



# The marketing system as a management form of the research and development results (transfer of technology)

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**Summary:** The usage of the results of research and development works realised by schools as well as scientific and technical backup of industry is unsatisfactory. This problem gains special importance in the period of economy transformation. Marketing can be used as a tool for managing the research and development works.

The proposed solution presents the following aims: the functions of the system of marketing the research and development works, its organisation and structure on the basis of the Polytechnic department. The model solution, in the scope of managing the research and development works, provides for gaining information, shows the channels of its distribution and usage, collecting and processing data with a usage of the marketing structure of a database.

## 1. INTRODUCTION

The problems of realising and using the results of research and development works by schools as well as scientific and technical backup of industry still exist. Particularly in the market conditions the question arises how to improve the realisation of these works, the sale of the results and how to gain new contracts and markets. One of tools helpful in the realisation of the above aims may be the development of marketing in this sphere of activity of schools as well as scientific and technical backup of industry.

Marketing is understood as, among others:

- market research and realising the exchange of the works' results through recognising and satisfying the needs,
- creating products and services through their promotion and sale,
- specifying the structure of the demand for particular products and services,
- creating the supply; interest and conveying information on solutions to potential users.

The realisation of marketing activity supports particular functions of managing the research and development activity, the transfer of technology; among others, works' planning, the organisation of their realisation, supervision. In the Institute of Researches and Production Development at Warsaw University of Technology, the researches and project works are conducted in the scope of establishing the system of marketing the research works' results, the transfer of technology. This system is supposed to be a helpful tool for managing the research works and their results in the Department of Production Engineering, and in the future at Warsaw University of Technology.

## 2. THE AIM OF THE SYSTEM OF MARKETING THE RESEARCH WORKS' RESULTS

The main aim of the system of marketing the research works' results – the transfer of technology is:

- to afford possibilities for conducting the marketing of the research works' results – the transfer of technology, on the basis of data accumulated in a homogenous format in a marketing database.

The detailed aims of the system of marketing the research works' results – the transfer of technology:

- to extend the use of the research works' results in economic operation,
- to stimulate the demand for conducting research and development works in a scientific unit,
- to facilitate the flow of information about elaborated, new technologies and solutions from the scientific unit to economic operation,
- to facilitate the transfer of recently elaborated technologies and solutions to economic operation, with a special consideration given to the sector of small and middle size enterprises. To facilitate the access for small and middle size enterprises to information about new technologies and solutions elaborated in the scientific unit, that could be used for modernisation of their production and raising competitiveness of their products on the market,
- to improve communication between the scientific unit and enterprises, with which cooperation has been established up to the present,
- to facilitate amassing information about the nature and duration of the scientific unit and enterprises cooperation existing hitherto,
- to facilitate gaining new industrial partners,
- to afford possibilities for better planning of research works in the scientific unit through recognising the needs of industry in the scope of new technologies and solutions,
- to facilitate fixing strategic directions of scientific researches in the scientific unit in compliance with the needs of the industry,
- to facilitate the operational and strategic management of the scientific unit,
- to afford possibilities for recording the results of the research works and the works in progress in a homogenous format,
- to enable the observation of the courses of research works' realisation in the scientific unit,
- to enable the observation of works connected with securing the intellectual property rights,
- to afford possibilities for collecting and storing information about institutions dealing with and supporting the transfer of technology and implementing the results of research and development works. Gathering information about the programmes, realised by those institutions, supporting the transfer of technology and technological databases,
- to facilitate the contact of the scientific unit with institutions dealing with and supporting the transfer of technology,
- to facilitate the coordination of actions with units dealing with and supporting the transfer of technology such as: Technique and Technology Agency, Transfer of Technology Centre at Warsaw Polytechnic, etc.,

- to enable the monitoring of the effectiveness of undertaken marketing actions in the scope of marketing the results of research and development works,
- to facilitate the planning of actions connected with the promotion of the results of research and development works, new technologies and solutions.

