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A public science product needs proper marketing : Polish experiences and challenges

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A public science product needs proper marketing: Polish experiences and challenges* / Wyniki badań naukowych prowadzonych na publicznych uczelniach wymagają odpowiedniego marketingu: polskie doświadczenia i wyzwania

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ABSTRACT

In this paper, the reader will find an analysis of Polish experiences with science-to-business marketing. Four case-studies are presented. Admittedly, the experiences with science marketing addressed to the business sector in Poland are still very poor; the analyzed cases can be treated like good practices to be followed.

KEY WORDS: science product, science marketing, science-to-business marketing

INTRODUCTION

Marketing of public science products has a key significance in the national economy in which – like in Poland – the vast majority of scientific production is being performed outside the business sector, i.e. at universities and other higher education institutions; in the Polish Academy of Sciences' research institutes; and in other R&D institutions, mostly public.

The main aim of this paper is to analyze Polish experiences with marketing of science products created in the public R&D sector. Additionally, the paper's aim is to attempt to formulate challenges faced by Polish R&D institutions in their marketing activities.

These two problems, i.e. the experiences and the challenges, are presented against the background of the specificity of the public science product marketing. The specificity of this kind of marketing is such that a public science prod-

uct is a public good, which is made thanks to tax-payers' money and so should be turned to good use.

The considerations in this paper refer mainly to scientific and technological solutions being created chiefly in engineering sciences. So, we are speaking about marketing pursued by the science sector and addressed to the business sector, i.e. science-to-business marketing that is a specific kind of institutional marketing.

This is an empirical paper based on the case-study method.

A BRIEF SURVEY OF LITERATURE

Considerations related to science-to-business marketing can be found rather not in the marketing literature but in the literature on management of innovation, technology transfer and commercialization, for exam-

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ple in: Baaken (2009), Baaken and Plewa (2009), Butler and Gibson, eds (2001), Bok (2003), Etkowitz (2002), Frischmann (2005), Isabelle (2007), Jolly (1997), Markman *et al* (2005), Shankar (2008).

The Polish literature on science marketing is very poor. Only few authors deal with marketing of research and innovation. Bialon in her articles writes about marketing support for management of research results (2011) and the principles of marketing of scientific research (2012). Jasinski in his papers has written on the promotion of scientific achievements as an element of public innovation policy (1998b) and science communication with society (2010) arguing that science in Poland needs good Public Relations (2003). Other authors in this field write about marketing of product innovation (Kruk, 2012), on innovation marketing as a whole (Pomykalski, 2001) claiming that this should be an internet, relationship and target marketing, and Trzmielak (2013) who writes about marketing for technology transfer and commercialization. Also, Bialon (2010) and Jasinski (1998a and 2012) investigate the relations between innovation and marketing. Earlier, as the first author in Poland, Jasinski (1992) presented a concept of the marketing of R&D and innovation. In turn, the Polish authors who write about management of research and innovation projects like, e.g., Kisielnicki (2013), Krawiec (2000) and Tylzanowski (2014), do not mention marketing.

A depressing picture emerges from the Polish literature. Bialon (2011), based on her empirical studies, notes that:

- R&D organizations do not run marketing research,
- they do not conduct research leading to a market segmentation,
- therefore, they have a small knowledge about a demand for new technologies from the side of enterprises,
- in most R&D institutions, there are no separate units/departments dealing with marketing research and activities,
- so, the marketing activity is a lacking link in management of innovation processes.

Therefore, according to Bialon (2010), science marketing may lead to narrowing the gap between science and business in Poland; marketing activities run by research organizations have – even a bigger than firms' marketing – role in coupling demands and supplies in the innovation market. Afterwards, she describes how a marketing-mix (5Ps) in R&D institution should look like.

As far as the market segmentation is concerned, such segmentation has been suggested by Jasinski (2010) who proposes to distinguish six potential target segments/markets for science marketing:

1. politicians, both central and regional/local authorities,
2. journalists, both from central and local media,
3. businessmen, mainly industrialists,
4. teachers and other workers in the education system,
5. youth, both pupils and students,
6. local communities.

