

Dossier : 2021-3161(IT)G

ENTER:

DAZZM INC.,

caller,

And

HIS MAJESTY THE KING,

respondent.

Appeal heard on March 27 and 28, 2024 in Montreal (Quebec)

In front of: The Honorable Judge Jean Marc Gagnon

Comparutions :

Counsel for the appellant: Me Extra Junior Laguerre

Respondent's attorneys: Me Anne-Élizabeth Morin
Mr Julien Dubé-Senéal

JUDGEMENT

In accordance with the attached reasons for judgment, the appeal is allowed, with costs, and the reassessment dated January 22, 2020, for the appellant's taxation year ending June 30, 2018, is referred back to the Minister of National Revenue for reconsideration and reassessment on the grounds that the appellant incurred additional eligible scientific research and experimental development expenditures totaling \$270,167, and is entitled to the corresponding investment tax credit.

Signed in Montreal, Quebec, this 8th day of October 2024.

"JM Gagnon"

Judge Gagnon

Reference: 2024 CCI 129
Date : 20241008
Dossier : 2021-3161(IT)G

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REASONS FOR JUDGMENT

Judge Gagnon

I. Context

[1] The appellant filed a notice of appeal on December 14, 2021, targeting her year tax year ending June 30, 2018. The Appellant appeals a reassessment by notice dated January 22, 2020 and issued under the *Income Tax Act* By this reassessment, the Minister of National Revenue (Minister) denied the Appellant a deduction claimed as scientific research and experimental development (SR&ED), as well as the corresponding investment tax credit (ITC).

[2] The appellant develops and sells management software packages operating on the cloud in *Software AS A Service* (SaaS) mode intended for its clients in the public and private sectors.

[3] In filing its 2018 income tax return, the appellant claimed SR&ED expenditures as expenses and ITCs in relation to two projects (Project 1/Project 2). The Canada Revenue Agency (CRA) accepted, as filed and without review to determine whether the work undertaken in relation to this project constitutes SR&ED activities as defined in subsection 248(1) ITA, the SR&ED expenditures related to Project 2. However, the CRA refused

¹ LRC 1985, c 1 (5e suppl) (LIR).

SR&ED expenses related to Project 1: Fully flexible cloud solution built on metadata.

[4] For Project 1, the appellant initially claimed in its income tax return filed for the 2018 taxation year a total amount of \$715,044 as SR&ED expenditures. Following an initial analysis by the CRA, the appellant filed amended documentation in support of Project 1 and the total amount of SR&ED expenditures was reduced to \$278,927 for the purposes of calculating eligible expenditures and the corresponding ITC. Project 1 now involved four sub-projects. Only sub-project 1 is in dispute. The new assessment on appeal recognized for the purposes of Project 1 the amount of \$8,760 in SR&ED expenditures, thereby disallowing an amount of \$270,167.

[5] At the opening of the hearing, the respondent granted the appellant recognition of additional eligible SR&ED expenditures for subprojects 2, 3 and 4 of Project 1 in the amount of \$61,314. Consequently, regardless of the Court's decision, the appeal will be allowed except to recognize the respondent's concession for the purposes of paragraph 37(1)(a) and section 127 ITA.

[6] Considering the respondent's concession, the disagreement between the parties regarding the admissibility of the appellant's SR&ED expenses ultimately concerns only the salary expenses incurred by the appellant during its 2018 tax year in the amount of \$208,853 in connection with sub-project 1 of Project 1 named React Performance (Expenses).

[7] Two witnesses were called by the appellant. Only the research and technology advisor for the audit of the appellant's SR&ED claim was called to testify by the respondent.

II. Question in dispute

[8] The issue in dispute is whether the activities carried out under sub-project 1 of Project 1 (Covered Project) constituted SR&ED activities within the meaning of the definition provided in subsection 248(1) ITA.

[9] If the Court finds favourably that the Expenditures were expenditures incurred in the course of SR&ED activities as defined in subsection 248(1) ITA, the appeal must be allowed. Except for the point raised in

paragraph 5, no party has raised any issue with respect to the amount of the Expenses. In the event that the appeal is allowed, the Expenses will be deductible under paragraph 37(1)(a) ITA and eligible for the purpose of calculating the ITC under subsection 127(5) ITA. Conversely, if the Court concludes adversely that the Expenses were expenses incurred in the course of SR&ED activities defined in subsection 248(1), the appeal will be allowed only for the purpose of granting the respondent's concession described above.

[10] In accordance with a control established in the Northwest Hydraulic decision,² five criteria must be present for a project to qualify as a SR&ED within the meaning of subsection 248(1) ITA:

- i. was there a technological risk or uncertainty that could not be eliminated by usual procedures or standard technical studies?;
- ii. Has the person claiming to engage in SR&ED made assumptions expressly designed to reduce or eliminate this technological uncertainty?;
- iii. Was the procedure adopted fully consistent with the discipline of the scientific method, particularly in the formulation, verification and modification of hypotheses?;
- iv. did the process result in technological progress?;
- v. has a detailed account of the hypotheses tested and the results been provided? done as the work progresses?

III. Position des parties

[11] The Appellant is of the opinion that the Expenditures are incurred in the course of SR&ED activities as defined in subsection 248(1) ITA. The Appellant is also of the opinion that, considering the Respondent's position as worded in the response to the Notice of Appeal, only the first two aspects listed in paragraph 10 (technological uncertainty and the formulation of assumptions) are in dispute.

² *Northwest Hydraulic Consultants Ltd. v R*, 1998 CarswellNat 3632, 98 DTC 1839 (Northwest Hydraulic)] The analytical framework thus established by Justice Bowman was adopted in *RIS - Christie Ltd. v Canada*, 1998 CanLII 8876 (FCA), *CW Agencies Inc. v Canada*, 2001 FCA 393 17 (CW Agencies), *Kam-Press Metal Products Ltd. v Canada*, 2021 FCA 88 and more recently in *National R&D Inc. v Canada*, 2022 FCA 72 (National R&D), all of the Federal Court of Appeal.