### 3. THE FUNCTIONS OF THE SYSTEM OF MARKETING THE RESEARCH WORKS' RESULTS

- Registration of newly started research and development works in the scientific unit.
- Updating /inserting and deleting/ the data on research and development works in progress about their realisation /each update must be archived/.
- Registration of research and development works complemented in the scientific unit.
- Registration and update of the data on research services offered by the scientific unit.
- Registration and update of the data of institutions dealing with and supporting the transfer of technology and implementing the research and development works' results.
- Registration and update of the data on technologies and solutions searched for by the industry.
- Registration and update of the data on enterprises cooperating with the scientific unit.
- Recording and update of the scientific unit's contacts with industrial partners, as well as the institutions supporting the transfer of technology and implementing the research and development works' results.
- Registration and update /the possibility of data importation/ of the data on enterprises with the scientific unit can establish cooperation.
- Administrating the data on:
  - research and development works in progress in the scientific unit,
  - research and development works complemented in the scientific unit,
  - research services offered by the scientific unit,
  - institutions dealing with and supporting the transfer of technology and implementing the research and development works' results,
  - enterprises cooperating with the scientific unit,
  - enterprises with which the scientific unit can establish cooperation.
- Informational cooperation with the environment:
  - granting access to information about the results of the research and development works completed in the scientific unit via internet /the database rendered accessible in internet/,
  - granting access to information about the research services offered by the scientific unit via internet / the database rendered accessible in internet/,
  - rendering the following accessible: the information about the research and development works in progress as well as the completed ones, the research services, institutions dealing with and supporting the transfer of technology and implementing the research and development works' results, the data on enterprises cooperating with the scientific unit, institutions with which the scientific unit could establish cooperation –within the scientific unit, to the persons concerned /the authorised ones, via internet/,
  - sending data to other databases, e.g. the Technique and Technology Agency.
- The possibility of receiving and registering /via internet/ the needs for new technologies and solutions searched for by the industry.
- Creating data specifications.
- Archiving and protection of data on the research and development works' results.

- Managing the research and development works carried out by the scientific unit.
- Fixing the research strategy of the scientific unit.

#### **4. THE OPERATIONAL ORGANISATION OF THE SYSTEM OF MARKETING THE RESEARCH WORKS (ENTERING DATA, SYSTEM LOCATION, AUTHORISATIONS FOR DATA ACCESS)**

The system of marketing the research works is to enable gathering data, rendering the data accessible, and archiving the data on:

- the research and development works realised in the Department and the ones in progress,
- the research possibilities and the unique research materials in possession,
- the units dealing with the transfer of technology.

Moreover, the system of marketing should enable:

- reporting the demand for new technologies and solutions from outside, via internet,
- gathering data on enterprises cooperating with the Department, as well as the ones with which the cooperation could be established.

The system should afford possibilities for collecting the information, presently scattered, mainly in possession of Institutes in form of “paper” documentation, and creating one assemblage, which will allow to carry out the effective marketing and will facilitate managing the research and development works. The present form of “paper” documentation, lacking a homogeneous, standard format, makes it difficult to rapidly render the data on research and development works accessible.

The system of marketing the research works provides for possibly easy and not very labour-consuming data entering with the use of an questionnaire/form with a prepared set of answers (in most cases it’s enough to choose the correct answer). However, in order to keep the forms flexible, the possibility of adding additional information has also been provided for. The data on the research and development works and the possibilities of making them accessible should be inserted into the system by a person from a team realising the research and development work (a person appointed by a manager of the team). The above solutions will allow not to charge the team with additional work, and will also eliminate mistakes that could appear while inserting the data by someone not being the member of the team. The inserted data should automatically replace the existing data. It would allow to keep a record of each research and development work. Owing to such organisation the system will require little operational work. The system will be located in the Department in the unit dealing with promotion of research and development works and the access will be granted to the users via intranet and internet.

The main users:

- The Dean - access to the whole system, to all databases, searching for and browsing the data as well as introducing new topics and research services newly offered by the Department.
- The Directors of Institutes - access to detailed data on all projects realised in a given Institute, searching for and browsing the data as well as introducing new topics and research services newly offered by the Institute, access to data on works realised in other Institutes, in compliance with general rules specified by a manager of each team realising a given research and development work, to the remaining databases, authorisation for searching for and browsing the data and introducing new data.
- The Manager of the Institute - access to detailed information about topics realised in a given Institute, searching for and browsing the data, introducing research services newly

offered by the Institute, the access to data on works realised in other Institutes, in compliance with general rules specified by a manager of each team realising a given research and development work, to the remaining databases, authorisation for searching for and browsing the data and introducing new data.

- A manager of research and development work /or a person authorised by him/her/ - unlimited access to data on research and development work realised by a team managed by him/her, searching for, browsing and introducing data (it should be specified whether they can be rendered accessible to all the users or only the chosen ones /the Dean, the Manager of the Institute, a Delivery Acceptance Committee/), the access to data on works realised in an Institute, other Institutes, in compliance with general rules specified by a manager of each team realising a given research and development work, to the remaining databases, authorisation for searching for and browsing the data and introducing new data.
- Scientific research personnel of the Department – access to data on works realised in an Institute, other Institutes, in compliance with general rules specified by a manager of each team realising a given research and development work, to the remaining databases, authorisation for searching for and browsing the data and introducing new data.
- A Delivery Acceptance Committee for research and development works – full authorisation for searching for and studying the data on works evaluated by the Committee, access to the remaining databases according to regulations related to the official duties performed by the members of the committee.
- External users – access to data on works realised and accomplished in the Department according to the rules specified by a manager of each team realising a given research and development work, searching for and browsing the data, the possibility of reporting the demand for a new technology, access to the database of research services offered by the Department, to searching for and browsing the data, no access to the remaining databases.

## 5. GRANTING ACCESS TO DATA

The collection of data on research and development works in progress in the scientific unit – granting access to persons authorised within the scientific unit /introducing, modifying, searching for and browsing data/, access to external users /via internet/ in compliance with the decision of a research work manager /searching for and browsing data/.

