Docket: 2014-1254(IT)I

BETWEEN:

HYPERCUBE INC.,

Appellant,

and

HER MAJESTY THE QUEEN,

Respondent.

[OFFICIAL ENGLISH TRANSLATION]

Appeal heard on December 3, 2014, at Montréal, Quebec.

Before: The Honourable Justice Lucie Lamarre

Appearances:

Agent for the appellant:	Karl Villeneuve
Counsel for the respondent:	Valerie Messore

JUDGMENT

The appeal from the assessment made by the Minister of National Revenue under the *Income Tax Act* for the taxation year ending April 30, 2012, is dismissed in accordance with the attached Reasons for Judgment.

Signed at Ottawa, Canada, this 17th day of March 2015.

"Lucie Lamarre"

Lamarre A.C.J.

Translation certified true
on this 20th day of May 2015
Michael Palles, Translator-Language Advisor

Citation: 2015 TCC 65
Date: 20150317
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REASONS FOR JUDGMENT

Lamarre A.C.J.

INTRODUCTION

[1] Hypercube Inc. (**the appellant**) is appealing from an assessment regarding the taxation year ending April 30, 2012, by which the Minister of National Revenue (**Minister**) disallowed an amount of $28,800 claimed as scientific research and experimental development (**SR&ED**) expenditures.

[2] The Minister submits that the expenditures do not fall within the definition of SR&ED given in subsection 248(1) of the *Income Tax Act* (**ITA**) and that the appellant is therefore not entitled to investment tax credits under subsections 127(5) and 127(9) and section 127.1 of the ITA. All the SR&ED expenditures that were claimed and disallowed were accepted by the Minister as business expenses.

[3] The appeal was filed under the informal procedure.

FACTS

[4] The appellant operates a business that has been providing information technology services since 2009. Over the years, the appellant has built up an expertise in programming Web sites. It is a business with five employees.

[5] Karl Villeneuve is the appellant's founder, president and sole shareholder. He was the only witness to appear for the appellant. Mr. Villeneuve has a bachelor's degree in business administration, finance and marketing from Bishop's University and a Master of Business Administration (MBA) degree from the Université de Montréal. He took several courses in computer science and earned a certificate from Seneca College for technical computer training.

[6] For 2012, the appellant claimed an SR&ED credit for a computer program it was developing.

[7] According to the documentation provided, the project consisted of developing a program to read and analyze source code from Web sites to detect weaknesses (Reply to the Notice of Appeal, paragraph 8(g); Tab 1 of Exhibit I-1, page 3, form T661).

[8] At the hearing, Mr. Villeneuve stated that the program was supposed to be able to inspect and check Web sites and was more than a just a tool for detecting defects (transcript, page 22).

[9] Two other people worked on developing the program with Mr. Villeneuve: Jean-François Noël and Jean-Simon Lyonnais. These two other people have a computer science background. Jean-François Noël has a degree in computer science from Bishop's University, and Jean-Simon Lyonnais is a computer graphics designer and programmer who received his training at the Centre de formation professionnelle Jacques-Rousseau. Neither of them appeared in court to give their scientific point of view regarding the project.

[10] The SR&ED expenditures claimed by the appellant are the wages paid to the employees who took part in developing the program. However, the logs showing the hours worked record only Mr. Villeneuve's work (Tab 8 and Exhibit I-1).

[11] Mr. Villeneuve stated that he began thinking about this project in 2010 and discussed it with the appellant's other employees around the beginning of 2012.

The project was the product of a reconsideration of the various programming tools available.

[12] Currently, when a programmer analyzes a Web site's code to find weaknesses and optimize performance, the programmer analyzes the code manually, page by page. The appellant wanted to use the program to automate this analysis. Mr Villeneuve explained that the appellant's goal was to develop a new technique to allow programmers to work more efficiently. The program was supposed to analyze the Web sites' code quickly and help the programmers do their checks.

[13] The initial hypothesis on which the project was based, as Mr. Villeneuve mentioned in his testimony, was that if a new way of performing Internet diagnostics was adopted, significant effects in terms of technological advancement could be observed (transcript, page 15).

[14] With this hypothesis established, the appellant's employees conducted research to determine whether there was an existing technology that could be used to carry out the project, or whether it was possible to achieve this by improving on existing technologies.

