

A BASIC METHODOLOGY AND PLAN ORIENTATION FOR EVALUATION OF RESEARCH AND DEVELOPMENT ORGANIZATIONS IN VIETNAM

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Abstract:

Actually, the evaluation of research and development (R&D) organizations to serve the planning and re-structuring of the system of science and technology (S&T) organizations in Vietnam becomes an urgent need. Therefore, the authors of this paper want to share their points of view on the orientations of evaluation works of R&D organizations in Vietnam. The paper provides an approach to the problem through summarizing main contents on methodology for evaluation of R&D organizations (including: necessity of evaluation works; objectives of evaluation works; indicators, methods and procedure of evaluation works) and interprets necessary works, demands of resources and global plans for implementation which target a periodic practice of evaluation works.

Keywords: Evaluation; R&D organizations.

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1. Introduction

The evaluation of R&D organizations (called somewhere in this paper as research organizations) is not a novel practice for many countries in the world. Almost all the countries experienced in evaluation of research organizations, namely EU nations, Canada, China and others, implemented numerous researches for this matter and produced methodologies for evaluation of activities of public research organizations. Evaluation methodologies are established from determination of objectives, indicators and plan setting up to interpretation of results of evaluation. The purpose of these research works is to set up procedures of external evaluation to meet demands of actual contexts of every country and international practice. The implementation of evaluation works and the wide publication of results of evaluation are to target the enhancement of quality of scientific research and technological development works in R&D organizations, and at the same time, the improvement of management of S&T activities in global vision. This paper first presents main contents on methodology for

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evaluation of R&D organizations from research works which summarize experiences of numerous nations and organizations, on this basis, provides an interpretation of basic orientations for evaluation of R&D organizations in conformity with actual contexts of Vietnam.

2. Basic methodology for evaluation of R&D organizations

2.1. Necessity of evaluation

The OECD had made conclusive studies and clearly indicated²: the evaluation of public research organizations is a policy-type tool which is used to guide, to manage and to innovate R&D activities as well as investments in public R&D organizations. The evaluation is used also to set up, to balance and to allocate budgets among research organizations. The procedures and mechanisms of evaluation works were developed during recent decades to express responsibilities towards accountability of public expenditures. In addition, the evaluation is also a way to justify the allocation of research budgets and to show the active impacts of researches and the links to academic quality of research organizations and research teams under references to domestic and international standards. It is exactly an effective system to measure and to monitor effectiveness of research activities and the evaluation indicators are used for management and control of research organizations in public sectors.

For any country, the implementation of the national system of evaluation including the check of research organizations can be called as “*the System of efficiency-based research supports*”. In this system, the evaluation exhibits “strong” or “weak” impacts to allocation and distribution of resources. The evaluation system is classified as “strong” when policy makers can base their decisions on results obtained from completed evaluation works. In case of limited resources, the strong evaluation system is found very important when it is needed to support the “best” organizations and to eliminate “bad” ones. The system is classified as “weak” when it causes low impacts to decisions for allocation and distribution of resources. But, in practice, this type of systems sometimes could bring certain positive impacts when it enhances reputations of research organizations under evaluation (at least, these research organizations were evaluated). In this case, the weak system of evaluation could cause positive impacts to public research organizations because a good reputation remains a crucial factor for researchers and their organizations. Priorities offered to research organizations under evaluation

² This content is taken from a summarizing report on evaluation of research organization “*OECD issue brief: research organisation evaluation*”, www.oecd.org/innovation/policyplatform/48136330.pdf

are not purely measured by money volume of granted supports but also good reputations.

The connection of evaluation with strategic planning procedures of an organization is, in fact, the connection to evaluation of research and innovation policies. Public research organizations are part of a complex network of knowledge creating and using organizations where the realization of innovations depends on interaction with all the policies impacting them. In a vision of national contexts, the objectives of evaluation are to exhibit responsibilities towards accountability. In this approach, the supports for organizations are decided on basis of results of evaluation including indicators such as development, improvement of quality and propagation of research results.