SCIENCE-BUSINESS/INDUSTRY COOPERATION

Basic data on the science/R&D sector in Poland, which is in principle public, in 2012 are as follows (GUS, 2013a and 2013b):

- the number of higher-education institutions (HEIs): 210,
- the number of the Polish Academy of Sciences (PAS) research institutes: 70,
- the number of the other research organizations: 119,
- the share of researchers (FTE) employed in HEIs, PAS and the other institutes (totally) in the whole number of Polish researchers (FTE): 77.2%,
- BERD/GERD ratio: 32.2%.

At least one conclusion emerges from the above data: the vast majority of research performance/production is being performed outside the business sector.

The need for a proper science-to-business marketing in Poland results from the following weaknesses in the national system of innovation (NSI)¹:

- weak scientific-technological cooperation between the science and the business sectors,
- little demand for new technologies from the side of enterprises,
- practically non-existent science sponsoring,
- too narrow range of commercialization of scientific and technological solutions emerging in the public sector,
- small scale of diffusion of new technologies in the national economy, and
- last but not least, *poor marketing experience on the part of R&D institutions.*

A low level (intensity) of science-business cooper-

¹ More about the NSI in Poland in Jasinski (2006).

ation has been noted twice (Jasinski, 2006 and 2014). Also, other authors have confirmed this observation (Gwarda-Gruszczynska, 2013; Matusiak, 2010; Matusiak and Gulinski, eds, 2010; Trzmielak, 2013). An additional light has been thrown by the latest questionnaire research among enterprises in the Mazovia region of Poland. It turned out that (Systema, 2013):

- as much as 62% of the surveyed entrepreneurs negatively assess a possibility to establish collaboration with universities and other research organizations,
- only 13.2% can see such possibility,
- 57% of them just don't know how such cooperation should look like.

There exist various reasons for such a poor state of science-business relations. Some of them are universal. The two worlds - science and industry - speak different languages and there is a difference in labour conditions, status and wage levels (Cogan, 2001). In turn, Parker (1999) pointed here natural obstacles, such as: (1) academic tradition and values (teaching, publications, long horizon of research, etc.), and (2) industrial priorities and culture (profit, risk taking, short horizon of activities, etc.).

However, there are typically Polish barriers for such collaboration as a heritage of the past. Here we mean:

- an organizational separation of science from industry (deliberately designed after the second world war),
- a low mutual trust between researchers and entrepreneurs (Bal-Wozniak, 2012; Czapinski, 2013), and
- the scientist's ethos which didn't allow him/her 'to make his/her hands dirty' with practical applications of their scientific achievements.

The both parties mutually blame each other and the both are right (Jasinski, 2014): research organizations claim that firms create too little demand for new scientific and technological solutions whereas enterprises claim that R&D institutions offer too low supply of such solutions. Thus, marketing may be helpful in ensuring an increase both in the demand and in the supply, and so can lead to quickly developing markets of innovations.

POLISH EXPERIENCES WITH SCIENCE-TO-BUSINESS MARKETING

Poland has some positive experiences with science marketing or rather science promotion/communication with society (Jasinski, 2010). Here we mean actions

being undertaken by various institutions and organizations, such as:

- Science Festivals (the oldest initiative),
- Science Centre 'Copernicus' in Warsaw (opened in 2010),
- The Scientific Journalists' Association,
- Citizens of Science (the newest initiative).

However, their actions were and are addressed to society as a whole but not to the business sector.

Before passing further, two following assumptions have been adopted: (i) by science we here understand public science/R&D sector, and (ii) by business we mean both existing businesses/firms and new businesses in the course of establishing as well.

Now, let's ask the question: Who (which institutions) should deal with science product marketing directed towards industry in Poland?

- firstly, scientific organizations, i.e., HEIs, the PAS institutes and other research institutions,
- secondly, so-called bridging institutions facilitating knowledge flows from science to business,
- thirdly, governmental or semi-governmental agencies responsible for distribution of public funds for research and innovation.

THE CENTRAL MINING INSTITUTE

As mentioned, Polish research organizations suffer from poor marketing experiences. It doesn't mean, of course, that we can't meet exceptions. One of such examples, an institute of mining research, is analyzed below.

The Central Mining Institute (CMI) in Katowice, the Upper Silesia region, was established in 1945, just after the second world war. At present, this is the leading research institute in Poland. The Institute's activity concentrates on the problems concerning work safety, modern mining technologies as well as environmental protection against the effects of industrial activities, in particular mining. This is a relatively big organization: 578 employees, mainly R&D workers, were employed in CMI at the end of 2013 (GIG, 2014).