[12] The appellant adds in support of its position:

- i. the auditor never requested the documents he considered relevant to ensure that the work was eligible;
- ii. the combination of the four tools/software (Features) used in the context of the implementation of the Targeted Project represents a technological uncertainty and even a systematic uncertainty. The problem is not with the use of only one of the components or two components of the Features, but rather the use of the four Features combined. The result is not adequate and that expected by the appellant's customers;
- iii. an experienced team of the appellant, consulting multitudes of resources throughout the research process, was unable to resolve the problematic, which represents technological uncertainty;
- iv. in support of the issue, the Facebook group, publisher of React (one of the four Features), subsequently replaces the HOCs, which have proven to be a serious issue in the context of the Targeted Project, with Hooks. This change supports that the tools/software available at the time are not able to respond to every eventuality, particularly for the Targeted Project;
- v. the appellant tries a multitude of hypotheses. Each hypothesis is systematically verified to understand the result;
- vi. each project must be considered as a whole for the year and not each test individually. Overall, the Project in question allows the appellant to contribute to the advancement of a technological uncertainty.

[13] According to the respondent, it is up to the appellant to prove its assertions, in particular in order to refute the hypotheses presented in response by the Minister.

He adds:

- i. the appellant does not demonstrate that the technological uncertainties overcome cannot be dispelled using current technical studies. The evidence demonstrating the time spent on the work is reconstructed and is not contemporaneous. However, the respondent accepts that this aspect is not fatal to the qualification of a project under SR&ED;
- ii. the solutions used are not related to technological uncertainty, they only constitute debugging;
- iii. The Target Project essentially represents an optimization approach carried out with available methods and knowledge. The appellant does not demonstrate its research and its approaches;
- iv. Redux, React, Styled Component and Recompose (which form the four Features) are used by millions of people. The caller

stated that each of Redux, Styled Component, and Recompose are made to go with React. The solutions they provide are solutions to bugs.

IV. Testimonies

1. Pierre Lamoureux

[14] Mr. Pierre Lamoureux testified for the appellant. He is the founder of the appellant. The Court had a favourable impression of Mr. Lamoureux's testimony. He represented the appellant's central witness. He appeared before the Court prepared and expressed the details to allow for an understanding of the issues related to the Project Visé. He presented a reassuring and reasonable position on what the Project Visé represented for the appellant.

[15] Mr. Lamoureux is a graduate of the École d'ingénierie polytechnique de Montréal. He completed a bachelor's degree in computer engineering. He has over 30 years of experience in development and software. Mr. Lamoureux was involved in all of the appellant's research and development projects. He explained that this involvement of an officer of his rank is particularly justified for a small or medium-sized company that cannot afford to devote significant manpower resources to the company without committed and constant monitoring by its managers.

[16] He confirms that the appellant was founded in 2010. The company develops and markets an IT Service Management solution. The appellant had about twenty employees in 2018. The appellant has more than 200 clients. Research and development activities have always occupied an important position at the appellant.

[17] The Target Project concerns the development of a new version of software offered to the appellant's customers, intended for the IT department of companies and enabling them to better adapt to the changing needs of managing their activities. The particularity of the project is the integration of scalable tools enabling platforms to be supported. The platforms enable the program to be hosted remotely and therefore multiple accesses.

[18] The witness explains that the software itself is actually the background system that (i) keeps track of requests, and (ii) manages inventory and contracts, information, etc. of customer data. The previous version of the software named

Octopus was the main product offered by the appellant to its customers. The basic Octopus software was a common non-customized software. However, the architecture of the software allowed the addition of *plug-ins* to meet the specific needs of the customers. The software contained fields (for example, first name or last name) that could be interchanged by the user.

[19] The version offered was version 4 and the appellant was developing version 5 which was available on the web in addition to being available on Windows just like version 4. However, during the development of version 5, the appellant encountered major performance problems. These problems are the main cause of the Expenses incurred in the development of version 5.

[20] Mr. Lamoureux explains that the problem encountered by the appellant in the development of this new version of the software is centered on the use of four tools (the Functionalities) used in conjunction, and which are described as follows:

- i. React: React is a library used to generate the user interface. It is an *open source* library available to everyone and developed by the Facebook group. React helps in generating the HTML. However, other libraries are also required to build a web application;
- ii. Redux: Redux is a tool generally used to ensure that only the update of a piece of information on the screen by the user is carried out without otherwise requiring an update of the entire screen and thus reducing the speed of the backup performance carried out;
- iii. Styled Component: Styled Component is a library dedicated to the style of characters on the user's screen. This library is associated with formatting;
- iv. HOC: HOC (acronym for high-order components/calculators), is a methodology related to programming allowing to bring together components each having a specific function in a chain.
The resulting programming is reduced and less cumbersome to set up.

[21] He confirms that the open source model *is* common in the software world. There are many companies that develop libraries and allow the community (computer scientists, programmers, users, etc.) to use them. He adds that in exchange, often, the community will share comments, follow-ups, feedback , etc. on problems or difficulties encountered during use and will present solutions, if necessary.

[22] Mr. Lamoureux specifies that when the source code is accessible, the user is able to modify the source code of the library in order to improve his application. The result is an advanced library.

[23] He adds that in the context of the realization of a Web application like version 5, there can be for example up to 20 or 25 different libraries that can be used, since no library allows to accomplish everything.

[24] When programming version 5, it was agreed that the programming team would make joint use of all four Features. However, the tests on the result obtained did not prove conclusive. The conjunction of the Features led to a significant problem regarding the performance of the version under test. The execution speed was clearly too slow. The conjunction did not appear impossible but the assembly did not allow to reach an acceptable efficiency, which threatened the project.

[25] The witness pointed out that initial attempts to address the issue through changes that created small performance optimizations produced a negligible gain of less than 10 percent. Subsequent analysis work led to the realization that the performance problem presented an even larger problem requiring the testing of additional hypotheses.

[26] Mr. Lamoureux testified that the appellant looked to see if the problem could be linked to the thousand components used simultaneously to power the program. He confirmed that the appellant did research, looked at everything that was available, and they read all the problems that existed associated with the different libraries used. No source consulted revealed the problem encountered satisfactorily.