For every research organization, the evaluation causes impacts to its strategic plan setting. The evaluation would support its institutional renovation or re-structuring measures. The evaluation is usually focused on activity efficiency and carrier development of each researcher as individual. Public research organizations can use the basic evaluation frame (rates of achieved objectives in certain period of time) to examine the development level of their research projects under implementation. It is also a tool to measure links between their research success and support volumes which would help research organizations reshape master research plans and implementation activities as targets for next evaluation.

2.2. Objectives of evaluation

The organizations which were in charge to set up methodologies for evaluation and to carry out evaluation works of public research organizations in the Netherland³ studied experiences from many countries. They concluded the systems of evaluation for research organizations which target the following three objectives:

- Improving quality of researches through evaluation of research activities on basis of international standards of quality and compatibility;
- Improving management and control works of research works;
- Exhibiting responsibilities towards accountability to managing institutions and sponsoring organizations, the Government and the society in general.

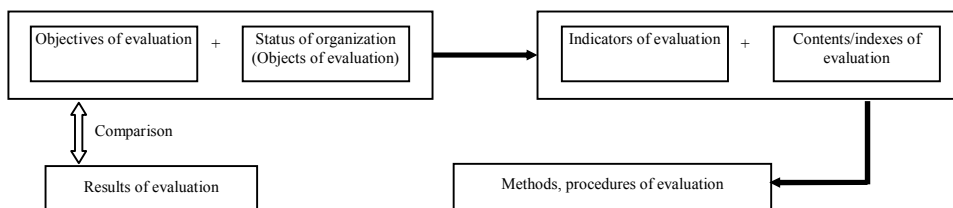
³ The three organizations including Association of Netherland Universities (VSNU), Netherland Royal Academy of Arts and Sciences (KNAW) and Netherland Scientific Research Organization (NWO) had concluded that the standard procedures of evaluation for research organizations were announced in 2003 and later which include: "Standard Evaluation Protocol, For Public Research Organisations" 2003-2009, "Standard Evaluation Protocol, Protocol for research Assessment in the Netherlands" 2009-2015 and 2015-2021.

The impacts from these evaluation works include:

- Enhancing cooperation ties among researchers (it is not researchers to be evaluated themselves but their research programs);
- Enhancing the rate of publications (particularly the volume of research papers published in international prestigious journals);
- Providing more powers to managers of research organizations. The evaluation gives credible backgrounds to managers and they use them as tools for control of quality;
- Enhancing importance of research support policy;
- Enhancing good reputation of those research organizations which get higher results of evaluation. In connection to that, the reputation of researchers in those research organizations gets higher too;
- Orienting public attentions to those research organizations and individual researchers which are evaluated as “weak” or “inefficient”. Not easy for them to exist further.

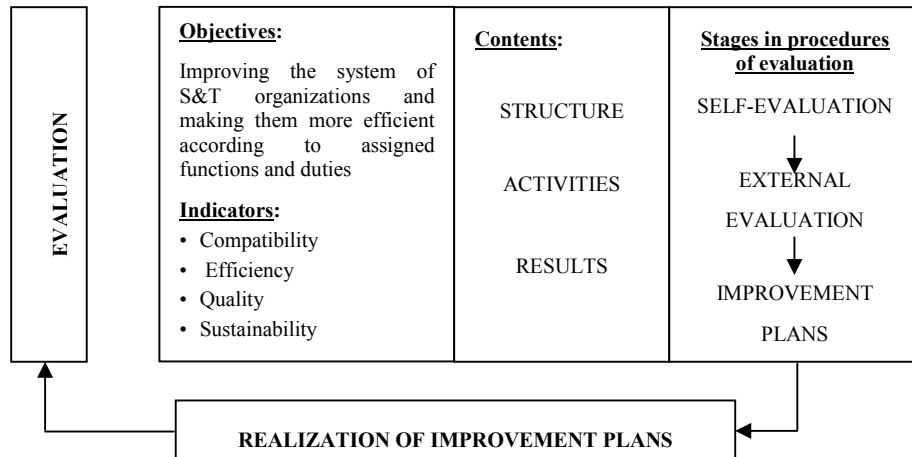
2.3. Indicators, methods and procedures of evaluation