The Institute sales offer contains own scientific achievements, being the result of research projects financed by public funds and the projects ordered by industry. Those are both new products and technical equipment

as well as new manufacturing and exploitation technologies applied in coal mines and not only there. CMI offers technical services, too. An important part of its activities is protection and commercialization of intellectual property (IP) - data presented further on. In the field of relations with business clients, CMI cooperates rather with bigger firms, e.g., LABEDY Steelworks, MASKPOL Protection Equipment Company, and EKO-BRYKIET Briquette Production.

The Institute comprises a Marketing and Foreign Cooperation Unit where six people work, including a press spokesman. Every year, an Information and Promotion Plan is made based on an Information and Promotion Strategy which – in turn – is an element of the CMI's Strategy. One of ten purposes of the present strategy is 'promotion and dissemination of the Institute scientific and technological solutions' (GIG, 2014), which seems quite obvious.

The Unit's actions are divided into external and internal communication. As far as the former is concerned, being here our main interest, the promotional activities consist in (GIG, 2014): media relations, management of crisis situations, corporate identity, lobbying and business relations, advertising, sponsoring and other public-relations instruments. As far as internal communication is concerned, it is worth mentioning the CMI two strategic documents, i.e., Strategy of Social Responsibility, received in 2009, and Corporate Foresight, prepared in 2010. Both of them constitute a basis for external communication and, of course, for the Institute's research programmes.

A composition of the main promotional tools being used by CMI is shown in the table (see further). The following conclusions result from it:

- the Institute uses ten basic promotional tools, apart from such traditional, routine information materials as: brochures, prospectuses, leaflets, bulletins and multimedia materials,
- most of them belong to public relations,
- they are addressed to three major groups of addressees: local communities or society as a whole, journalists and business entities,
- some of these activities are also conducted abroad, and
- a bigger diversity of promotional instruments is needed concerning various target groups. Here we mainly mean the business sector (small and medium-sized enterprises and big companies) which need a special attention.

In summarizing, we can conclude that: (i) CMI doesn't limit itself to research and marketing in mining, (ii) the Institute is very active in marketing addressed to business, too, and (iii) a broad spectrum of communication tools are being used there.

The following data (for 2012) confirm that CMI is a successful case thanks to its proper strategy, including promotional activities (GIG, 2014):²

- 18 inventive submissions sent to the Polish Patent Office,
- 26 gained patents and protection rights for utility patterns,
- 25 active agreements concerning licensing, know-how and patent shared rights, and
- 6 active implementation agreements with manufacturing firms.

Table. The CMI promotional tool-kit

No.	Promotional tool	Type of tool	Main addressees
1	Promotional seminars for potential partners (once a month)	public relations	business
2	Open days being organized by various Institute's research departments	public relations	local community
3	Electronic newsletter (on a regular basis)	public relations	society
4	Contests for journalists writing about CMI (four within last 15 years)	public relations	journalists
5	Press conferences (three to four per year)	public relations	journalists
6	Internet window 'Press File'	public relations	journalists
7	Advertisements in a weekly 'Trybuna Gornicza' (regularly once a week)	advertising	readers, incl. entrepreneurs
8	Sponsored articles and interviews in business regional and central newspapers	sponsoring	business
9	Direct, personal contacts by the Institute workers with business clients	personal selling/promotion	business
10	Shows at fairs and exhibitions (two to three per year)	additional promotion, often called sales promotion	business

Source: Jasinski on the basis of GIG (2014)

² Unfortunately, the Institute doesn't reveal data referring to promotion costs and incomes from business clients.



In the science marketing system, there is a role to be played by bridging institutions, such as HEI liaison offices, technology transfer centres, science/technology parks, innovation and entrepreneurship centres, and so forth. In Poland, they are called Innovative Activity Support Institutions (IASIs). Some of them are parts of research organizations; some are independent – they are public or private as well, mostly non-governmental organizations (NGOs). A universal opinion prevails that the present number of such institutions in the country is sufficient. However, according to our research (Jasinski, 2006 and 2014), they don't deal with the marketing of results of research projects conducted in R&D organizations. For instance, the University Technology Transfer Centre (UTTTC) as a kind of liaison office established in 1998 'for a better use of The University of Warsaw potential in economy' (The Senate's Resolution, 1998), doesn't run promotion of the University's research results among the business sector.