[27] The appellant frequently consulted a website called Github. Mr. Lamoureux explained that this site contains a code library, but also allows people in the coding and programming community to consult each other to find out if others are encountering the same problems or to try to understand the path that can solve a problem. There were also other articles and other groups elsewhere, for example on Google and Reddit.

[28] The appellant contacted React, which was unable to resolve the issue encountered. The exchanges contained in Github also did not mention the issue. The React team offered to help the appellant

submit a project reproducing the problem. The Facebook group's interest in the appellant's situation was genuine.

[29] React had a diagnostic tool to help locate where problems were. However, this tool did not work when it was used for the appellant's program because the program had too many nodes. The witness added that it was known that having too many nodes will cause the diagnostic tool to not work. Following this realization, the appellant developed its own diagnostic tool to avoid trial and error work and solve the problem more efficiently. The appellant developed three diagnostic tools.

[30] The appellant also resigned itself to having to learn the internal workings of the libraries (he refers to Redux, Styled Component, Recompose) in order to be able to modify the internal source code of these libraries in such a way as to be able to inject names to solve the performance problem. The witness confirmed that this approach allowed the programming team then dedicated to solving the performance problem to replace source components of these programs in order to verify whether these attempts would resolve or mitigate the problem.

[31] By analyzing the codes of the Features, the appellant found that optimizations of the libraries were possible. The performance went from 1,300 milliseconds to 775 milliseconds. But that is not enough.

[32] The witness adds that the analyses concluded that there was no problem with React per se with 50,000 HOCs. What was the problem was the combination of React with Redux, with Styled Component, and with Recompose. HOCs created by other players also caused performance problems. On the other hand, there was never any certainty that the number of HOCs was the only one responsible for the problem. The uncertainty could have been linked to a single weaker link that automatically makes the rest of the equation less efficient.

[33] The solution then considered by the appellant was to reduce the number of nodes associated with the programming. The witness reported that the appellant was going to rewrite the code in order to reduce the number of HOCs in the program.

Although the caller could reduce the number of HOCs, she could not eliminate them entirely. A certain number proved unavoidable. This action improved performance from 775 to 692 milliseconds. Although performance improved, it was still far from acceptable.

Mr. Lamoureux specified that acceptable performance is less than 300 milliseconds, and that the appellant was seeking to achieve a higher performance.

[34] Mr. Lamoureux confirmed that the appellant used its best resources for this project, because it was complex. He also explained that his team was well organized to be efficient and avoid duplicating the work required. This approach is consistent with the management of medium-sized businesses to which Mr. Lamoureux referred at the beginning of his testimony.

[35] The testimony also provided insight into how the appellant was able to understand the fundamentals of the Redux library. For example, Redux recommended that programming users connect higher in the graph. However, the witness testified that research enabled the appellant to understand that there could be advantages to connecting lower and in doing so saw positive results from implementing this non-standard strategy. He noted that there had been no clear indication to this effect in the community until then.

[36] In responding to the comments in the audit report, Mr. Lamoureux accepted the facts stated that Redux was a program used to reduce re-renders. However, including for the Target Project, Redux was not enough and there were issues that were not known in the public domain. The same was true with React Dev Tools. It was known that this tool was used to improve performance. It was also known that React Dev Tools stops working on sites with many components.

The witness confirmed that these tools were not enough and the public domain did not address a solution.

[37] Mr. Lamoureux also reiterated the research process undertaken by the appellant. In the first step, the documentation of the selected libraries is assimilated. For the second step, the programmers search for available and relevant articles and blogs in order to identify those who have taken the trouble to explain a problem that has led to a solution to a problem encountered. He also emphasizes that the first attempts to solve the problem are always to follow the recommendations in the public domain, although here these leads were not conclusive and have faded away.

[38] The witness recalls that the research carried out confirmed that the community in general was of the opinion that React had to offer a more efficient approach than HOCs. These positions certainly received attention since

Subsequently the Facebook group made a major improvement to their React library which is the use of hooks.

[39] The witness states that at the end of the Target Project, all available public libraries removed the HOC code. The appellant would have liked to replace the HOCs, but the footprint was too large in the program architecture. When the hooks appeared, the appellant, which had not achieved the desired performance, decided to stop developing version 5. Version 5 did not reach the market launch. The witness adds that the appellant deployed a lot of energy and resources to obtain adequate performance, but business reasons decided otherwise.

[40] Mr. Lamoureux's detailed testimony made it possible to establish the link between the iterations described in the documents prepared for the CRA and the work, the questions encountered, the hypotheses retained and the results obtained in order to resolve the uncertainty linked to performance.

[41] In cross-examination, Mr. Lamoureux accepted that the only technological uncertainty of the Target Project was linked to the performance of the application by its user.

[42] He also clarified that the two main libraries were React and Redux. React was a more established library used more frequently with Recompose to reduce coding and Styled Component to apply styles. Redux was more of a caller's choice.

[43] When the Court asked him whether the CRA had denied the performance problem, Mr. Lamoureux confirmed that when he reread the documentation, nothing allowed him to understand that the CRA was questioning the problem presented or the assumptions put in place, the tests or the measurements obtained. The CRA's response was rather to the effect that you have a performance problem and the answer is in the public domain, hence the absence of technological uncertainty. The witness reported that this position seemed inexplicable to him.

[44] In cross-examination, the witness was asked whether the appellant was the only one using the four Functionalities. The witness replied that he was not able to answer for the other users. He does not know.

[45] The cross-examination focused primarily on the appellant's internal documentation and whether that documentation had been submitted to the CRA.

The answer obtained in this regard was not very clear. However, the witness referred to documents brought during the meeting with the CRA and reiterated that all of the appellant's work was listed and that it was "super important". The witness indicated that the documents submitted and describing the work accomplished are only summaries. The documents are mainly kept internally at the appellant. He explained that he was able to confirm that a huge number of sources were consulted.

