ROMANIAN CONTRIBUTION TO THE EVALUATION OF A REGIONAL FORESIGHT EXERCISE USING THE GOAL-QUESTION-METRIC METHOD

Vladimir FLORIAN[1]
Gabriel NEAGU[2]

ABSTRACT
For complex projects the evaluation is an efficient management technique to monitor and timely assess the project implementation performance with respect to its main goals. The FORSEE project, which was funded by the South East Europe Transnational Cooperation Programme, developed the first regional Foresight exercise in research, development and innovation for the Information and Communication Technologies domain. The paper presents the authors' experience regarding the FORSEE project self-evaluation based on the Goal-Question-Metric method. After a brief introduction to project activities being subject of self-evaluation, the main specific features of the GQM method (i.e. the approach, the measurement model, the phases of the GQM process) and the solution for GQM implementation adopted for the FORSEE project are described. This solution is illustrated by the synthesis of the self-evaluation report for the "Policy Recommendations" evaluation object, representing the authors' contribution to the overall FORSEE self-evaluation activity. Some lessons learnt about the successful implementation of a project oriented to "investigation of the future" are also outlined.

KEYWORDS: *FORSEE, GQM, ICT, project evaluation, regional Foresight*

JEL CLASSIFICATION: *O32*

1. INTRODUCTION

The main reason behind running the pilot regional Foresight exercise in research, development and innovation (RDI) area for the Information and Communication Technologies (ICT) development in the South Eastern Europe (SEE) was to explore synergies generated by the regional cooperation to enhance the competitive advantage of each member country and the region as a whole in a larger (European, global) context. The exercise was implemented through the project entitled "FORSEE - Regional ICT Foresight exercise for Southeast European countries", in the period 2011-2014, The project had its main objective to identify shortcomings of the ICT RDI sector in the region and complementarities between research resources in the target countries, ultimately leading to an acceleration of economic growth and enhanced readiness to meet globalised economy challenges.
The policy-making in RDI is a priority domain for the Foresight approach (Havas et al., 2010). For the policy setting process the main advantages of this approach consists in providing the possibility to shape the future states by building alternative visions, encouraging creative thinking by bringing together people with different experiences, and improving decision-making by making it more transparent, acceptable and straightforward (Anastasiadou, 2013). It is worth mentioning that in the Foresight implementation practice the term "regional" has traditionally addressed the sub-national (e.g. county, region of development) level, while the contribution of the FORSEE exercise was in running a unique multi-country level exercise, based on specific methodology. The FORSEE

[1] National Institute for Research and Development in Informatics, Romania, vladimir@ici.ro
[2] National Institute for Research and Development in Informatics, Romania, gneagu@ici.ro

Regional Foresight Exercise (RFE) was implemented in 8 SEE countries with participation of 13 organizations providing an adequate profile mix: 3 RDI coordinating ministries, 4 universities, 4 research institutes, one ICT professional association, and one innovation agency.

Because the Foresight approach is applied in different domains and research areas, it became obvious that it has to be adapted to the context and circumstances of each particular research. This implies that the evaluation of efforts and outputs in a Foresight exercise is not only a problem of assessing the efficiency of the activities carried on, but also an opportunity to demonstrate how well fitted was the adopted approach for the purpose and its effectiveness in providing concrete change of ideas and recommendations. A clear framework is essential to understand and conduct the evaluation, because its impact on understanding the project goals and objectives, the relationships between the key factors of its successful implementation, and the influence of internal and external elements affecting the project success. That is why one of the major concerns of the FORSEE project was to adopt an evaluation framework as a systematic process able to assess the level of performance achieved in implementing the RFE, its national and regional reach, as well as the novelty and impact of its results.

The Evaluation framework adopted in the FORSEE project is based on the Goal Question Metric (GQM) paradigm which operates with five fundamental steps in measuring the goal attainment: (i) specification of the goal to be measured, (ii) identification of the actions that are critical for the goal attainment, (iii) specification of the set of indicators (metrics) showing that the goal has been achieved, (iv) description of the indicator behavior for each of the intended action, and (v) testing whether each real indicator behavior is fitted with the expected one.