Such state of affairs does not mean that, in the country, we do not have good examples/practices of the bridging institutions dealing with marketing or, at least, promotion of (public) science products in industry. One of them is BioTech-IP Technology Transfer Office.

BioTECH-IP

BioTech-IP Technology Transfer Office was established in 2010 within the scientific consortium Biocentrum Ochota, made up by six research institutes of the Polish Academy of Sciences which are located on the Ochota Campus in Warsaw. Biocentrum Ochota has been founded to run large multidisciplinary research projects in biology, medicine and bio-engineering. BioTech-IP has created a Bio&Technology Innovations Platform.

Apart from promoting the intellectual and infrastructural potential of the Biocentrum Ochota institutes, the Office's goals are (BioTech-IP, 2014):

- 1) to support scientists working in the Biocentrum in patenting and IP-rights management, applicable R&D projects and commercialization of developed technologies, and
- 2) to promote the intellectual and infrastructural potential of the Biocentrum Ochota consortium, services offered by the Biocentrum Ochota institutes and cooperation between researchers and enterprises acting in the field of Bio-Tech-Med.

BioTech-IP TTO activities are as follows:

- assessment of market potential of new technologies,
- clarification and protection of IP rights for new inventions,
- financial support for PhD students carrying out research projects of a high commercial potential,
- scholarships for scientists during their interchange and practical training in industry,
- courses for researchers who plan to implement and commercialize their innovative technologies.

As seen, most of the TTO's actions are directed towards researchers, including PhD students, who would like to become entrepreneurs. Aside from that, BioTech-IP undertakes some marketing activities addressed directly to the business sector:

- 1) the Office organizes science-business brunches to gather researchers working in Biocentrum Ochota and experts from Bio-Tech-Med industry. Up to now, six brunches took place in which about 40 industrial representatives participated, and
- 2) the Office has prepared and produced three information brochures, both in Polish and English, and over 100 copies of a prospectus containing six technological offers. As for now, all of the materials are being sent to concrete business entities and distributed among industry's representatives during the brunches.

From the marketing point of view, we may treat the former as personal selling/promotion and the latter as public relations and direct mail.

Summarizing, BioTech-IP TTO operating on behalf of six research institutes, uses certain marketing tools addressed to business, however, this kind of actions seems to have a lower significance in the Office's activities. Moreover, since they started to deal with such activity only recently, it is too early to evaluate results.

THE NATIONAL CENTRE FOR RESEARCH AND DEVELOPMENT

Among various government agencies, the key role in the dialogue between science and industry is played by The National Centre for Research and Development (NCRD) in Warsaw.

NCRD was established in 2007 to fulfill goals of the national science and technology policy. The Centre's main task is management and execution of strategic research and development programmes which should lead directly

to an increase in the economy's innovativeness. Admittedly, NCRD was created with the main purpose to finance and co-finance research projects in applied sciences; it also deals with promotion of the science-business cooperation in a broad meaning, i.e., in a double sense:

- (i) by co-financing joint projects conducted by research organizations together with commercial firms or by enterprises alone, and projects run by young entrepreneurs of academic background, and
- (ii) by popularization of (a) results of programmes and projects (co)financed by the Centre and (b) beneficiaries of such programmes and projects, both research institutions and enterprises, and of their achievements mainly in commercialization.

NCRD uses a quite broad and varied set of promotional tools. Some of them are addressed to society as a whole. Here we mean such activities as (NCBiR, 2014): electronic newsletter being sent out every Friday to over 10,000 subscribers and a broad promotional campaign on radio and television, started in 2013, with cyclical broadcasts like: The Era of Inventions, Academic Entrepreneurship, Scientific Thursdays, etc.

Apart from that, the Centre applies various promotional instruments directed to business entities and research organizations at the same time, like:

- catalogue of the NCRD projects which is published once a year in Polish and English, and distributed during domestic and international fairs, exhibitions, congresses, conferences and symposiums,
- guides for beneficiaries, for example, *Good practices in projects' promotion* – a guide for the beneficiaries in Operational Programme 'Infrastructure and Environment',
- Internet interactive multimedia platform presenting the most interesting projects co-financed by the European Union structural funds, and
- just started BRIDGE Info – an information and advisory portal addressed to innovators who need more knowledge on commercialization.