[15] Mr. Villeneuve claimed that no existing solution or technology could be used to test the hypothesis. This is why, he said, the appellant developed the program.

[16] Mr. Villeneuve explained that the program was based on a "crawler". According to his explanations, a crawler is a computer program that reads a Web site's source code. It is created by writing a computer program. The appellant therefore wrote a crawler as the first step in developing its program. On cross-examination, Mr. Villeneuve noted that crawlers are a commonly used tool in computer science (transcript, page 70).

[17] As I understand it, the appellant's crawler had to inject itself into the Web site's source code to be able to collect the required information, analyze it, extract the necessary results and, finally, complete a full diagnostic of the Web site. The program had to be able to produce a diagnostic report in PDF format.

[18] Mr. Villeneuve noted that no existing technology allowed this to be done. Current technology, he explained, could not collect the information, validate it and retrieve it in the way they wanted it to. Mr. Villeneuve stated in his testimony that

the program would improve the underlying technology. He described the underlying technology as being various programming languages (transcript, page 67).

[19] The witness said that the technological advancement was the creation of a new way of generating source code reports for Web sites. The technology that the appellant claims to have developed is able to seek out information in a Web site's code and retrieve it for the purposes of running a diagnostic.

[20] Mr. Villeneuve explained that the project was carried out methodically, using a process of [TRANSLATION] "trial and error". The appellant's employees analyzed whether they could retrieve an initial piece of information in a Web site's code, validated their attempt and then made another attempt to obtain a second piece of information, and so on. The work plan consists of a tree diagram of the program that was attached to the Notice of Appeal and filed as Exhibit I-1, at Tab 5, page 53.

[21] Regarding the technological uncertainties facing the appellant, Mr. Villeneuve stated that they were connected with the underlying technology. The uncertainties related to whether the underlying technology could be improved so that a crawler could be programmed as required to carry out the project.

[22] Mr. Villeneuve then spoke in more detail about what he saw as the problems they experienced in developing the program and explained the various measures taken to resolve them.

[23] An initial problem was that the program did not work for certain domain names that were being used by the Web sites being analyzed. Changes were made to the program so that it would work with all existing domain names.

[24] A similar problem arose with the different Web browsers that were being used to launch the program. In this case, the program did not work when it was used with certain Web browsers. The program was changed to make it compatible with most existing Web browsers.

[25] Another problem cropped up when the program was used more than 150 times a day. Mr. Villeneuve said that the problem was caused by a coding error in the program.

[26] Another difficulty detailed by Mr. Villeneuve arose when the program analyzed a Web site that was automatically redirected to another URL. The solution was to develop new code for the program.

[27] As supporting evidence, Mr. Villeneuve referred to the tree diagram of the crawler created by the appellant and to an Excel document showing the hours that the employees spent developing the program. These exhibits were attached to the Notice of Appeal and filed as Exhibit I-1, at Tabs 5 and 8. He noted that these documents showed all the hypotheses that were tested throughout the project. As was mentioned above, only Mr. Villeneuve's hours appear in the documentation provided.

[28] Mr. Villeneuve stated that the program's development did not generate any profit. He noted that the appellant had no short-term commercial goals and that this was an experimental project to improve existing technology.

[29] The respondent called Roger Andria as an expert witness. Mr. Andria is a research and technology advisor with the Canada Revenue Agency (**CRA**). He has a bachelor's degree in computer engineering from Université Laval.

[30] Mr. Villeneuve objected to the qualification of Mr. Andria as an expert witness. I found that although he perhaps did not have the required expertise to give expert testimony in the specific field relevant to this case, he could certainly testify as a CRA officer and give his reasons for determining that the project was not eligible for SR&ED credits under the applicable criteria.

[31] In Mr. Andria's view, the appellant developed a new product based on existing technology. He submitted that the appellant had not shown that the planned project could not be carried out using current technology.

[32] Mr. Andria asserted that the program was developed from existing computer languages. In his view, the problems experienced in developing the program were normal programming problems. All the problems were resolved by using existing programming techniques. Code correction is not considered to be a technological advancement. Rather, it is common practice in computer programming.