The paper presents the authors' experience and contribution on implementing the GQM method for the FORSEE project self-evaluation. The remaining part of the paper is organized as follows: section 2 introduces the FORSEE project structure with the aim to provide a relevant view on the project complexity in terms of covered topics, diversity of activities and the spectrum of necessary expertise to implement them. Section 3 presents the GQM method with focus on the approach, the GQM model and the GQM process. Section 4 is devoted to the GQM implementation framework adopted for the FORSEE project evaluation. The summary of the self-evaluation report for the "Policy Recommendation" object, representing the authors' contribution to the overall FORSEE self-evaluation, is provided in section 5. The concluding section outlines the main lessons learnt about the successful implementation of a future investigation project, revealed by the GQM self-evaluation experience.

2. FORSEE PROJECT STRUCTURE

The project implementation plan was structured in 3 stages centred on the RFE as the main objective of the project.

I. RFE Preparatory stage:

- Current state analysis of the project context area in the SEE:
  - study and evaluation of National research & innovation systems in partner countries, with emphasis on the ICT;
  - SWOT (Strengths, Weaknesses, Opportunities and Threats) & PESTLE (Political, Economic, Social, Technological, Legal, Environmental) analysis of these systems;
  - a regional synthesis of the SWOT & PESTLE documents to identify opportunities and obstacles for regional cooperation in ICT RDI.
- Elaboration of the regional Foresight approach:
  - identification of the existing expertise in partner countries on using the Foresight approach in the RDI area and issue of the Foresight Best practice Guide for the SEE region;
  - elaboration and adoption of the Regional Foresight Methodology (RFM);

- Initial identification of the thematic focus of the RFE:
  - selection of 9 ICT RDI themes and their topics with particular relevance to the SEE region;
  - organize an online survey with participation of external experts from partner countries to validate and prioritize this list.

II. RFE Implementation stage, covering the RFM phases:

- Creation of initial SWOT analyses per theme/topic;
- Organisation of National and Regional Open Consultation events;
- Creation of the Final SWOT for the selected pilot domain (Digital Content - DC) and design of possible futures for this domain;
- Selection of most favourable future;
- Elaboration on policy recommendations to target this future.

III. RFE Closing stage:

- External review and final evaluation report of the RFE;
- Final output report of the RFE;
- Regional Innovation strategy roadmap;
- Sustainability plan of a Regional Virtual Foresight Centre.

Regarding the RFE Implementation, more details about its phases are provided in Section 4, in the context of evaluation objects description. A synthesis of the project approach in designing the possible future images for the Digital Content (DC) domain and the selection of the most favourable future is available in (Neagu, 2014).

3. EVALUATION METHOD

3.1. GQM approach

The Goal Question Metric paradigm is a systematic and effective approach for the development of measurement strategies, taking into account the specific needs of an organization or a specific project (Basili et al., 1994). The first formal description of how to apply GQM was defined by Basili (1992) and was later refined by Van Solingen and Berghout (1999). Subsequently, there have been efforts to enhance the GQM process by further formalizing the GQM plan based on explicit quality models (von Wangenheim et al., 2003; Anacleto et al., 2003). GQM was initially formulated as a goal-oriented approach for the definition and measurement of quality of software engineering processes and products in the software engineering domain (Southekal, 2011). Nevertheless, the basic concepts of GQM can be used in other domains where effective metrics are needed to assess goals achievement. The GQM methodology and process model has been applied for various products, processes, and resources and integrated with other tools and methodologies (Lofi, 2005) in order to implement systems for integrated process assessment, product and process modeling and GQM based software measurement.

In order to systematically apply the GQM approach in an organizational and project setting, a GQM Process was defined (Basili, 1992; Gresse et al., 1995). Subsequently, the process was further developed in (Van Solingen & Berghout, 1997) and (Van Solingen & Berghout, 1999) and then underwent several changes depending on the organizational objectives and application domains where implemented.