[46] The witness was then questioned about the three diagnostic tools developed by the appellant. The main question was whether the creation of these tools constituted technological uncertainty. He was asked whether it was common to use and/or develop such tools. The witness was clear about the use and it is common among programmers. As for the development of these tools, the witness is of the opinion that this is much rarer and that programmers use more existing tools. He added that it is very rare to do it yourself because it is an uncommon and difficult specialty. This development is used by oneself when no other option is possible. The level of difficulty is higher in development. The Court understands that the development of the tools proved necessary in this case because of the absence of other means to resolve the progression of technological uncertainty linked to the lack of performance of the conjunction of the Functionalities with the program and the HOCs present.

[47] The cross-examination conducted did not really attack Mr. Lamoureux's testimony in chief. With the exception of what has already been noted above, the cross-examination, for example, did not raise any issue regarding the hypotheses validated by the appellant or the reality and the basis or legitimacy of the lack of performance of version 5 of the program under development.

2. Chakib Hamdi

[48] Mr. Chakib Hamdi is the second witness called by the appellant. Mr. Hamdi is an external advisor offering his services to assist taxpayers struggling with SR&ED credit claims. He also offers his services as a subcontractor to companies such as Emergex working on SR&ED credit claims.

[49] Mr. Hamdi received his degree in computer engineering in 1998. He worked for nine years in the IT industry as an IT manager. He then

worked as a consultant for SR&ED qualification for eight years. Since 2016, he has created his own boutique focused on SR&ED.

[50] With respect to the project in dispute, Mr. Hamdi offered his services to the appellant as a subcontractor for Emergex.

[51] Mr. Hamdi said that the appellant was seeking help since she had been checked.

[52] Mr. Hamdi explained that when he is consulted, he checks whether the client has all the tools. Then he looks at whether the client has properly assessed the tools and whether the team in place has the required skills. Mr. Hamdi also reviews the technological environment to compare whether a company's capabilities are consistent with the level of the technological environment according to his own research and the examination of the public domain that exists externally. If the capabilities are consistent and there is still a difficulty that cannot be solved with the possible capabilities in the technological environment, the project seems to be a good candidate for finding a technological uncertainty.

[53] In the current case, the witness confirmed the existence of uncertainties and the activities undertaken by the appellant to constitute a systematic development by hypothesis, test and result. The documentation supporting the activities must also exist. He also validated with the appellant whether an advancement of the application itself existed and whether an advancement of knowledge had resulted from it. Using these verifications, he assisted the appellant in its claims to the CRA and more particularly the Targeted Project that was presented.

[54] Mr. Hamdi was not very clear or explicit about the disagreements with the CRA regarding the characterization of the Target Project and the Expenditures. He raised two comments that the CRA's research and technology advisor in the file had made to reject technological uncertainty. Mr. Hamdi expressed his disagreement with this position, which he believed displayed a much too limited vision of the entire Target Project and the extent of the problem encountered.

[55] The witness was not cross-examined, the respondent essentially limiting himself to establishing that Mr. Hamdi's services were paid for by the appellant.

3. Didier Guillevic

[56] Mr. Didier Guillevic is the only witness called by the respondent. He is the research and technology advisor who acted in the context of the audit of the appellant's SR&ED claim for the year under appeal and more specifically the claim concerning the Targeted Project.

[57] Mr. Guillevic studied electrical engineering at the École supérieure d'ingénieurs en électrotechnique, Paris, France, and pursued studies in electrical and telecommunications engineering at the Karlsruhe University of Technology, Germany. He then pursued master's studies in statistical learning algorithms at the Department of Electronic Systems Engineering in Colchester, England (University of Essex). He completed a PhD in statistical learning algorithms at Concordia University in Montreal, Canada.

[58] In the job market, Mr. Guillevic joined the Xerox Research Center in New York, then was a member of the research staff at the central laboratories of the Nippon Electronic Corporation in Kawasaki, Japan. He then returned to Montreal to act as an expert in machine learning for speech recognition at Locus Dialogue and continued with the company Idilia in machine learning related to research on natural language processing.

[59] In 2017, Mr. Guillevic joined the CRA as a research and technology advisor for the review of SR&ED claims. In 2021, he moved to another position to develop software solutions for the CRA.

[60] Mr. Guillevic first explained how he proceeds as a research and technology advisor. The audit request is assigned to a financial auditor responsible for the file. He then acts as a technical advisor to the financial auditor to assist him in determining the eligibility of the work claimed by the taxpayer as eligible SR&ED.

[61] Mr. Guillevic acted for approximately three years as a technical advisor for computer files at the CRA, without any further specific specialization. He was involved in website projects, but also in telemedicine systems.

[62] At the start of a file, he testifies that he looks at what was submitted by the applicant. As a general rule, it is two to three pages per project. This is the T661 form sent by the applicant. He looks to see if there would be potential for qualification under SR&ED.

[63] He then specifies that he completes his work by consulting the applicant's documentation including during meetings with the taxpayer. He can occasionally finalize with web searches to look for a little more information. With all this information, he writes his report.

[64] On this subject, he mentions:

There is a methodology -- so, first, we are assigned a request. So, we are in a team with a financial. And then, we look at what was submitted by the applicant. So, generally, it is two or three pages per project. And then, depending on that, well, we look at whether, a priori, there would be SR&ED potential or not.

And then we will ask for more information on the project. We can decide not to review all the projects. And we will ask for information on certain projects that we are reviewing. We do this in collaboration with the manager. So, it is a decision between the two of us to decide which project will be reviewed. And then, there is the documentation that normally arrives before the meeting. We study it, we have a meeting, we ask the requester questions, and then, we write a report.

[65] And on the subject of the drafting of the report he adds:

So, the report, it's based on -- so, first, the T661, so the two or three pages that we receive when the application is submitted. Then, the applicant's documentation. Then, the transcript of everything that was said during the meeting. Also, we can do research on the Web to see a little bit more, well, go get a little bit more information. And, with all this information, well, we write a report.