The collection of data on research and development works accomplished in the scientific unit - granting access to persons within the scientific unit /searching for and browsing data/, access to external users /via internet/ in compliance with the decision of a research work manager /searching for and browsing data/.

The collection of data on research services offered by the scientific unit – granting access to persons within the scientific unit, access to external users /via internet/.

The collection of data on institutions dealing with and supporting the transfer of technology and implementing the research and development works' results – granting access to persons within the scientific unit.

The collection of data on technologies and solutions searched for by the industry – gaining data /the possibility of inserting data through internet/ with the use of internet, granting access to the collected data to persons within the scientific unit.

The collection of data on enterprises cooperating with the scientific unit – granting access to persons within the scientific unit.

The collections of data on enterprises with which the scientific unit can establish cooperation - granting access to persons within the scientific unit.

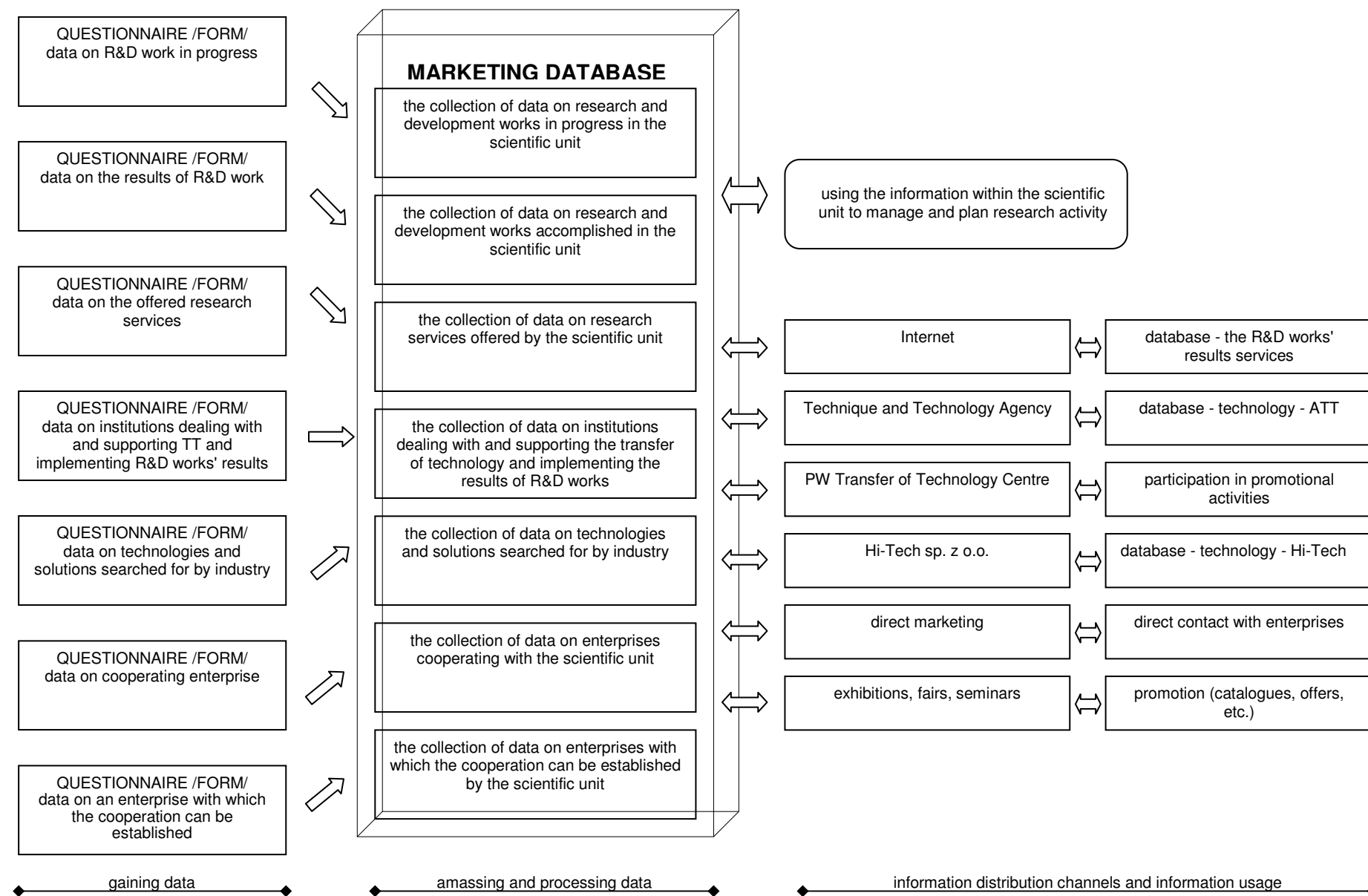


Fig. 1. A schema of the model system of marketing the research works' results – the transfer of technology based on a marketing database