Following Basili's work, the GQM process is defined in (CSIAC, 2005) as being, in general, a six steps process. The sequence of these steps is the following:

a) Goal Setting – identify the existing business goals and define associated measurement goals driven by the business goals.
b) Generate questions - clarify and refine the measurement goals, moving from a conceptual level to an operational level by posing questions. By answering the questions that define those goals

as completely as possible in a quantifiable way, one should be able to conclude whether a goal is reached.

c) Specify the Measures - examine how the questions could be answered, moving from the qualitative (or operational level) to a quantitative level. The measures needed to be collected to answer those questions and track process and product conformance to the goals are specified. Metrics that provide all the quantitative information to answer the questions in a satisfactory way are defined.
d) Develop Mechanisms for data collection – determine what data items are needed to support the identified metrics, and how those items will be collected. A significant amount of planning is necessary to support data collection.
e) Collect, Validate and Analyze the data for decision making - collect, validate and analyze the data in real time to provide feedback to projects for corrective actions. Data collection follows the procedures predefined at the previous step. Validation consists of checking the data collected for correctness, completeness and consistency. Analysis consists in organizing the data and preparing the metrics for presentation to the stakeholders to address the questions pertaining to the measurement goal. Analysis and interpretation is an iterative step typically integrated with the progress reporting cycle of a project.
f) Analyze the data for Goal Attainment and Learning – examine the results to assess conformance to the goals, to determine lessons learned and make recommendations for future improvements of the GQM process.

The first three steps are concerned with establishing a goal-driven measurement program in which the identification of goals triggers the identification of appropriate metrics. The last three steps of the GQM process address the implementation of the metrics program in a way that ensures the focus will remain on goal attainment.

The GQM paradigm is a top-down approach when defining the goals that drive the measuring software processes and products, and using these goals to decide precisely what to measure (choosing metrics). In the same time it is a bottom-up approach interpreting data based on the previously defined goals and questions. Thus, GQM provides a framework to interpret the measured data composed by a measurement system and a set of rules for data interpretation.

3.2. GQM measurement model

The measurement model has a hierarchical structure. It consists of three procedural components: goal, question, and metric (Lofi, 2005). Each component corresponds to a different level in the hierarchy.

Conceptual level (Goal)

A goal is defined as a 5-tuple (Object, Purpose, Quality Focus, Viewpoint and Context) specifying an object to be measured, the of purpose of measurement, the quality focus (which specific attribute or characteristic of the object should be the matter of concern), the 'viewpoint' (the role and position of the people working with the data) and a particular context describing the scope of the measurement procedure. Objects of measurement are:

- Products (artifacts, deliverables and documents that are produced during the system life cycle);
- Processes (activities normally associated with time, e.g. specifying, designing, testing, interviewing);
- Resources (items used by processes in order to produce their outputs, e.g. personnel, hardware, software, office space).

The GQM Goal Definition Template is presented in Table 1.

Table 1. The GQM Goal Definition Template

GQM Goal Template	Example
Object	'Analyze the final product'
Purpose	'For Evaluation' (Characterization, Improvement, Prediction, etc.)
Quality focus	'With respect to Usability' (Reliability, Costs, Maintainability, etc.)
Viewpoint	'From the viewpoint of a Customer' (Project manager, Developer, User, Upper management, etc)
Context	Project X of company Y

Source: adapted from (Van Solingen & Berghout, 1999), p.67

Operational level (Questions)

It consists of sets of questions regarding the ways the goals will be assessed and achieved. A set of questions is assigned to a goal, but questions can be shared among goals. Various aspects of the quality focus are defined and factors that might influence the quality (i.e., influencing factors) are identified. The questions support the characterization of the objects with respect to the quality focus and the determination of the quality level from the selected point of view.

Quantitative level (Metric)

A set of data is associated with every question in order to answer it in a quantitative way. Each metric represents a given property of the measured object and is intended to fulfill the stated goal. The data can be:

- objective, i.e. depending only on the object that is being measured and not on the point of view from which they are taken; or
- subjective, depending on both the object that is being measured and the point of view from which they are taken, e.g., readability of a text, level of user satisfaction.