The evaluation of research organizations is conducted according to inter-dependency concepts. The clear determination of objectives, targets and objects for evaluation would serve as background for decision of choice of indicators and contents of evaluation. The latter would decide accordingly the selection of actual methods and procedures of evaluation. And then, the obtained results of evaluation have to provide satisfying answers to the posed questions and to justify the objectives of evaluation. The inter-dependency concepts of evaluation activities of S&T organizations can be exhibited in the following scheme.



Scheme1. Inter-dependency links in setting up of methodologies for evaluation of research organizations

Taking references to methodologies for evaluation of R&D organizations from many countries, Spanish evaluators⁴ made conclusions that, for purpose to improve the system of organizations and to make them more efficient according to their assigned functions and duties, the indicators, procedures and contents of evaluation works are exhibited basically in the following scheme.



Sources: Spanish Association “Quality - the Assurances for Improvement”
http://www.aqu.cat/doc/doc_49578371_1.pdf

Scheme 2. Summary of procedures of evaluation of research organizations

In this scheme of evaluation, the indicators and corresponding contents are considered in many aspects as follows:

- Structural compatibility of S&T organizations, namely: functions and duties; strategic plans; organizational structure and leading mechanism; human resource structure and infrastructure.
- Efficiency of activities, namely: attraction and arrangement of human resources;
- Efficiency, quality and sustainability of produced results, namely: science-technology achievement, training of human resources, contributions to socio-economic development.

The above noted remarks as seen by evaluators as “guiding principles” of methodologies for evaluation of R&D organizations to serve public management works.

⁴ According to “Guide of the external assessment of R&D institutes” issued in 2008 by the Association “Quality - the Assurance of Improvement” in Spain.

If the objective of evaluation is to rank research organizations then the selection of indicators depends on common features of organizations in the system which are under ranking, individual features not being taken into consideration. The evaluation for ranking purpose provides rich visual information for some contents, such as additional source of information, driving force for healthy competition, improvement of quality and encouragement for improvement of quality of activities. The evaluation for ranking, however, has certain limitations⁵ such as challenge for selection of methodology (difficult to choose indexes and corresponding weights for evaluation to meet the global level of organizations under evaluation), lack of global acceptance, difficult adaptability to diversity of situations, consequence of unhealthy competition and contribution to exaggerate brain drain.

In the process of management of research activities, in certain concrete situations, there may appear other demands/objectives for evaluation of research organizations. The determination/selection of indicators and indexes suitable to meet these new demands/objectives turn to be very important and have to be made first.

For State S&T management agencies, the global evaluation of activities of research organizations for purpose to improve the system of organizations and to make them more efficient is needed to be carried out regularly. The 2013 Law on S&T regulates clearly: public S&T organizations need to be evaluated for purpose of State management⁶. On this basis, Minister of S&T issued Circular No. 38/2014/TT-BKHHC⁷ on 16th December 2014 to govern the evaluation of S&T organizations⁸, where it was said:

- Evaluation indicators need to cover globally activities of R&D

⁵ See the detail analysis in: Pham Xuan Thao *et al.* (2015) *Necessity of ranking of research organizations in Vietnam*. *Journal Science and Technology Policy and Management* (ISSN 1859-3801), Vol. 4, No. 4, pp. 48-56.

⁶ The 2013 Law on S&T stipulates: “Article 16. *The evaluation of S&T organizations targets: a) Offering backgrounds to rank S&T organizations; b) Serving activities to plan policies for S&T development and to set up the master plan for the network of S&T organizations; c) Serving as backgrounds for examination to select and to assign organizations to host S&T tasks, and to implement policies of investment priorities from State budgets, loans, supports, guarantees for loans from funds in S&T sectors; and* “Article 17. *Public S&T organizations need to be evaluated for purpose of State management*”.

