This presentation is designed to benefit both businesses working in Information and Communication Technologies (ICT) that continue to file for SR&ED claims and also encourage new businesses who are considering taking advantage of this tax credit incentive offered by Government of Canada.

This morning's presentation is geared towards sharing information with C-Level executives and senior management. We will show you how to relate your Innovation to the SR&ED program requirement and we will provide you valuable insight into how CRA determines eligibility.

This afternoon, we have a session geared towards your technical leads and managers. In that session, we will provide further insights into eligibility through a technical deep-dive. We will also provide helpful tips and best practices which will help your organization prepare SR&ED claims more quickly and more efficiently.

Background

- ICT is vital to Canada's economy.
- Globally it is driving the evolution and growth of knowledge-based economy.
- SR&ED tax incentive program supports your R&D investments towards risks associated with attempting to advance technology.
- Your efforts and the SR&ED program support are both vital to fostering technology driven innovation.

2

In the keynote speech, we mentioned the importance of ICT sector to Canada's economy and how companies working with ICT technologies and the SR&ED investment tax incentive program play an important role in supporting this sector. Through this workshop we will share information about the SR&ED program to help you make decisions that enable your organization to receive its full entitlements.

Questions from claimants

- *Our work is innovative within our marketplace, can we apply for SR&ED?*
- *We know of a company developing similar technology which has received SR&ED investment tax credits. Should we expect our claim to be accepted by the CRA?*
- *We believe our project is eligible. Why is the CRA rejecting our claim?*
- *How much documentation is required for supporting SR&ED claims?*

3

The CRA interacts with claimants during general seminars, outreaches, and reviews of SR&ED claims.

Here are some samples of questions that we have heard from claimants:

- Our work is innovative within our marketplace, can we apply for SR&ED?
- We know of a company developing similar technology which has received SR&ED investment tax credits. Should we expect our claim to be accepted by the CRA?
- We believe our project is eligible. Why is the CRA rejecting our claim?
- How much documentation is required for supporting SR&ED claims?

The answers to all these questions relate back to what work was performed for a project, why, and how? To help answer these questions, we will use a practical ICT project example in exploring how to connect project work to SR&ED.

We will also explain scenarios of project work and show where SR&ED exists within such a project, and we will point out the difference between the amount of documentation and relevant documentation in support of a project claim.

Purpose of this presentation

Provide ICT companies with information (tips and best practices) to:

- Connect your organization's innovation through R&D projects to SR&ED.
- Receive your full entitlement of SR&ED investment tax credits.
- Reduce your cost of compliance for participating in the program.

The information in this presentation is provided as guidance and does not change or extend CRA's Eligibility of Work for SR&ED Investment Tax Credits Policy.

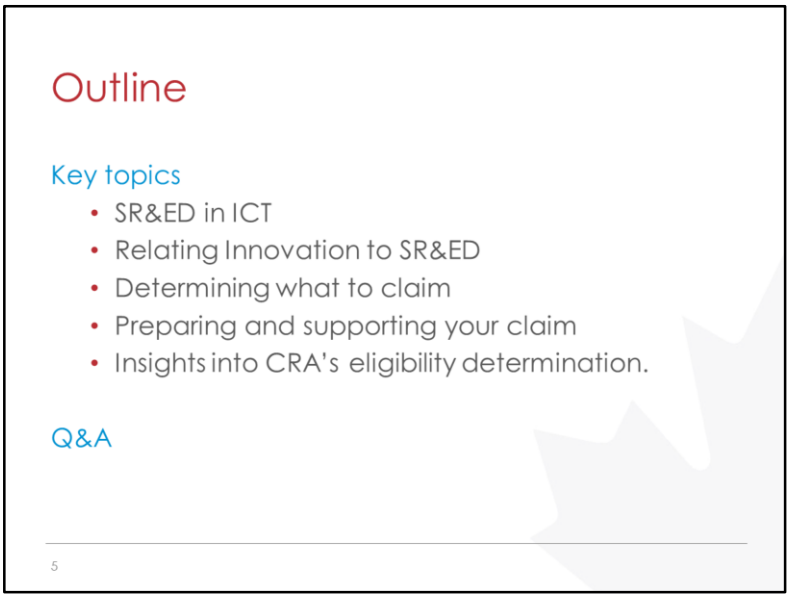
4

So, what do we hope to achieve?