3.3. Phases of the GQM process

The practical implementation of the GQM process is based on grouping the GQM activities (components of the steps) into several phases integrated with the project planning and management activities. The introduction of phases in the GQM approach emphasizes that its practical implementation is not a sequential process but a complex of phases of activities that have dependency relations among them.

According to Anacleto et al., (2003) and Van Solingen and Berghout (1999), the GQM Process consists of four main phases: Planning, Definition, Data Collection and Result Interpretation (see Figure 1).

Planning Phase

This phase consists in characterization of the environment in which the evaluation takes place: which kind of products are developed, which processes are used, etc. Because GQM is integrated with the project planning, the GQM Planning Phase takes care of the implementation of the GQM process within the context of the project.

Data Collection Phase

The Data Collection phase consists in collecting the measurement data according to the Measurement Plan and preparing it for analysis in accordance with the Analysis Plan. It is part of the step 5 of the GQM Process.

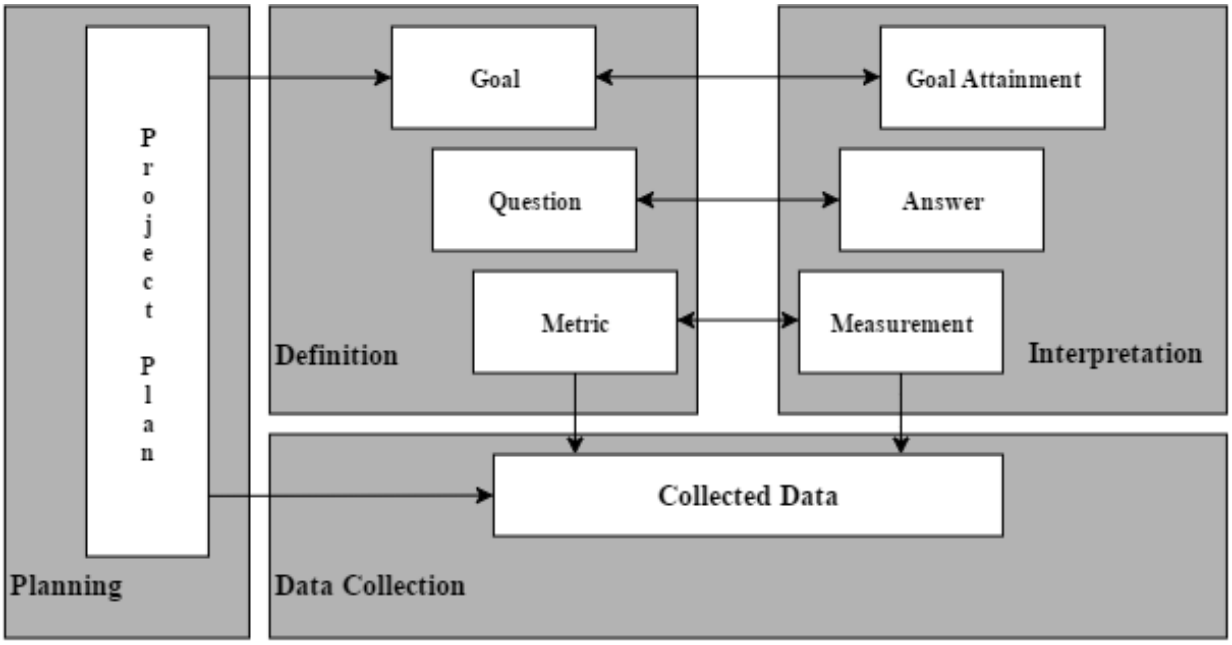

Figure 1. The phases of the GQM process
Source: adapted from (Van Solingen & Berghout, 1999), p. 65

Interpretation Phase

The Interpretation phase involves review of the measurement results by the stakeholders (typically the project team). The team interprets the data in light of the questions asked and the goals defined. This phase is also part of the step 5 of the GQM process.

The GQM Planning phase does not precede all other phases, but rather, interacts with them. Initially, the GQM planning phase establishes how the Definition phase will be implemented and who will be involved. After the Definition occurs, the GQM planning uses the output of this phase as a basis for the planning of data collection mechanisms and for analysis and interpretation. The main resulting deliverables of the GQM planning phase are: a GQM Plan, a Measurement Plan and an Analysis Plan.