[66] He adds on the subject of the qualification of the works by mentioning:

Determination? Well, there, we try -- we have to follow the -- the criteria of the policy, which is an interpretation of the Act. And then it tells us that, well, there are five steps to try to see whether or not there would be an uncertainty or a technological blockage. Was a series of hypotheses then made. And -- so, we call that a scientific approach. Did it lead to technological advancement, new knowledge that the community did not have? And then we must also normally check if there is documentation for, well, for -- we -- to back up this request.

[67] In response to the question from the respondent's attorney regarding what is being asked of the appellant at the outset in terms of representations, Mr. Guillevic confirms that he is requesting additional information from the outset. He refers in particular to point 4 of the prescribed form T661:

(...) Point 4, that's really important, because for an SR&ED project to begin, you really have to have demonstrated that you tried to solve the problem with the expertise you have, with the toolbox you have, and then that you even did a little research on the Web to see if there were other people who had encountered the same problem who could have solved it or given ways to solve it. So, you have to demonstrate a little bit that this has been investigated. That you really tried a little bit to solve it with your knowledge, your tools, and public knowledge.

[68] He confirms that for the appellant's second revised SR&ED submission, the representations obtained were much more targeted. All of the SR&ED claims were submitted in four sub-projects apparently for the same work as in the first submission. Each sub-project was documented unlike the first submission filed, of which three of these sub-projects he found matches with the initial submission, and a fourth which was new.

[69] Regarding the second submission transmitted, he was asked for the Target Project:

ME MORIN: And so, in terms of representations, what is presented here, we understand that the determination, you concluded that it was not SR&ED. For activity 1, why did you conclude that it was not SR&ED? Or that there was no technological uncertainty, in fact?

Mr. GUILLEVIC: In fact, therefore, it is optimizing performance. I could perhaps begin to explain how -- when we develop a software product, it is always done in two stages. The first stage is we do -- we create a solution as quickly as possible that works. And the second stage is optimizing performance. So, that is the production chain of a software product. That is always the case.

[70] According to the witness, the appellant created a solution as quickly as possible that worked. The project in dispute concerns optimization, step two, explained above.

[71] The witness was again asked:

ME MORIN: And so, to come back to the question, for the fact that there is no uncertainty, why -- how did you arrive at the conclusion that there was no uncertainty for the activities of sub-project 1?

Mr. GUILLEVIC: Sub-project 1 is performance optimization, so, step 2. So, we have to look at -- so, first, we have to identify the bottlenecks.

performance bottleneck. So where in the code do we spend all our time. And then, we have to, therefore, address a place where a lot of time has passed. And then, we look at how this performance has been improved. Because we do this all the time.

So, we have a toolbox. We have techniques. There are techniques that are specific to certain tools, but we have the knowledge or, in the community, there is a lot of knowledge. So, we look at how this -- so, this -- This passage of the code has been optimized. Whether it has been optimized with things we know or really new things. So, that's where we looked.

And for activity 1, for example, well -- so here, let's say we have a form, so a website, a form with several fields. So ---

[72] The Court asked the witness whether it was possible that the specific resources available in the public domain were not directly relevant or useful to the performance issues encountered. For Mr. Guillevic, if we rely on the project and the tools used, therefore, the libraries that are used, it is really - it is to connect or not to connect. He adds that what the Court described is not the present case.

[73] During the optimization, the appellant decided to connect each element of the interface directly to the Redux store. The results are that the performance improved, but this was known. According to him, it really looked like beginner's tests, from someone who had no experience with React. This is a basic experiment and there is no uncertainty in this result.

[74] Mr. Guillevic explained how HOCs work in the code. They are a function producing a specific result. Being functions, there is a cost to their use. So, if we are not very rigorous and we call these functions hundreds of thousands of times, of course there will be a cost. So, in step 2, optimization of a software product, we will have to call fewer functions. According to Mr. Guillevic, there is no technological uncertainty in the use of HOCs.

[75] Mr. Guillevic testified that since he had no technological uncertainty related to program optimization, the development of new tools for making diagnoses will not be a technological uncertainty.

[76] The programs used and the HOCs are complementary, made to work together, and used by tens of millions of people each

day. These are open source tools. Anyone can go read the code and so there is a lot of discussion about them.

[77] He adds that the activities for the disputed project are learning activities where there is nothing new for the community. A HOC is a function. Any first-year computer science student knows that calling a function has a cost. So, it is certain that if we are going to call a function a million times, there will be a cost compared to calling it only once. So, I would say that it is trivial, it goes without saying. There is no new knowledge even for a first-year computer science student.

[78] However, although affirmative on these positions, Mr. Guillevic had no experience with these tools before reviewing. However, he did say that they are meant to be easy to use. Any experienced developer can pick up a package like this and within a few hours or days, they will be super productive. If the programs were complicated, no one would use them.

Mr. Guillevic is of the opinion that it will only take a few hours or a few days for someone with experience with other software to become familiar with the programs used by the appellant.

[79] In cross-examination, Mr. Guillevic indicated that he never programmed directly with React, Redux, Recompose, or Styled Component. He also took the position that HOCs were replaced by hooks because it is normal to make evolutions and not because he had problems with HOCs.

There was no further explanation or detail provided.

[80] When cross-examined on this, he confirmed that a performance gain can be considered a technological advancement – this happens when there is a large performance gain, for example where a program is 100 times faster.

[81] During the audit, he asked for a chronological description of the activities, such as by month, what had been done, which employee had been involved and then for how many hours. The appellant was unable to provide contemporaneous timesheets for the work performed.

[82] Mr. Guillevic did not specifically request the documents that he considered determinative for the purposes of qualification as SR&ED. Instead, Mr. Guillevic only made a general request for the documents that the Appellant could consider relevant. Since he did not receive the exact documents

which he believed to be decisive, was a sign to him that he had no SR&ED with the appellant.

[83] According to him, since the four Features are made to work together, there is no technological uncertainty. Since thousands of people use these programs every day, there is no technological uncertainty.

Since there are strategies to improve performance, there is no technological uncertainty. Since he did not receive the specific documents and information he wanted, but did not specifically ask for them, there is no technological uncertainty. However, the appellant encountered a blockage that Mr. Guillevic was unable to explain. He was unable to discuss or identify a solution or possible solution, nor could he confirm that a solution could be found in the public domain. It was only his opinion that it was simple to solve the problem without being able to explain how to solve it.