⁷ See detail contents of Circular No. 38/2014/TT-BKHHC in: <http://www.most.gov.vn/Desktop.aspx/Van-ban-KHCN/Bo-KHCN/E5EB24DDFB3D450CA46186EAC163DE36/>. The contents of this Circular were set up on basis of integration of the actual contexts of Vietnam and international experiences. The authors of this paper were key members of the Editorial Team and the Drafting Board for the Circular.

⁸ According to the 2013 Law on S&T (Article 9), the status of S&T organizations includes: scientific research organizations, scientific research and technological development organizations (set up in form of academies, institutes, centers, laboratories, research stations, observation stations, pilot stations and etc.), higher education universities, S&T service organizations. However, Circular No. 38/2014/TT-BKHHC stipulates detail regulations for evaluation of scientific research and technological development organizations commonly called as R&D organizations.

organizations including 10 groups of indicators: (1) Evaluation of directions of development and action plans; (2) Evaluation of human resources; (3) Evaluation of finance resources; (4) Evaluation of equipment and material facilities; (5) Evaluation of information resources; (6) Evaluation of published scientific works; (7) Evaluation of technological results; (8) Evaluation of training works; (9) Evaluation of use of research results for socio-economic development; and (10) Evaluation of development and cooperation potentials. *Actual contents of group (1) deal with structural compatibility of organizations, groups (2), (3), (4) and (5) deal with effectiveness of activities, remaining groups deal with efficiency and quality of results of activities.* Every group of indicators includes some concrete sub-indicators to serve corresponding objectives of evaluation. The sub-indicators are measured by a set of indexes. These indexes play the role of quantitative backgrounds for experts to make conclusions in their evaluation for every indicator;

- Methods of evaluation are understood as to apply a system of scores for every indicator to quantify results. The score scale is from 5 to 1 from high level down to low level of evaluation which corresponds to wording way: excellent, good, rather good, medium and bad. The system of weights (additional coefficients) is also applied to assign to obtained scores of indicators to reflex flexibility of applicable assessment in conformity of actual features of activities of every research organizations under evaluation;
- Evaluation process passes two procedures, namely: (i) Self-evaluation by research organizations themselves, and (ii) External evaluation by professional evaluating organizations. The evaluation of research organizations is conducted on basis of information and data (reflecting the totality of activity aspects) for a period of 5 last years of activity - up to the time moment of the on-going evaluation.

In a global vision, the above noted indicators, methods and procedures of evaluation are established from integration of studies to meet the actual context of Vietnam and international experiences (as presented in the above parts).

3. Orientations for evaluation works of R&D organizations in Vietnam

3.1. Set of preparation works to be made and demands of resources

In Vietnam, for long past years, the assessment for evaluation of research organizations, in majority of cases, was heavily of administrative nature and

was conducted mainly during final stages of activities⁹. Therefore, the results of evaluation are found difficult to be used for operational activities as well as arrangement of resources (investments, human resources, coordination between units and etc.). For this reason, the evaluation works did not produce effects as efficient tools for management of research activities. Therefore, it is necessary to promote evaluation works of research organizations as required by Circular No. 38/2014/TT-BKHHCN. It is a new document to govern the evaluation of research organizations. This document serves as the first step to create the legal space for development of evaluation works to serve better the management of S&T activities. However, in order to implement effectively the evaluation works in the actual context of Vietnam, it would be favorable to complete certain moves as follows:

- (1) It is necessary to *promote and to extend activities of propagation of evaluation works for S&T activities in general and for research organizations in particular*. They serve to enhance the “culture” of evaluation among S&T communities. This is a factor of great value because they help push up the cooperation and coordination between concerned organizations in process of evaluation;
- (2) It is necessary to *conduct periodically the evaluation of research organizations in nationwide scale*. For that, in close future, it is necessary to *classify research organizations into groups and to build up the road map for the evaluation program* so that every research organization should be evaluated periodically. In initial stages, the evaluation, as pilot project, should be conducted for some priority sectors which are selected as representatives to stand for them, namely: natural sciences, technologies and techniques, medical and pharmaceutical sciences, social sciences and humanities, and agricultural sciences. Outcomes of the pilot project would let make adjustments and then permit to extend the evaluation to meet requirements of management works;
- (3) It is necessary to *take to consideration the invitation of overseas experts to participate in evaluation activities*. In initial stages of the pilot project for certain groups of research organizations, their experience and practice are found necessary for coordination with domestic experts. The mutual supports between domestic and overseas experts would let establish observations and conclusions which are

⁹ This remark was made on basis of surveys conducted by Vietnam Institute of S&T Evaluation for a series of Ministerial level research projects.

exact and suitable for Vietnam and compatible to international practice and standards. Here, domestic experts have deep insights of socio-economic contexts of Vietnam and then they may provide more exact visions on orientations, action plans and resources of groups of research organizations. From another side, the involvement of overseas experts would provide precious supports, on basis of their experiences, for important conclusions. Their role is highly crucial when we need the evaluation in those indicators which are connected to international standards;

- (4) It is necessary *to arrange reasonable finance resources for implementation of evaluation works for research organizations* according to regulations stipulated in Circular No. 38/2014/TT-BKHHCN. Here, for self-evaluation works, the finance should be taken from the budget of regular operations of research organizations under evaluation. For external evaluation works, the finance should be taken from budgets of S&T activities of research organizations under evaluation.

3.2. Options for implementation

During recent years, some newly issued important policies are directly connected to activities of S&T organizations in general and R&D organizations in particular. The most important ones are some Decisions by the Government, namely: Decision No. 2245/QĐ-TTg on 11th December 2015 for approval of the Project of Re-structuring S&T sectors up to 2020 and visions to 2030 linked to the shift of growth models for economic development; and Decision No. 171/QĐ-TTg on 27th January 2016 for approval of the Master Plan of the network of public S&T organizations up to 2020 and orientations up to 2030. For certain priority sectors such as biotechnology, the Prime Minister had approved the Master Plan of the network of institutes, research centers and laboratories in sector of biotechnology up to 2025 in Decision No. 1670/QĐ-TTg on 28th September 2015. In these documents, the rules for re-structuring, planning or investments for development of research organizations are oriented to realization of important objectives. Then, the evaluation of concerned organizations is crucial for effective implementation of these rules.

On basis of actual conditions, the study team sees that during the first 5 years (maybe from 2016 to 2020) the efforts should be focused on realization of evaluation works of individual organizations or groups of organizations which would provide direct supports for re-structuring, planning and investments for development of research organizations, as noted above. At the same time, it is needed to conduct analysis of the actual

situation of research organizations for purpose of *classification and establishment of road maps for periodical evaluation of groups of organizations*. The propagation and diffusion of evaluation works have to be conducted regularly, simultaneously with the implementation of actual evaluation works, through many ways such as workshops, training courses, public announcement of activities and evaluation results.

In future, since 2021 on, after establishment of road maps for evaluation of research organizations in the system of S&T organizations in Vietnam, we are able to conduct regular and periodical evaluation works for all research organizations.

4. Conclusions

The reasonable arrangement of evaluation works of R&D organizations over the whole country to meet demands of planning and re-structuring of the system is surely a difficult problem for policy makers. Facing the diversity of the system of S&T organizations in general and research organizations in particular, it is necessary to set up a global orientation and concrete implementation plan for purpose of initial references. Policy makers, research organizations and researchers should take part in implementation of evaluation works and then push up the development of organizations. They need to get a clear comprehension of the concepts and basic methodologies of evaluation. The authors of this paper would wish an early implementation of evaluation for R&D organizations as an effective tool for realization of policies for planning and re-structuring of organizations./.

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