The GQM plan contains each measurement goal and its corresponding breakdown into questions and metrics, thus preserving the relationships of goals to questions to metrics. This document enables the evolution through the other phases of GQM. The GQM plan contains the output from the first three steps of the GQM process.

The Measurement Plan describes the concrete measures necessary to generate the metrics defined in the GQM plan. It establishes the detailed procedures for collecting the measurement data and for the generation of the identified metrics (what data is collected, how it is to be collected, by whom, and when). It serves to guide the activity of the Data Collection phase. Developing this plan is part of step 3 of the GQM process.

The Analysis Plan specifies how to analyze, aggregate, and present the collected measurement data in ways which are meaningful to the stakeholders. It provides guidance on how the information should be organized in order to ensure that the focus remains on the goals. The GQM canonical process description does not include explicitly this plan. It is inherently a subject of steps 4 or 5 that address developing data collection mechanisms and analyzing the data.

4. GQM IMPLEMENTATION FOR THE FORSEE PROJECT

4.1. FORSEE Evaluation Objects

The evaluated area of the project was structured in 5 entities called evaluation objects (EOs). Obviously this area was centred on the RFE Implementation stage, but it included also the RFM phase from the RFE Preparatory stage, due to the relevance of this methodology for the overall contribution of the project (FORSEE, 2014a). The Evaluation Objects were defined during the GQM planning phase. For each EO its identification and covered activities are as follows:

EO1 – the "*RFM and RFE action plan design*" object: design of the RFM, the Foresight workshop and adoption of the RFM, elaboration of an RFE implementation plan.

EO2 – the "*Consultations*" object: initial themes & topics identification, online themes survey, PESTLE/SWOT analyses of 7 ICT themes, deep analysis of 3 selected themes, National and Regional Open Consultation events, post-ROC online survey, selection of the pilot exercise thematic domain.

EO3 – the "*Future images*" object: development of a methodical process for devising skeletons of future images, implementation of the 'Futures' workshop for designing future states of the DC domain evolution in SEE.

EO4 – the "*Choice*" object: consultation with regional experts and stakeholders to assess the likelihood and desirability of DC developments, implementation of the 'Choices' workshop to select the most favourable future for DC.

EO5 - the "*Policy Recommendations*" object: interviews with regional experts to collect ideas for policy recommendations, implementation of the 'Recommendations' workshop, consultation with regional stakeholders and finalisation of policy recommendations.

4.2. FORSEE evaluation framework

This framework was structured as follows.

(a) **Evaluation Object description** including information about:

- (a1) Timeframe: EO duration and its starting time according to the logical interdependencies with other project activities.
- (a2) Activities: the EO coverage on the project activities map with indication of specific inputs, outputs and implemented methods for each activity.
- (a3) Actors: participants to the EO activities (project partners, external experts, stakeholders).

(b) **Evaluation Object goals**: detailing the specific goals of the EO activities.

(c) **Questions, Metrics and data collection**: presenting the set of questions defined for each goal to help identifying the metrics necessary to evaluate at what extent the respective goal was achieved. The list of possible metrics includes the number of participants in event, the number of received answers in online survey, methods/criteria of selection used, and the number of interviews. Relevant collected data necessary to support this evaluation process are presented for each metric.

The results of the EO description are synthesized in a table linking specific goals to metrics and collected data for each metric.

(d) **Interpretation and assessment of achievements**: this phase is structured into two steps. During the self-evaluation step the team in charge with the EO evaluation gives an interpretation of the collected data and proposes answers for the identified questions.

The second step of the interpretation process is dedicated to the neutral evaluation made by external experts. Using the self-evaluation report the assessment of metrics per question is made, followed by the provision of an overall assessment of the achievement stage for each goal. During this step the lead partner is in contact with the external experts in order to provide all additional information and project documents that may be considered necessary. Table 2 illustrates the logic of this process.

