be replaced with on-demand-production and tailor-made. A book, for instance, will be printed on request. If there are still books …

By putting solar panels on our roof, for instance, we become a prosumer: a producer and a consumer at the same time. In a collaborative economy, anyone can become a prosumer, e.g. by renting some rooms (AIRBNB), by renting my car (peer-to-peer sharing) or by acting as a freelance driver (Uber). All these evolutions are relatively new and made possible by an association between the platform economy, technologic progress and the collaborative spirit.

However, what will it mean in 20 years? What is the future of Uber in a 'car-without-driver' society?

4.3.4. Environmental drivers of change

Environmental awareness is increasing. Non-recyclable materials will disappear. Electric cars with non-recyclable batteries are a temporary phenomenon. For the industry, this mental switch gives enormous investment opportunities.

Within environmental awareness and in particular, the issue of climate change, new business opportunities are almost unlimited. This consciousness towards the need for a mentality change will be a further driver for Schumpeter's' creative destruction. Reducing and transforming atmospheric carbon dioxide (CO2) will be big business leading to the destruction of some activities and the inventing of new industries and services. Besides the climate mitigation investments, climate resilience investments and industries will be required en masse. Moreover, Europe's green deal will cope with the necessary funding.

4.3.5. Ethics and Value drivers

Linked to the environmental issue, there are the ethical aspects: will we still accept that 'my' producer of goods and services lives on the other side of the planet. Will we still accept that we buy relatively cheap clothes made on the other side of the world where social and environmental criteria are entirely different? Will we accept that we need a child labour force in order to produce our cell-phones?

We have to replace the global playing field by a loyal playing field. We might only accept competing with producers if they respect the same rules in the field of social security and environmental issues. The same applies to loyalty towards their staff.

However, there is more: the globalisation hype will fade and be replaced by glocalization. The local dimension is based on consumer awareness, environmental consciousness and the preference for close-to-home traceability. The price elasticity to local wines, local meat and local vegetables might be much less than with overseas products. We want to free our local farmers from their survival strategy and allow them to obtain reasonable profits.

More philosophically, we want to push money back to its initial role of exchange-value instead of value as such. This way, we will not only reduce the corruptive power of money but limit its role in order to make a more ethical based and just society. Digitalisation and fintech can completely erase cash and hence reduce sensibility to the eagerness for corruption.

In the same context, new generations might consider that we do not live to work but work to live. The tendency that salary is less critical than leisure time, flexibility, sabbatical leaves, will intensify. Productivity bonuses will have no impact anymore. The race for faster and better may come to an end.

5. Foresight exercise: scenario thinking & econometric models

Based on the analysis of the different drivers, different scenarios can be developed. In the business world, consultants, despite the uncertainty, try to build a robust econometric model allowing scenario-based planning (Deloitte, 2012). A difficult exercise. Nevertheless, translating these drivers of change into a simple econometric model leading to a clear-cut vision of the policy needed seems to be much more difficult. Again, we are dealing with foresight, not with the forecast.

Scenario-based planning models are developed in four phases:

1. Define the purpose, scenarios and strategic implementations.
2. Conduct a financial impact analysis.
3. Analyse scenario impacts.
4. Adapt and refine the econometric model.

Expert reports can be useful as a basis for brainstorming sessions but are not the core of the exercise. New methods need to be explored to imagine the scenarios. The scenarios in Table 4. show how foresight-based policy could work.

Table 4. Possible scenarios for the EU industry

Types	Meaning	Driver-based scenarios
Preposterous	Impossible	No more industry in the world
Possible	Might happen	The industry ultimately leaves the EU
Plausible	Could happen	Industry becomes very marginal in the EU
Projectable	Business as usual	Share of the industry continues to decline
Probable	Likely	The bleeding stops in EU
Preferable	Preferable	The increased importance of industry in the EU

Politics aim to increase the probability of the preferable by designing an adequate industrial policy.

6. Foresight-based industrial policy

We stated that drivers-description and scenario-thinking are only relevant when they can lead to concrete actions. The brainstorm groups should now, based on the drivers and the scenarios determine the concrete actions to be taken now in order to reshape the future.

The first step is to set the vision, translated into an objective. The "only service-based" economy is not sustainable, particularly in a holistic view. Economies where the share of industry is meagre, are incredibly fragile. Therefore, as our policymaker wants to increase the share of industry and that the likely scenario is not satisfactory. So, what actions could ensure that the preferable scenario increases its chances to get realised. Again, what follows is merely to illustrate what kind of actions could be proposed by the brainstorming group.

We explained that changing the mindset of all stakeholders is one of the main benefits of foresight. Intangibles such as the perception of the industry and the spirit of trade-unions are essential and can be altered by foresight. However, foresight can structure and increase resilience and belief in the future. A satisfying behaviour, for instance, saying that we are happy that companies do not off-shore anymore, can be replaced by a pro-active policy towards reshoring. Let us have a closer look at those examples and the usefulness of foresight.