[84] While Mr. Guillevic was adamant that it was clear everywhere that the programs would work together without problem, he was unable to identify a specific source that could demonstrate this in the present case.

[85] Mr. Guillevic confirmed in cross-examination that he had not contacted React to check whether they had a solution for the problem encountered by the appellant. His testimony suggests that the certainty expressed by Mr. Guillevic was such that little research was required.

V. Analyse

[86] Section 248(1) ITA defines SR&ED activities as follows:

Systematic investigation or research of a scientific or technological nature, carried out by means of experimentation or analysis, that is to say:

- (a) pure research, namely work undertaken for the advancement of science without any practical application in view;
- (b) applied research, namely work undertaken for the advancement of science with a view to practical application;
- (c) experimental development, namely work undertaken in the interest of technological progress with a view to creating new materials, devices, products or processes or improving, even slightly, existing ones.

For the purpose of applying this definition to a taxpayer, the following are included among scientific research and experimental development activities:

(d) work undertaken by or on behalf of the taxpayer in respect of engineering, design, operational research, mathematical analysis, computer programming, data collection, testing and psychological research, where such work is proportionate to the requirements of, and directly supports, the work referred to in paragraphs (a), (b) or (c) that is undertaken in Canada by or on behalf of the taxpayer.

Work relating to the following activities does not constitute scientific research and experimental development activities:

(e) market research and sales promotion;

(f) quality control or normal testing of materials, devices, products or processes;

(g) research in the social sciences or humanities;

(h) prospecting, exploration and drilling for the discovery of minerals, oil or natural gas and their production;

(i) the commercial production of a new or improved material, device or product, and the commercial use of a new or improved process;

(j) changes in style;

(k) normal data collection.

[87] The five criteria that must be demonstrated for a project to qualify as SR&ED within the meaning of subsection 248(1) ITA were identified in paragraph 10 above. These criteria were established in the Northwest Hydraulic decision, summarized in the CW Agencies decision of the Federal Court of Appeal and recently repeated in the National R&D decision also of the Federal Court of Appeal.

The criteria read as follows:

1. Was there a technological risk or uncertainty that could not be eliminated by usual procedures or standard technical studies?

2. Has the person claiming to be engaging in SR&ED made any assumptions specifically designed to reduce or eliminate this technological uncertainty?

3. Was the procedure adopted fully consistent with the discipline of the scientific method, particularly in the formulation, verification and modification of hypotheses?

4. Did the process result in technological progress?

5. Was a detailed report of the hypotheses tested and the results made as the work progressed?

(Our underlined)

[88] It is the appellant's burden to demonstrate that the activities constituted SR&ED activities³.

[89] In this regard, the Court notes the position of the respondent in the amended response to the notice of appeal, namely that the activities undertaken by the appellant in the context of the Project Targeted do not meet the definition of SR&ED activities contained in paragraph 248(1) LIR for the following reasons:

- (a) there were no technological risks or uncertainties which could not be eliminated by usual procedures or current technical studies;
- (b) the appellant has not made assumptions expressly intended to reduce or eliminate technological uncertainties;
- (c) the procedure adopted by the appellant was not in accordance with the discipline of the scientific method, particularly in the formulation, verification and modification of hypotheses in relation to technological uncertainties;
- (d) the overall approach adopted by the appellant was not aimed at achieving technological advancement.

[90] The respondent therefore meets four of the five criteria in support of his position.

[91] The Court notes that the three software decisions referred to by the respondent (Highweb) are not the most relevant to this type of the ⁴ *Highweb*, ⁵ *Zeuter*, ⁶ *Zeuter* as informal procedure cases. The precise nature of the projects can be distinguished and the present case warrants a different result. The project in dispute focused on a technological uncertainty existing in the combination of tools used. Rather, the appellant's software was the medium used to explore this uncertainty. The appellant and the evidence provided demonstrate that the appellant has discharged its burden by meeting the SR&ED test, and that the respondent has not been able to reverse this finding.

³ National R&D, para 17. Also of note, Bowman J. in *Northwest Hydraulic* states at para 11 that, in general, "scientific research involves incremental and, indeed, minute advances.

Spectacular success stories are rare and constitute only a tiny fraction of the results of SR&ED in Canada," before concluding that "[t]ax incentives granted to those who engage in SR&ED are intended to encourage scientific research in Canada" and that legislation concerning such incentives "should be given the fairest and broadest interpretation consistent with the achievement of its object," in accordance with section 12 of the *Interpretation Act*, RSC, 1985, c I-21.

⁴ *Highweb & Page Group Inc. v R*, 2015 CCI 137 (Highweb).

⁵ *Hypercube Inc. c R*, 2015 CCI 65 (Hypercube).

⁶ *Zeuter Development Corp. v R*, 2006 CCI 597 (Zeuter).

(1) The first criterion: technological uncertainty

[92] Bowman J., as he then was, in *Northwest Hydraulic*, clarifies the analysis of the first criterion by stating:

(a) When we speak of “risk or technological uncertainty” in this context, it is implied that there must be some uncertainty that cannot be eliminated by routine engineering studies or by usual procedures. I am not referring to the fact that once a problem is identified, there may be some doubt as to how it will be solved. If the solution of the problem is reasonably foreseeable by routine engineering studies or by usual technical studies, there is no technological uncertainty as that term is used in this context.

(b) What is meant by “current technical studies”? This question (along with that relating to technological progress) seems to have divided experts more than any other. In short, it refers to the techniques, procedures and data that are generally available to competent specialists in the field.

[93] Several other decisions following *Northwest Hydraulic* have clarified what constitutes technological uncertainty. In *Formadrain*, this Court explained that “the missing knowledge must be actually non-existent in the scientific or technological knowledge base and not merely unknown to the plaintiff.”