Through this presentation we hope to,

- Show you how to better connect your project work to SR&ED,
- Give you a better understanding of what you are able to claim, and
- Explore ways to reduce your cost in preparing your SR&ED claims.

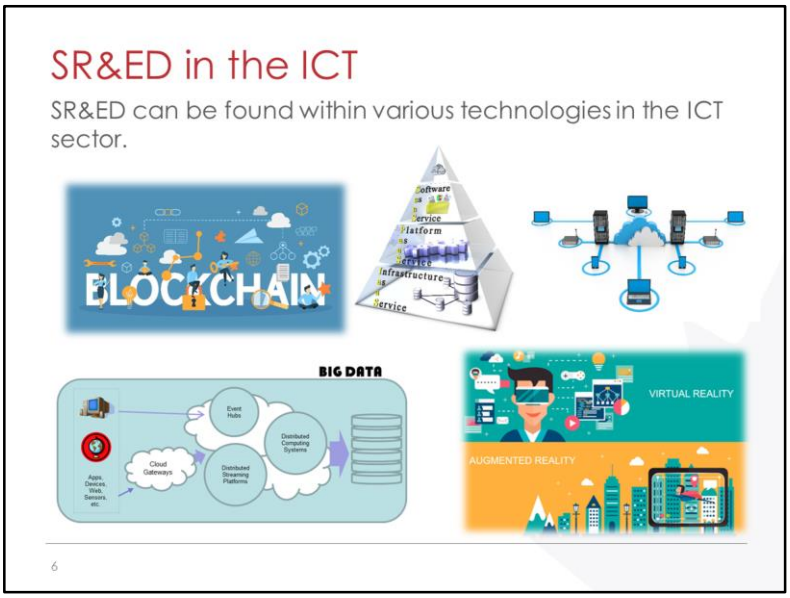
Please note that the information in this presentation is provided as guidance and does not change or extend CRA's Eligibility of Work for SR&ED Investment Tax Credits Policy.



During this presentation:

- We will discuss SR&ED in ICT.
- Show you how to relate your innovation to SR&ED through an ICT example and point out what is eligible and what is not to help you determine what to claim.
- We will explain how details of information generated during the course of your product development can help in identifying SR&ED in your projects and help support your claims in case of a review.
- We will provide you with a better appreciation for why you should proactively track and retain such information.
- We will offer some insights on eligibility determinations and leave you with some helpful tips and best practices in preparing your SR&ED claim.

We will have a Q&A at the end of this presentation to answer your questions and gather any feedback you may have. Also, we will be interacting with you throughout the workshop.

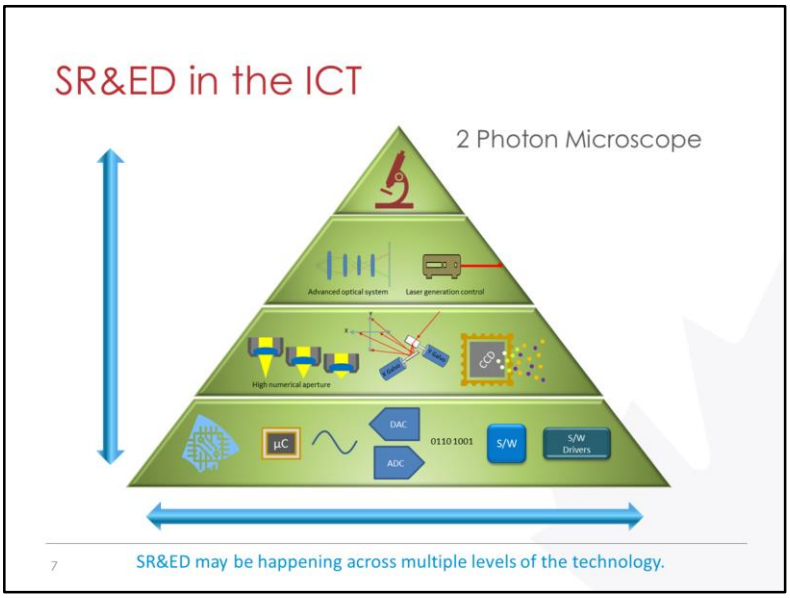


The ICT sector is vast. SR&ED can happen in various technology areas. Some examples include:

- Advancements in Big Data including new and improved techniques and methods in computing to store, search, process, and manage vast collections of data.
- Advancements in the general sense of Technology as a Service. As shown in the diagram this may include software as a service, platform as a service, infrastructure as a service, and others.
- Advancements for new or improved infrastructures like internet driven Cloud and distributed computing.
- Advancements to support scaling, reliability, and availability of software based systems, and
- Advancements in other technology areas such as virtual reality, augmented reality, computer vision, and more recently Blockchain.

This is not an exhaustive list, but a sample of the different areas. Also, these technologies are required and used in almost all sectors and not just the conventional ICT sector.

In the next slide we will look at an example of technologies at the various levels of a new or improved product.



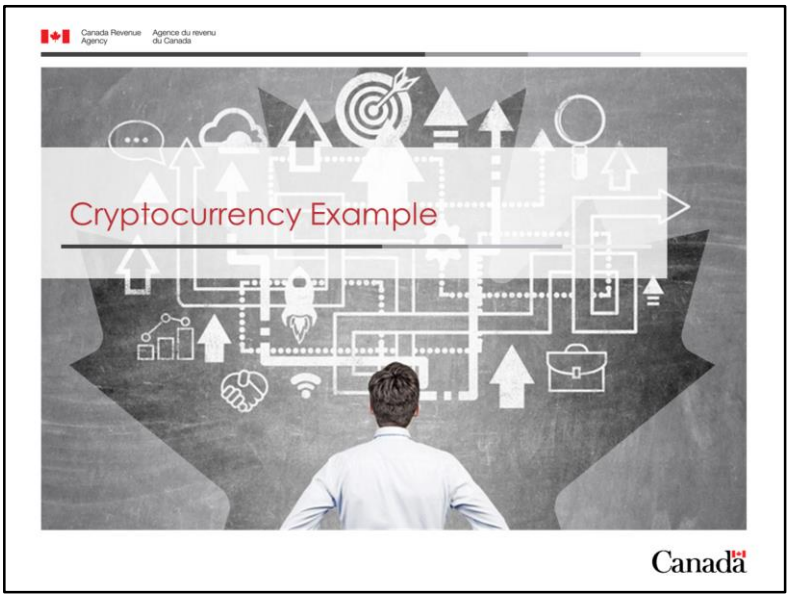
The ICT sector is traditionally defined as a combination of industries associated with capturing, transmitting, and displaying information electronically. This said, almost every sector in the modern economy incorporates Information and Communication technologies in their product. Therefore the possibility of performing SR&ED involving ICT exists in every sector.

We recognize that ICT is pervasive. Here we present one such example: a “two photon microscope” used in live imaging microscopy typically seen as a bio-medical device.