6.1. Perception is reality

As long as the industry is perceived as a polluting, profit-driven entity, there is no future. The industry should not be considered as the necessary evil as we need certain products and goods. Indeed, if this is the perception, we will try to get the industry out of Europe into those countries being less sensitive to environmental and value considerations.

Given the different change drivers (see PCTEE above), we need to alter the perception of the industry. Producing 'close to home' with full respect for the non-anonymous costumers, could reduce the ecological footprint of the industry. Moreover, it could show that with new technologies in production and energy techniques, the industry can be non-polluting.

The industry could even become depolluting. Indeed, new techniques could allow for depolluting investments. Long future thinking? No, already the factory of Ford in Michigan has a depolluting roof that largely compensates for the pollution created by the factory.

Together with the new values of the next generation, we can change the perception of industry (re-spin) from necessary evil to a reliant partner for further socio-economic development. If we succeed, the desire to make them leave would be neutralised and replaced by developing a more intense partnership with all stakeholders. The policy has a significant role to play to stop industry-bashing but also to explain the importance of industry for a region or country for the well-being of all.

6.2. Trade-unions as partners

Many trade-unions still live in the sixties playing the game of employers against employees. Employers being perceived as the ones who want to create more value on the back of the exploited employees. It is time to correct this post-Marxist vision of the industry.

A limited number of shareholders no longer holds capital. Capital markets evolution allows almost anyone to become a shareholder. Capital is not scarce, but qualified and skilled labour is. This alters the relationship between both production factors and should release the trade-unions from the Calimero attitude. Furthermore, the labour force will no longer be job takers having an exclusive contractual relationship with the company they work for but will become jobmakers offering, from time to time, certain services to a company (Aernoudt 2012; from job taker to jobmaker).

Nevertheless, more critical, capital and labour are no longer, as suggested by the Cobb-Douglas function, the main ingredients for productivity. All other factors, mainly intangible, are much more critical. This third factor includes innovative-spirit, motivation, intrapreneurship, ethics and values.

It no longer makes sense for trade-unions to play the role of enemy of the capitalists. They should become partners in these new evolutions and be an anchor for the industry in Europe instead of a motive, or alibi, for the industry to leave. This paradigm-switch could give a new impetus to trade-unions in Europe. Trade-unions and social partners should hence be involved in foresight in order to allow them to finetune their future role. The critical reader may wonder what the link is with foresight. Well, it is about translation a possible future (the jobless industry) of the industry into a real (trade-union) policy today. Moreover, is it linked to the main benefit of foresight, is a process that develops a mindset open to change.

6.3 The reshoring phenomenon

Perception and mindset are crucial as well for investment and divestment decisions, and the place to invest or divest. Off-shoring or reshoring is based both on tangible and intangible factors. Off-shoring refers to the decision whereby a company moves all or part of its production from a high-cost country to a foreign country for factor cost reasons. Off-shoring then mainly goes from the US or Europe towards lower costs, mainly lower-wage countries. Re-shoring or back shoring is a voluntary corporate strategy regarding the partial or total relocation of previously off-shored (in-sourced or out-sourced) production in the home country (back-shoring) or into the region of the home country. Re-shoring is a factor in all manufacturing companies' decisions. Using the total cost of ownership (TCO), business analyst companies help to identify all the costs connected with off-shoring operations genuinely. As companies systematically carry out such a comprehensive total cost analysis, they are discovering that the rise in the cost of labour along with the hidden costs of off-shoring has often outweighed the competitive advantage. Due to changed macro-economic parameters, such as labour costs,

energy prices and transport costs, TCO-calculations show a diminishing of the relative attractiveness of off-shoring. Indeed, the reshoring phenomena were prompted by a rise in the cost of labour and energy prices in China, the impact on innovation, intellectual property theft and greater use of comprehensive cost analysis, which takes into account and calculates all the costs and risks.

We can roughly distinguish three periods:

- In the years 1990 to 2010, off-shoring mainly took place from Europe and the US to Asia. Following estimations, during the period 2007-2009, around 40% of European companies employing more than 50 staff moved their production to some extent. This tendency has led to the present situation where the European market, with its 500 million inhabitants, is a significant consumer of non-European, often former European, industrial products. The same counts, even in a more considerable extent, for the American market.
- At the beginning of the second decennia of the 21st Century, the bleeding stopped. As wages increased in Asiatic countries, and logistics became more expensive, off-shoring was no longer attractive.
- Since 2015, we have even seen a reverse tendency as companies that off-shored earlier, come back to Europe. In the UK, for instance, it is estimated that 14% of production off-shored in 2008-2009 has already restored. In Germany, it is estimated that one-sixth of the off-shored companies restored within four years. Interesting to note is that, based on a sample of 190 EU restorers, 85% of the restored companies restore to the country of 'origin'.