[33] Regarding the technological uncertainty criterion, he concluded that it was a matter of resolving problems with specific functions of the program on a case-by-case basis. He went on to state that, in its hypotheses, the appellant did not define

the technological uncertainties that were overcome and failed to explain how this represented a technological advancement in the field of computer science.

Issue

[34] The only issue before this Court is whether the work done by the appellant in developing the computer program constitutes SR&ED within the meaning of subsection 248(1) of the ITA.

Appellant's position

[35] The appellant submits that its activities constitute SR&ED. In its Notice of Appeal, the appellant alleges that its project consists of a series of related activities collectively required to achieve a technological advancement. It argues that the CRA's auditor divided the project into subprojects and assessed them as standard engineering practices. At the hearing, Mr. Villeneuve suggested that all the work done in developing the program constituted SR&ED because it improved the existing technology.

Respondent's position

[36] The Minister, on the other hand, submits that the appellant's expenditures are not covered by the definition of SR&ED given in subsection 248(1) of the ITA. The Minister alleges that the project does not involve any technological advancement and instead involves resolving discrete problems within the constraints of the technologies used.

ANALYSIS

[37] Subsection 248(1) of the ITA defines the phrase "scientific research and experimental development" as follows:

> "scientific research and experimental development" means systematic investigation or search that is carried out in a field of science or technology by means of experiment or analysis and that is
>
> (*a*) basic research, namely, work undertaken for the advancement of scientific knowledge without a specific practical application in view,
>
> (*b*) applied research, namely, work undertaken for the advancement of scientific knowledge with a specific practical application in view, or

> (*c*) experimental development, namely, work undertaken for the purpose of achieving technological advancement for the purpose of creating new, or improving existing, materials, devices, products or processes, including incremental improvements thereto,
>
> and, in applying this definition in respect of a taxpayer, includes
>
> (*d*) work undertaken by or on behalf of the taxpayer with respect to engineering, design, operations research, mathematical analysis, computer programming, data collection, testing or psychological research, where the work is commensurate with the needs, and directly in support, of work described in paragraph (*a*), (*b*), or (*c*) that is undertaken in Canada by or on behalf of the taxpayer,
>
> but does not include work with respect to
>
> (*e*) market research or sales promotion,
>
> (*f*) quality control or routine testing of materials, devices, products or processes,
>
> (*g*) research in the social sciences or the humanities,
>
> (*h*) prospecting, exploring or drilling for, or producing, minerals, petroleum or natural gas,
>
> (*i*) the commercial production of a new or improved material, device or product or the commercial use of a new or improved process,
>
> (*j*) style changes, or
>
> (*k*) routine data collection.

[38] The case law has established five criteria for determining whether a particular activity is SR&ED. These criteria were laid down by Judge Bowman in *Northwest Hydraulic Consultants Ltd. v. Canada*, [1998] T.C.J. No. 340 (QL), [1998] 3 C.T.C. 2520 (T.C.C.) at paragraphs 14, 15 and 16. These criteria were cited with approval by the Federal Court of Appeal in *RIS-Christie Ltd. v. Canada*, [1998] F.C.J. No. 1590 (QL), 99 DTC 5087, at paragraph 10. The Federal Court of Appeal summarized these criteria in *C.W. Agencies Inc. v. The Queen*, 2001 FCA 393, [2002] 1 C.T.C. 212, at paragraph 17, as follows:

> 1. Was there a technological risk or uncertainty which could not be removed by routine engineering or standard procedures?

> 2. Did the person claiming to be doing SRED formulate hypotheses specifically aimed at reducing or eliminating that technological uncertainty?
>
> 3. Did the procedure adopted accord with the total discipline of the scientific method including the formulation, testing and modification of hypotheses?
>
> 4. Did the process result in a technological advancement?
>
> 5. Was a detailed record of the hypotheses tested, and results kept as the work progressed?

[39] In *Northwest Hydraulic*, *supra*, Judge Bowman made the following observations on the question of whether there is a technological risk or uncertainty (at paragraph 16):

> Implicit in the term "technical risk or uncertainty" in this context is the requirement that it be a type of uncertainty that cannot be removed by routine engineering or standard procedures. I am not talking about the fact that whenever a problem is identified there may be some doubt concerning the way in which it will be solved. If the resolution of the problem is reasonably predictable using standard procedure or routine engineering there is no technological uncertainty as used in this context.
>
> What is "routine engineering"? It is this question, (as well as that relating to technological advancement) that appears to have divided the experts more than any other. Briefly it describes techniques, procedures and data that are generally accessible to competent professionals in the field.