⁷ . In other words, as taken up in the *Concrete Mobile* decision ⁸ And in the *Anne-Marie Chagnon* decision by the ⁹ . “the creation of a new product repeated application of techniques, procedures and data generally accessible to competent specialists in the field will not constitute an SR&ED activity, even if there is doubt as to how the objective will be achieved” ¹⁰. In the *Laforest Marketing* decision ¹¹, this Court explains that “[t]he simple fact that a product does not exist does not necessarily allow one to affirm that its development involves technological uncertainty.”

[94] In determining whether there is technological uncertainty, the Court must look at the whole project and not at each task undertaken individually.

⁷ *Formadrain Inc. c R*, 2017 CCI 42 au para 93 (*Formadrain*).

⁸ *Béton Mobile du Québec Inc. v The Queen*, 2019 TCC 278 at para 43 (*Béton Mobile*).

⁹ *Anne-Marie Chagnon Inc. v. The King*, 2023 CCI 35 at para 46 (*Anne-Marie Chagnon*).

¹⁰ *Mobile Concrete*, para 43.

¹¹ *Laforest Marketing Internationals Inc. v The Queen*, 2019 CCI 45 para 45 (*Laforest Marketing*).

[95] In this case, after analyzing the evidence and testimony given, there is no evidence in the end to suggest that there were solutions available in the public domain to resolve the problem that the appellant was facing. On the contrary, Mr. Lamoureux's testimony was that they tried to consult all the usual circles where people in this industry turn to find answers to the problems, including by contacting the software developers themselves, by publishing articles, consulting websites and group discussions and blogs. None of these mediums provided the answer. And the respondent was not able to convince the Court that the appellant had failed to find the resources otherwise available to respond to the performance issue.

[96] The Court understands that achieving performance results may not in itself constitute technological uncertainty. However, the purpose of the project here was not to achieve what was achieved. It is not confirmed, and in any case it is not the issue, that the appellant believed in technological uncertainty because it applied the practices known in the public domain of the libraries used. In fact, the Court understands from Mr. Lamoureux's testimony that the first thing to do is to apply the known and available recommendations.

The appellant was aware of this. In the present case, much more was expected in terms of performance, if only to offer a competitive product, and the evidence established that the public domain was not able to meet the specific need sought.

[97] The fact that the respondent's witness referred, in essentially general terms, to methodologies, ways of using tools, programming approaches or techniques does not constitute proof that the solution to the appellant's identified problem existed, that it was known in the public domain, that it was basic or that the tools would solve everything. Mr. Guillevic's testimony did not convince the Court that the appellant's solution was easily identifiable or even in the public domain. The generalities, which were too present in the testimony, also did not reassure the Court and as a result there was no structured and convincing opposition to the appellant's position. The actions taken by the appellant for the Court went beyond, as a whole, the framework offered by the public domain, and the respondent did not convince the Court otherwise.

[98] On several occasions, the respondent's attorney invited the technical advisor to explain why technological uncertainty was not present. The Court does not believe that the answers satisfied the attorney. Certainly, the Court is not satisfied. Answers that were too vague, general, long or imprecise followed. Also, the Court

was not convinced by the research and review work, and the research report that the technical advisor referred to before the Court during his testimony. Little verification of the public domain seemed required by the advisor to address the dynamics encountered by the appellant. In fact, the few specific mentions by the advisor on the issues specific to the bookstores used in the present case go hand in hand with some of the answers considered vague or imprecise above. His testimony needed to be more reassuring, structured, and developed.

[99] The appellant used methods and techniques known and generally used in the software industry to improve performance. Despite these known methods, some of which can be assembled, and with respect to which it seems clear that Mr. Lamoureux and Mr. Guillevic knew that they were valid techniques, there was a major uncertainty as to how to make the tools work harmoniously to produce adequate performance to obtain a practical result. This demonstrated a deficiency and that a piece of the puzzle was missing: a technological uncertainty as to how to achieve the performance that would allow the software to operate in a practical manner, and that

based on the evidence, techniques, procedures and data that are generally available to competent specialists in the field have failed to resolve.

It is this overall problem that constitutes the technological uncertainty in the present case.

[100] The appellant even developed new tools to diagnose problems. Although it was expected that similar tools would soon be commercialized, Mr. Lamoureux's testimony, which the Court accepts, indicates that the existing tools were not capable of doing what the appellant's newly developed tools could do.

[101] Despite his assertions that the tasks undertaken by the appellant represented known processes that generally produced performance improvements, Mr. Guillevic did not explain the known principles that would have solved the overall problem facing the appellant.

These techniques form the basis of the programming domain, but do not explain the uncertainty that the appellant was facing at the global level. At a certain point, everything seemed very obvious and easy to Mr. Guillevic, and certainly for the Court this resulted in precise explanations that were too often absent and that it would have been important to address. Unfortunately for the respondent, the Court was not convinced by this approach for the purposes of deciding the appeal.

[102] The Court accepts the testimony of Mr. Lamoureux in this regard, whose cross-examination did not allow the essence of his testimony to be reconsidered.

[103] The Facebook group ultimately modified some of the underlying technology by moving from HOCs to hooks. While the Court understands that an improvement process may not in itself constitute SR&ED, the fact remains that technological uncertainty could have existed in a prior context.

[104] Furthermore, the Court is of the view that the evidence demonstrated that the work devoted to the appellant's problems proved to be more ingrained than simple anomalies.

Nothing is less certain than the appellant only encountered unforeseen malfunctions. Eliminating operating anomalies appears insufficient to qualify the work undertaken in the present case. Correcting an anomaly brings more of an unexpected connotation as opposed to encountering a difficulty jeopardizing an integral part of the product and the desired result. The Court understands that the expectations of the Functionalities in the present case went far beyond the simple need to debug a few snags that occasionally occur. Moreover, the main reasons that may not make debugging tools admissible under SR&ED are the lack of progress and the occasional nature of the incident concerned. Here, the Court believes the situation to be quite different.

[105] Since the Court accepts Mr. Lamoureux's testimony and Mr. Guillevic did not explain how technological uncertainty was lacking on the overall issue in the specific case of this appeal, the Court must conclude that there was technological uncertainty in the present case. Consequently, the appellant has succeeded in demonstrating that the objective of the Targeted Project responded to technological uncertainty, and the respondent has not persuaded the Court of another avenue.