Table 2. The neutral evaluation logic

Goals	Assessment results of Q1 metrics	Assessment results of Q2 metrics	Assessment results of Q3 metrics	Assessment results per goal
EO1/G1	H	H	F	H
EO1/G2	P	F	H	F
EO1/G3	H	H	H	H
...				

H – high, F – fair, P – poor

Source: (FORSEE, 2014a), p.6

5. EO5 SELF-EVALUATION RESULTS

According to EOs distribution between partners decided at the project coordination board level, the Romanian partner received the responsibility to self-evaluate the EO5 - "*Policy Recommendations*". The authors of this paper were in charge with this task. The implementation of the GQM based self-evaluation framework for this evaluation object is illustrated below, using their project deliverable (FORSEE, 2014b).

(a) **EO5 description**

(a1) Timeframe

The EO5 activities were implemented between months 18-23 of the RFE. It was preceded by the EO4 and followed by the final RFE activity - the preparation of the Final Regional Foresight Exercise Report.

(a2) Activities

The EO5 covered the following activities:

EO5/A1 - Preparation of the expert interviews

These interviews were meant to collect ideas about policy recommendations from selected regional DC experts with experience in policy advice. In order to introduce them to the context and relevant intermediary results of the RFE, a "reading material" was elaborated at the project level and distributed in advance to all available experts. The input for this activity was provided by the "Future Images" project workshop dedicated to select the most favourable future for the DC thematic domain, which was run during the EO4.

EO5/A2 – Plan, schedule and run the expert interviews

The interviews were preliminarily planned based on the nominations made by each partner, representing the academia, industry and users' community / civil society from each country. Then, invitation letters were sent, the experts' availability was checked and the final schedule of interviews was agreed. The recommended method for running the interviews was 'face-to-face', but online version was also accepted for remote expert. Each expert was provided in advance with the "reading material" and additional project documentation at her/his request. After interviews online Q&A refinement sessions were scheduled on a case-by-case basis. The outputs of this activity were the interview recorded abstracts and per country Interview Reports.

EO5/A3 - Preparation of the input material for the 'Policy Recommendation' Workshop

The main input for this activity was the output from the previous one. The country reports were used to generate a joint list of policy recommendations at the regional level, which was structured according to the main policy areas agreed at the consortium level: DC creation & use, Technological areas supporting RDI, Education & skills development, Economic & business environment for DC Innovation.

EO5/A4 - Running the "Policy Recommendations" workshop
This main EO5 activity used as input the preliminary list of policy recommendations provided by the EO5/A3 and the "Guided Break-out Working Sessions" method implemented for running the workshop. Besides representatives of project partners the event was attended by regional experts in the DC thematic domain with policy advice / policy making expertise. Parallel working sessions dedicated to each policy area were organized, where a limited number of priority recommendations per area were formulated. The results provided by each working group were passed through so called "robustness check" and "skeleton variables check" to validate their implementation feasibility and compliance with the selected DC future state.
EO5/A5 - Evaluation and refinement of the "Policy Recommendations" workshop results
During this activity the results of the parallel working sessions were refined through cross validation between working groups and the first version of the "Policy Recommendations" Output paper was issued. The document was finalized based on comments provided by SEE countries' stakeholders and experts.

(a3) Actors

Actors involved in this EO are: project partners, SEE countries' stakeholders and experts.

(b) **EO5 goals**

The following goals were formulated:
EO5/G1 - Exploit the consistency of results provided by the previous EO4
EO5/G2 - Demonstrate the effectiveness (relevance) of the participatory regional approach
EO5/G3 - Develop concrete (actionable) policy recommendations

(c) **Questions, Metrics and data collection**

The first part of this activity was devoted to formulate a set of questions per EO goal that would help identifying the quantitative or qualitative metrics for that goal. For the EO5 the following questions were formulated:
For the EO5/G1:

- Q5a/G1/Q1. Self explanatory input material for the interviews was delivered?
- Q5a/G1/Q2. Appropriate set of questions for the interview was formulated?
- Q5a/G1/Q3. Specificity of the favorable future state was obvious?