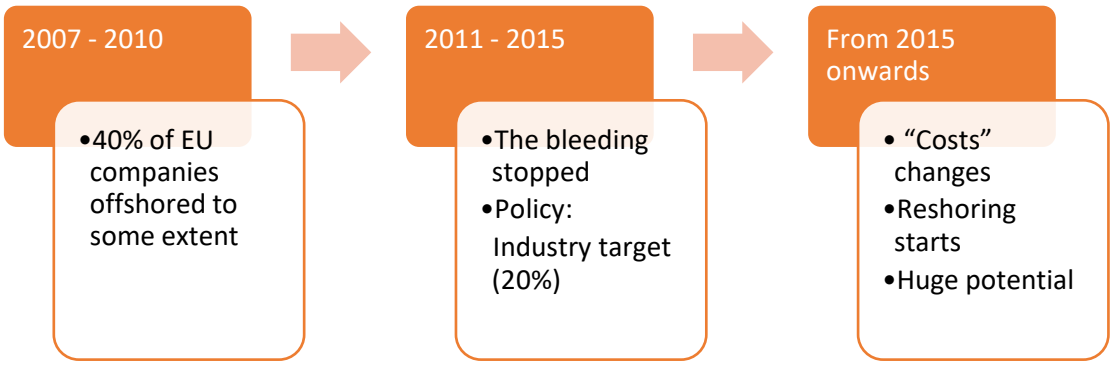

Figure 3. Schematically representation of the three periods

6.4. Reshoring drivers

Given the different change drivers described by the foresight exercise, we could imagine that many more companies could be restored. Why? Beyond the Total Cost of Operation, which is economic-based reasoning, the change drivers enlarge the reshoring opportunities (Grappi, 2019) widely:

1. The importance of corporate social responsibility whereby stakeholders such as consumers prefer 'close to home' production and local employment creation.
2. Ethical considerations wanting to assure consumers that for instance no 'child labour' is involved or that production takes place in an environment-friendly production system;
3. Companies are more concerned about environmental issues which are easier to manage when production is not off-shored.
4. Social issues (e.g. child labour, security at the workplace) surrounding foreign production facilities might damage the reputation of a company.
5. Digitalisation enables the shift from mass production to 'on demand' products.
6. Logistics are not only costly (economic argument included in the TCO) but increase the ecological footprint of companies.
7. Employee satisfaction: reshoring drives gratitude felt towards the firm, and behaviours benefitting the company.

Academic studies indicate three reasons why the magnitude of reshoring is limited (Offshoring Research Network, Survey 2018):

1. Past sunk costs constitute an exit barrier from the host country.
2. 'Advanced' countries still have not regained attractivity.
3. No government incentives to restore business activities.

Concerning the last reason, studies show that "incentives to return implemented by the government are one of the reasons for companies coming back" (Calvelli, 2019). In other words: policy matters!

6.5. A reshoring policy: combining evidence and foresight based

Philosophy: The objective could be to facilitate and assist as many companies as possible in their reshoring ambitions. A reshoring policy could be developed with the objectives of facilitating the relocation of industries and launch a pro-active 'coming back' A reshoring policy should focus on those factors that might make companies more restore ready (based on evidence; mainly tangible focused) and exploit the opportunities offered by the change drivers (based on foresight; mainly intangible focused). This could be translated into ten-measures:

1. Infrastructure: build new industrial districts and facilities or revitalise existing ones to an up-to-date technological level that have reduced their activity as a result of the off-shoring of manufacturing industries;
2. Taxation: establish a more balanced and stable taxation system to promote domestic consumption and attract foreign direct investment;
3. R&D: facilitate access to research namely by promoting the cluster concept (EIT could play a significant role in this);
4. Energy: complete and promote the European energy union;
5. Vocational training: secure skilled employment forces in the European market; namely by generalising the apprenticeship system;
6. Legislation: ensure that environmental legislation is consistent with the European industry's competitiveness and investment cycles;
7. Mindset: Launch actions to change the mindset towards industry;

8. Corporate social responsibility: stimulate industry to take, on top of the economic responsibility, the social and environmental challenge;
9. Trade-unions: stimulate trade-unions to change their role from employer-basher to a real partner in maintaining and reshoring industry;
10. Policy: permanently actualise the foresight reshoring exercise and finetune the policy.

7. Conclusions and recommendations: complementarity

The evidence-based policy looks at mainly past-based evidence to determine future actions. Foresight looks at possible uncertain futures in order to determine how this future can be reshaped in order to make the most desirable future most likely.

In this paper, we argued that both instruments have their value and should be used together. As foresight is much more difficult, less expert-based and more participation-based, it is often easier to focus on evidence-based policy. Policy action should, however, be based on both. A necessary condition for success is that both, evidence and foresight, are embedded in the policy-cycle to ensure that evidence and futures intelligence is available at the right moment in time and can be translated into concrete policy actions, including implementation and evaluation issues. Further academic research and benchmarking should further examine how this can be done most pragmatically.

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