It must be added that, in 2013, NCRD initiated BRIDGEVC – a new programme with the purpose to have more venture capital (VC) engaged in the innovation projects co-financed by the Centre. Thanks to an effective promotion of this programme, NCRD succeeded to attract some VC funds from the country and abroad.

As a result of the Centre's activities, 2,755 agreements were signed in 2010-2013 within 84 programmes; among

them 1,637 agreements (almost 60%) were concluded with firms who applied jointly with research organizations or individually (www.nauka.gov.pl).

To sum up, one can put forward the following conclusions:

- the National Research and Development Centre works partly as a government agency financing the research and innovation projects, and partly as a bridging institution,
- the Centre plays an important role as an animator of the innovation market and sometimes even as its participant, and
- NCRD applies a quite broad spectrum of public-relations instruments. Nevertheless, the Centre should also use other promotional tools while approaching the business sector, for instance, organizing three-party meetings to couple research institutions with commercial enterprises.

THE FOUNDATION FOR POLISH SCIENCE

A certain but not a big role in public science promotion is played by The Foundation for Polish Science (FPS).

FPS was appointed in 1991 as a semi-governmental institution. Now, this is a non-governmental and non-profit organization which pursues the mission of supporting science as such. The Foundation is the largest source of science funding in Poland outside the state budget. FPS fulfills its statutory purposes through (1) supporting distinguished scholars and research teams in all fields of inquiry, (2) modernizing research facilities and (3) assisting innovative ventures and commercialization of scientific achievements, especially inventions.

As far as the third purpose is concerned, FPS has run programmes mainly addressed to young, ambitious researchers-entrepreneurs. One of such initiatives was the 'Innovator' programme, the main aim of which was a complex, i.e., financial, training and advisory, support for persons or teams being authors of ideas having an implementation capacity and a commercial potential or/and being owners of patents or patent submissions.

The programme was carried out in three editions in 2006-2008. Each edition was divided into three stages:

- Stage 1 a qualification/selection of innovative projects (new production technologies or services),
- Stage 2 co-financing the best projects and business-plans, and an administrative assistance for establishment of own businesses, and

Stage 3 the laureates directed to financial institutions with the FPS assistance in negotiations with them. Its aim was to arrange a financial montage.

The Programme results were as follows (FNP, 2014):

- the number of participants: 46
- the number of laureates: 7,
- the number of established firms: 6.

Up to now, the biggest financial support from outside the Foundation was gained for two enterprises/initiatives: Apeiron Synthesis (from the EU structural funds) and Medicalgorithms (from Polish private investors). Both firms successfully operate in the medical market; the second one is entering the stock exchange now.

Nowadays, FPS is conducting two business-oriented programmes:

- ‘Ventures’ – offering financial support for innovative projects carried out by young researchers. There were as yet 11 contests, 90 laureates and 79 business partners identified, and
- ‘Impulse’ – contests for the best research project having a commercial potential, offered not only to young scientists. As for now, 21 applications have come through a formal assessment.

One of beneficiaries within the ‘Ventures’ programme is Grzegorz Gorczyca from Chemical Faculty in Gdansk University of Technology who has received a substantial financial support to his project on new polymeric materials for use in a medical treatment. FPS has helped him to align contacts with ten potential business partners. From among them, negotiations are being continued with 3M Poland Manufacturing in Wroclaw and GCZM Zarys in Zabrze.

As seen, The Foundation for Polish Science operates in this field as a bridging institution. FPS runs the programmes supporting a commercial use of ideas created by science-based entrepreneurs. The support tools being

applied by the Foundation can be treated as sponsorship.³

CONCLUSION AND CHALLENGES

A general conclusion emerges on the basis of the considerations in this paper: the experience gained by public organizations and institutions with science marketing addressed to the business sector in Poland is so poor that science-to-business marketing is still in its infancy. Admittedly, the four cases analyzed here seem to be good practices. However, it is research institutions which, first of all, should deal with such activity.

Against this background, the following challenges can be formulated towards scientific organizations and other public institutions responsible for science-to-business marketing:

1. these organizations and institutions should derive with full hands from the experiences gained in this field by research organizations in highly developed countries (HDCs),
2. there is an urgent need for a broad exchange of good practices among scientific institutions in Poland,
3. their marketing activities should take into account the specificity of the public science product, and
4. it should be a comprehensive marketing-mix containing not only product and not only promotion/communication described in this paper. There are also the other three Ps.

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³ Kotler (1998) includes sponsorship into public relations.

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