For the EO5/G2:

- Q5b/G2/Q1. Appropriate preparation of the interviews was achieved ?
- Q5b/G2/Q2. Appropriate external experts were interviewed ?
- Q5b/G2/Q3. Contribution of the interviews was valuable?
- Q5b/G2/Q4. Participation / engagement in the "Policy Recommendations" workshop was adequate?
- Q5b/G2/Q5. Methodology used in the workshop was appropriate?

For the EO5/G3:

- Q5b/G3/Q1. Adequate priority issues per recommendation area were identified ?
- Q5b/G3/Q2. Appropriate guidelines for the specification of recommendations were agreed upon ?
- Q5b/G3/Q3. Relevant quality check actions were implemented ?

The results of the second part of this activity, linking goals with identified metrics and collected data are presented in Table 3.

(d) **Interpretation and assessment of achievements**

To illustrate the content of this phase, the main ideas derived from self-evaluation of the EO5 are outlined:

Table 3. The Goals / Metrics / Data links for the EO5

Goal	Metric	Collected data / information
EO5/G1	Relevance of the "reading material" content	Short description of future states, elaboration on the most favourable future, evaluation of its impact on the economy, education and research, society at large, and SEE collaboration; results of the future states survey; discriminating potential of the future skeleton variables.
	Planned focus of interviews on DC domain and Foresight-related Recommendations	The basic set of 6 questions adapted / extended according to interviewed experts' competence profiles and responsibilities.
	The discrimination power of the skeleton variables	Only one variable (i.e. 6% of the full list) has the same value with more than one other future state, which means that variables have the potential to differentiate between various future states.
EO5/G2	Joint Project Partners' contribution to preparatory activities	Contribution to the 'Reading material", contribution to the balanced representation of targeted expertise (DC and Foresight) and DC professional groups in the joint list of experts, specific / personalized invitation letters explaining the interview context and objectives for the availability check.
	Number of identified and available experts for interviews	33 experts from 6 participating countries. The unavailability rate of invited experts, mainly due to very busy period at the end of the year was about 20%.
	Appropriate representation of various DC professional groups	The available experts represented academia (45,5%), civil society and users communities (30,3%), DC industry and content producers (24,2%).
	A common understanding built among all interviewed experts	They were provided with the same information about project results related with the interview topic: the skeleton of DC future states and its variables; short profile of each state; detailed description of the selected most favorable future and its potential impact on economy, society, education and research, SEE collaboration; results of the FORSEE 'Future Images' survey.
	Perceived adequacy of the interview process	Principles of the participatory research were followed: democratic / neutral social and political context; willingness and confidence of the participants; a systematic effort to exploit the professional excellence and to stimulate / encourage the variety of views.

Goal	Metric	Collected data / information
	Interview process maturity	Interview process was structured, repeatable and manageable, in accordance with the agreed Guidelines for this activity.
	Responsiveness of interviewed participants	80% of questions were answered, engagement during face-to-face meetings was high, availability to answer post interview questions was evident.
	Satisfaction level of beneficiaries	The consistency of formulated views and opinions was good to very good: - all envisaged areas requiring policy attention/ policy intervention were addressed by a consistent number of ideas: DC creation & use (26), Technological areas supporting RDI (16), Education & skills development (16), Economic & business environment for DC Innovation (41); - the degree of coverage between expressed views facilitated the identification of priorities during the workshop; - time-frame and inter-conditionality related information about expressed views was less addressed.
	Partners representation in the workshop	All partners were represented in the workshop with a total of 18 representatives.
	External experts involvement	External experts represented 6 out of 8 project partner countries. There were 1-2 external experts per each break-out group.
	Working sessions with joint evaluation of results	The proposed methodology for the 'Recommendations' workshop is highly formalized and easy to assimilate: structured process, clearly defined responsibilities and expected results for each phase, quality indicators established. The WS Moderator's expertise and skills contributed to the effective implementation of all scheduled activities. All expected results were achieved.
	Perceived quality of the workshop process	- High interactivity and commitment at each group level; - Friendly working climate based on mutual respect and trust; - Breakout groups homogeneity; - Professional structuring of the team work: use of visual aids, the planned course of events and the introduction of various special working methods.