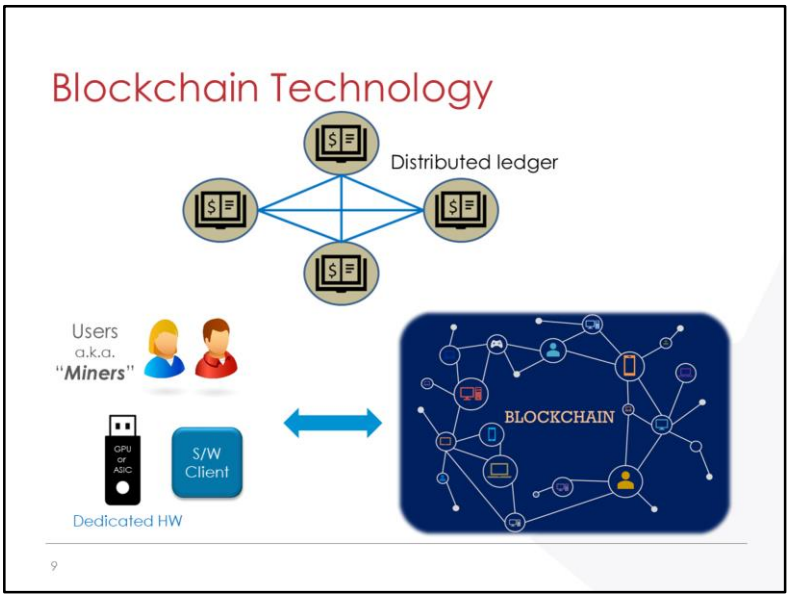
For the purpose of illustration, we have created a pyramid consisting of multiple levels of functional components and identified some technologies at each level to show that there is potential for SR&ED at almost every level, and involving Information and Communication technologies. In the development of such products, technological advancement may be required not only in capturing, transmitting, and displaying information but also towards the knowledge of how the constituent parts from different technologies are embodied in delivering the desired functionalities at every level.

We can recognize that sophisticated and better quality imaging is made possible by technological advancement at various levels shown in the diagram. At each level, the different technologies contribute to sub-functions either individually or through collective interaction.

A company can be performing R&D on multiple levels involving ICT and SR&ED can also happen on multiple levels.



Now, let us explore the relationship between innovation through R&D projects and SR&ED by showing you an example of a company project involving Blockchain - the enabling technology behind cryptocurrencies, which have gained significant interest in the last few years.



So what is Blockchain?

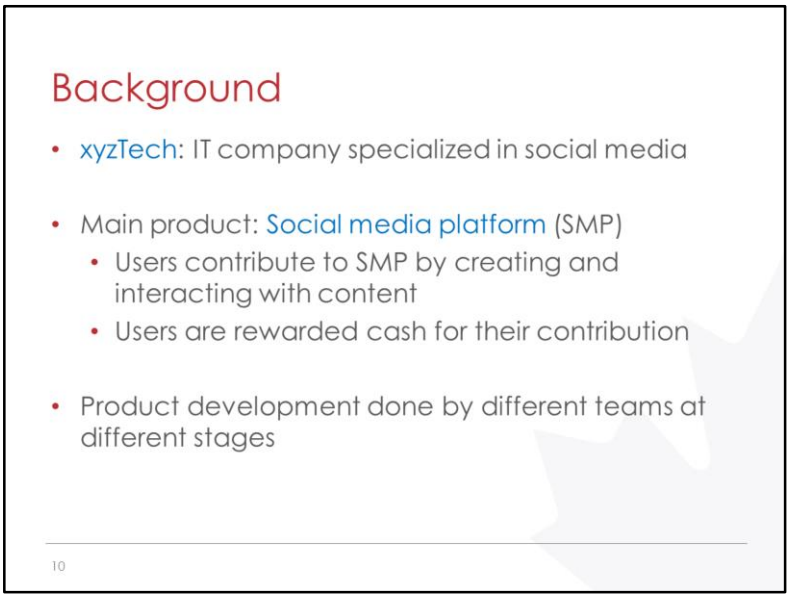
Blockchain is a distributed public ledger, storing users' transactions in a secure way.

This ledger relies on a peer-to-peer network comprising of software clients communicating with each other using specific protocols.

In the case of cryptocurrencies, transactions are verified and validated by users, also called "miners," who are part of this peer-to-peer network. This validation is done by solving a complex mathematical puzzle.

The successful validation generates new cryptocoins, which are awarded to the miner for this effort, increasing the circulation of that particular cryptocurrency.

The software client usually runs such validations on GPUs (Graphical Processing Units) or dedicated hardware such as ASICs (Application-specific Integrated circuits) for better performance.