[40] As was noted in *Zeuter Development Corporation v. The Queen*, 2006 TCC 597, at paragraph 22, "[s]oftware development can certainly be eligible as SR & ED on the basis that its goal is to advance computer science or information technology".

[41] The onus is on the appellant to show, on a balance of probabilities, that the expenditures it made relate to SR&ED within the meaning of subsection 248(1) of the ITA.

[42] In the present case, I am not satisfied that the appellant's work goes beyond routine engineering or standard procedures, as is required to find that the work constitutes SR&ED.

[43] The technological advancements and technical obstacles of this project are set out in the T661 report prepared by the appellant (Tab 1, Exhibit I-1). At the

hearing, Mr. Villeneuve explained what he believed to be the technological uncertainties that were overcome to develop the program and achieve a technological advancement.

[44] However, the appellant has not satisfied me that the technological uncertainties that it overcame could not have been removed by routine engineering. On the contrary, the evidence showed that the appellant used standard software development techniques to deal with the various difficulties it experienced.

[45] In my opinion, the appellant's activities were generally accessible to competent professionals in the field. Mr. Villeneuve himself mentioned that a crawler is a commonly used tool in computing. Even if the crawler was developed to accomplish new actions, the evidence showed that the appellant used commercially available programming tools and existing computer languages.

[46] In my view, the testimonial evidence shows that all the difficulties described by the appellant were resolved in the end by using recognized programming techniques to modify the program's code. The appellant confined itself to using available computer languages. In my opinion, the program's development did not go beyond the limits of current technological standards. It seems to me that the solutions that the appellant used are standard techniques and not the product of a technological advancement. As Mr. Andria mentioned in his testimony, the programming problems that arose during the program's development were normal ones.

[47] Although the appellant's program could constitute an entirely new product, it was created using well-known techniques. Novelty or innovation in a product is not sufficient to illustrate technological advancement (*Zeuter Development Corporation*, *supra*, at paragraphs 23 and 24).

[48] Moreover, the appellant produced very little evidence documenting its project. The only documents introduced in evidence are the program's tree diagram and a log of hours worked. This tree diagram was not specifically explained in Court, and the time log does not appear to reflect reality. I do not think that this evidence is sufficient to support an SR&ED claim as prescribed by the ITA. On this point, I think it is helpful to note the words of Justice Little in *Zeuter Development Corporation v. The Queen*, *supra*, at paragraph 28:

> [28] In passing, an overall observation of the case is that no adequate supporting documentation has been provided by the Appellant. While not

> absolutely necessary, it is beyond doubt that a taxpayer who creates a well-supported claim will facilitate the process in determining whether something qualifies as SR & ED. As stated in *RIS-Christie*, the only reliable method of demonstrating that scientific research was undertaken in a systematic fashion is to produce documentary evidence. The Appellant has not presented sufficient facts to support his claim as a systematic investigation or search that is carried out in the field of science or technology as specifically required in the definition of SR & ED.

[49] The appellant has not succeeded in showing on a balance of probabilities that the development of its program constituted SR&ED within the meaning of subsection 248(1) of the ITA. The taxpayer's appeal is dismissed.

Signed at Ottawa, Canada, this 17th day of March 2015.

"Lucie Lamarre"

Lamarre A.C.J.

Translation certified true
on this 20th day of May 2015.
Michael Palles, Translator-Language Advisor

CITATION:	2015 TCC 65
COURT FILE NO.:	2014-1254(IT)I
STYLE OF CAUSE:	HYPERCUBE INC. v. HER MAJESTY THE QUEEN
PLACE OF HEARING:	Montréal, Quebec
DATE OF HEARING:	December 3, 2014
REASONS FOR JUDGMENT BY:	The Honourable Lucie Lamarre, Associate Chief Justice
DATED:	March 17, 2015

APPEARANCES:

Agent for the appellant:	Karl Villeneuve
Counsel for the respondent:	Valerie Messore

SOLICITOR OF RECORD:

For the appellant:

Name:

Firm:

For the respondent: William F. Pentney
Deputy Attorney General of Canada
Ottawa, Canada