(2) The second criterion: formulation of hypotheses

[106] Bowman J. in Northwest Hydraulic explains that there is a five-step process:

- (a) observation of the object of the problem;
- (b) the formulation of a clear objective;
- (c) the determination and formulation of technological uncertainty;

(d) the formulation of an assumption or assumptions intended to reduce or eliminate uncertainty;

(e) the methodical and systematic verification of hypotheses 12.

[107] Judge Bowman also notes that he:

It is important to recognize that, although a technological uncertainty must be defined at the outset, the identification of new technological uncertainties as research progresses and the use of the scientific method, including intuition and creativity, and sometimes ingenuity in discovering, recognizing and resolving new uncertainties, are integral parts of SR&ED.

13

[108] The Court is of the view that the evidence has established that the appellant was guided by assumptions defined in its analysis. The challenge of improving performance guided all the assumptions of understanding how to make performance adequate and acceptable. This questioning has always been at the heart of the work carried out.

[109] The evidence introduced by the appellant, which satisfies the Court, was not contradicted by the respondent.

(3) The third criterion: method consistent with the scientific method

[110] Bowman J. in Northwest Hydraulic discusses the third criterion as follows:

(a) It is important to recognize that while the above methodology describes the essential aspects of SR&ED, intuitive creativity and even ingenuity may play a crucial role in the process for the purposes of defining SR&ED. However, these elements must exist within the framework of the scientific method as a whole.

(b) What may seem routine and obvious in retrospect may not have been so at the outset of the work. It is not only the adherence to systematic practices that distinguishes routine activity from the methods required under the definition of SR&ED in section 2900 of the Regulations, but the adoption of the scientific method described above as a whole, with a view to eliminating a

¹² Northwest Hydraulic, para 16.

¹³ Northwest Hydraulic, para 16.

technological uncertainty through the formulation and verification of untested innovative hypotheses.

[111] According to Mr. Lamoureux's testimony, the appellant's methods were consistent with the scientific method. The appellant's team was able to assess how and why a particular change produced a particular performance gain. The method was also adequate to demonstrate that the known strategies used were not adequate to eliminate uncertainty.

14

[112] The Court is satisfied that the methods chosen by the appellant to resolve the problem are generally consistent with the aim of eliminating technological uncertainty by means of the formulation and verification of unverified innovative hypotheses.

[113] So the third criterion is present.

(4) The fourth criterion: technological progress

[114] Bowman J. adds the following comment for the fourth criterion at paragraph 16 of Northwest Hydraulic:

(a) By that I mean something that people who are knowledgeable in the field know or can know anyway. I am not talking about a piece of knowledge that someone, somewhere, can know. The scientific community is large, and it publishes papers in many languages. A technological advance in Canada does not cease to be a technological advance just because there is a theoretical possibility that a researcher in, say, China, may have made the same advance, but his work is not generally known.

(b) Rejection, after testing a hypothesis, nevertheless constitutes progress in the sense that it eliminates a previously untested hypothesis. Much scientific research aims at precisely this. The fact that the initial objective is not achieved does not invalidate either the hypothesis that was put forward or the methods that were used. On the contrary, it is possible that the failure itself reinforces the degree of technological uncertainty.

[115] In the *Allegro Wireless* decision, having allowed the appeal, the Court notes:

[197] Working in this environment, the appellant needed a product that performed better than the products offered by its competitors. This required

¹⁴ See also similarities with *Allegro Wireless Canada Inc. v The Queen*, 2021 TCC 27 (*Allegro Wireless*).

the appellant that it is constantly working to improve its product. It did this by constantly developing software to improve the operation of the various handheld devices that its customers used on the appellant's platform.

[198] As Mr. Rupel and Mr. Penn explained, in developing this software, the appellant had to overcome numerous technological challenges which required it to experiment to find solutions.

[116] Although the appellant failed to achieve the required performance gains, the rejection of the hypotheses was productive in understanding that the problem persisted. The appellant has effectively eliminated many possible solutions in an attempt to resolve the problem. As noted in the Northwest Hydraulic decision, the failure in this case has increased the degree of technological uncertainty.

[117] The Court is satisfied that the evidence supports the fourth criterion, and that the respondent has not overturned this evidence.

(5) The fifth criterion: detailed reporting

[118] This criterion was not directly invoked by the respondent. And the amended response to the notice of appeal does not raise this criterion as a ground invoked by the respondent. The Court confirms, however, that although this ground is not raised on appeal, the evidence supports the satisfaction of the criterion.

[119] Although Mr. Guillevic wanted to see contemporary timesheets for the work carried out, they are not necessarily required for qualification as eligible SR&ED.

[120] Mr. Lamoureux testified that he could account for the total time spent on the work. He had statistics on the improvement in performance as a result of the work done. It is clear that Mr. Lamoureux had a detailed account of his activities and the results produced – which is necessary to clarify a technological uncertainty. Mr. Lamoureux's testimony was not compromised on this point during his cross-examination.

VI. Conclusion

[121] Considering all of the reasons presented above, including the respondent's admission, the appeal is allowed with costs and the reassessment is returned to the Minister for reconsideration and reassessment on the grounds that the appellant has

incurred additional total SR&ED eligible expenditures of \$270,167, and is entitled to the corresponding ITC, all for the appellant's tax year ending June 30, 2018.

Signed in Montreal, Quebec, this 8th day of October 2024.

"JM Gagnon"

Judge Gagnon

REFERENCE : 2024 CCI 129

COURT FILE NO.: 2021-3161(IT)G

TITLE OF CAUSE: DAZZM INC. AND HIS MAJESTY THE KING

PLACE OF HEARING: Montreal (Quebec)

DATE OF HEARING: March 27 and 28, 2024

REASONS FOR JUDGMENT BY: The Honourable Justice Jean Marc Gagnon

DATE OF JUDGMENT: October 8, 2024

COMPARUTIONS :

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Respondent's attorney:	Me Anne-Elizabeth Morin Mr Julien Dubé-Senéal

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