Let us now look at some background information about the company:

xyzTech is an IT company with 10 years of business experience in the social media field.

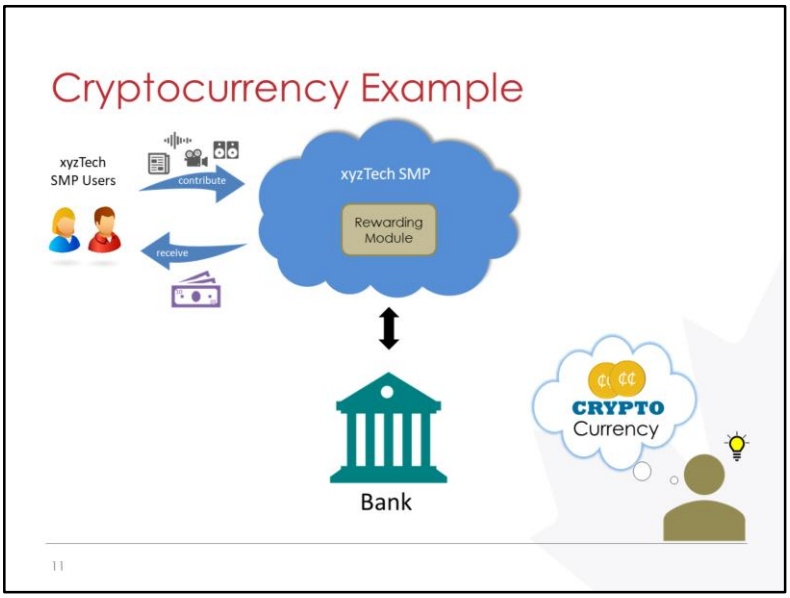
They provide and manage a social media platform or SMP as their main product offering. Revenues are generated for the company through advertisements.

Users contribute to SMP by creating new multimedia content, and by interacting with existing content through comments.

To encourage more content creation, thus more advertisements, the company rewards users for their contribution by issuing cash rewards.

Several teams in the company are involved in product development, with the biggest team being the one responsible for developing, administrating and maintaining the SMP.

When the company wants to explore new ideas, a small R&D team is formed to serve as a test bed for these new ideas to be developed later by other teams.

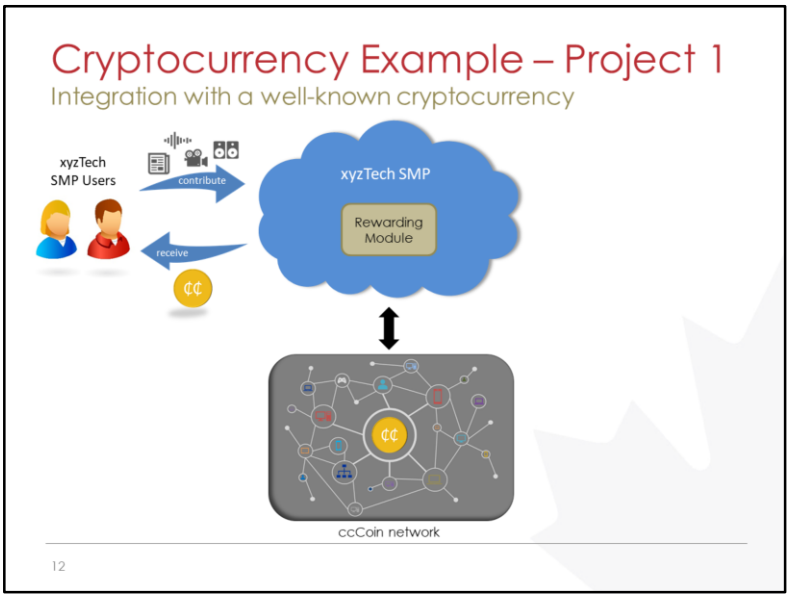


Let us now look at the company project:

In their current platform, users are rewarded by issuing cash rewards for their contribution.

xyzTech is exploring ways of increasing their revenues. They had an idea to encourage users to contribute more by rewarding them with a new type of reward, using an existing cryptocurrency.