Goal	Metric	Collected data / information
EO5/G3	Number of identified priority issues.	During the workshop sessions 14 priority issues were discussed and detailed in terms of objectives, necessary activities, involved actors and implementation timeframe.
	Indicators for workshop results evaluation	At the end of the workshop the robustness and feasibility check was run for each priority recommendation.
	Dedicated template for policy recommendations elaboration	The opportunity of the document was decided during the RFE coordination meeting held after the "Policy Recommendations" workshop. The document was provided by the RFE coordinator (LP).
	Number and orientation of the aggregated policy recommendations	A number of 14 aggregated policy recommendations were specified addressing the following priority issues: "DC creation & use" (5), "Technological areas supporting RDI" (2), "Education & skills development"(2), and "Economic & business environment for DC Innovation" (5).
	Measures to validate policy recommendations	Interviewed experts and external experts attending the workshop had the possibility to study and comment the final list of recommendations. The closing international conference of the project provided the opportunity to discuss and collect opinions on this issue.

Source: adapted from FORSEE (2014b), pp. 4-5.

- activities of the EO5 were based on a consistent stakeholders' involvement, that makes this EO relevant for the participatory principle of the project;
- the planned number of interviews with experts from the region was met, but the representation of partner countries and various targeted groups was uneven (with most representatives coming from academia and business areas);
- the coordinated way of running the interviews was beneficial for the quality and consistency of of the input delivered to the "Policy Recommendation" workshop;
- a particular attention was paid to the relevance and quality of input materials that were delivered in advance to available experts;
- experts' contribution was consistent, but the formulated ideas addressed various areas of interest in an unbalanced way, with the main focus on economic and business aspects as compared with education and skills;
- the summary report on expert interviews played an important role in the successful running of the "Policy Recommendations" workshop;
- all project partners attended the workshop but only 6 countries were represented with external experts;
- during the workshop an intensive brainstorming was run to negotiate the region level priorities for each policy area and to detail them in terms of the tackled issue, main objectives, main actors and activities / measures for each objective;
- the quality assurance measures for the policy recommendations were carefully implemented: the "robustness check" during the workshop, experts' comments on the Recommendation workshop output paper, and debates during the international closing conference; their effective contribution varied with a descendent shape in the presented order.

6. CONCLUSIONS

The FORSEE projects fulfilled its main goals: design and demonstrate a participatory platform for forward looking exercises; design and validate through a pilot exercise a methodology for performing regional Foresight exercises; develop a sustainable plan for institutionalising Foresight as a regional decision or policy making tool. The project was included in the top 6 projects with a high impact among 122 projects funded through the SEE Transnational Cooperation Programme. The successful implementation of the project confirmed the utility of the project evaluation activity for a complex project.

The self-evaluation component of this activity provides a timely and valuable feedback about the project performance. The neutral evaluation has the advantage of a clear view from outside that has the role to improve the project partners' confidence in their results evaluation and to consolidate the acquired experience during the projects. For the Romanian partner its contribution to the project self-evaluation presented in this paper was helpful to identify and prove such relevant success factors for this kind of projects as: the right mix of competences at the project consortium level and attention paid to complement it with external expertise if necessary; variety of stakeholders' categories (policy, academia, industry, civil society) and their views; project partners visibility (including personal contacts) at the level of national stakeholders' communities; careful design of the exercise with the main focus on methodology building and specification of its implementation process; relevant geographical coverage of the project consortium with respect to the exercise scope; attention paid to extract the maximal output at each phase, to process and document it; opportunity of project resources dedicated to exploit project outcomes, including measures for their long term sustainability.

The Goal-Based Approach is presently the most common type of evaluation model. It can be also found in business environments, where "management by objectives" is used to determine how well

there are the objectives met. Success or failure is measured by the relationship between the outcome of the program and the stated goals and objectives.

During our work we faced the challenge of balancing the quantitative analysis with qualitative aspects that are able to provide deep, actionable insights about the 'why' and 'how' aspects, which often gets ignored as we continue to be inundated with the 'what' 'where' and 'when' statistics. This issue should be further investigated to identify qualitative analysis methods that could complement the quantitative evaluation.

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