By introducing a new way to earn rewards, xyzTech thought this may attract new users to the SMP; thus, increasing their user base.



xyzTech started by comparing many existing cryptocurrencies.

They selected ccCoin which was the most viable one to integrate into their SMP.

xyzTech started by redesigning the Rewarding Module within their SMP to integrate with ccCoin by adding transaction logic and user wallets. They also made changes to the security module and graphical user interface within SMP.

xyzTech was able to integrate ccCoin into their SMP by following the ccCoin API (Application Programming Interface) specifications and using their knowledge in web systems development. The company succeeded in achieving this integration.

Poll Question #1

- Do you think Project 1 qualifies for SR&ED?

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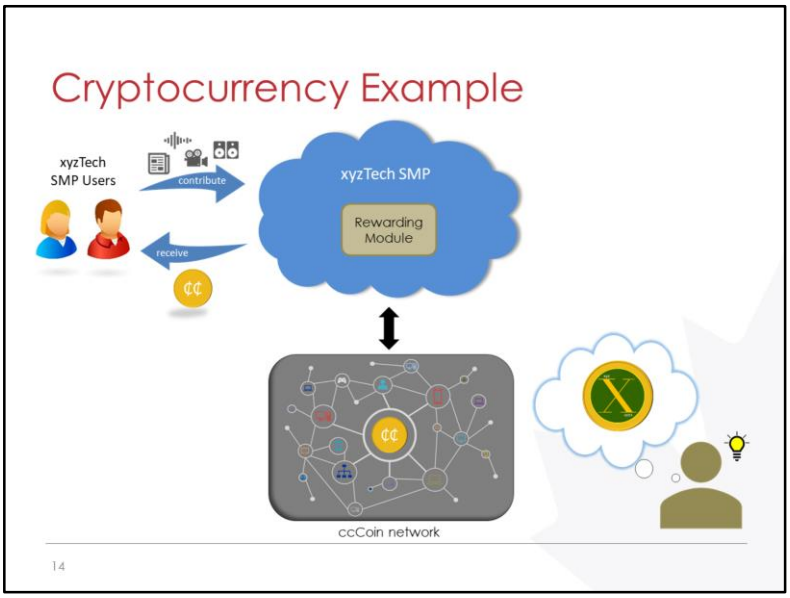
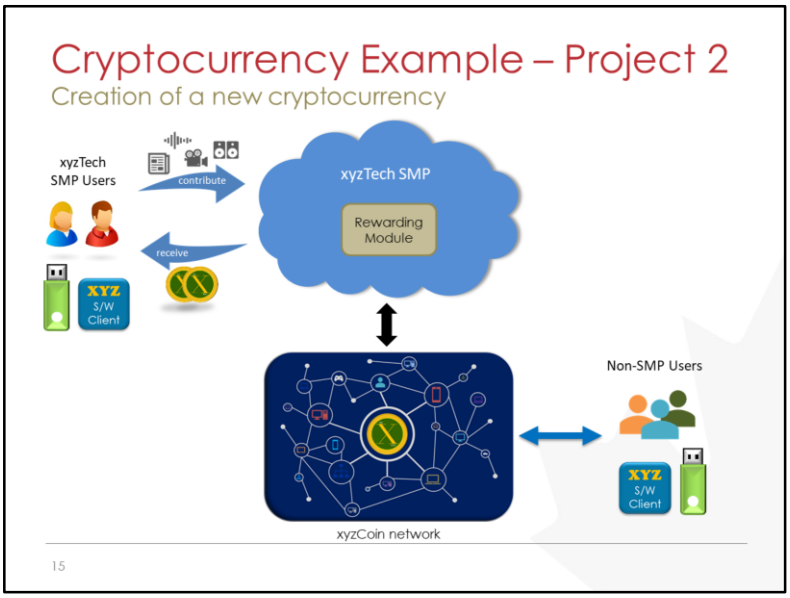


Let's continue with the company project.

While they were performing beta tests of their new system, coincidentally, there was a huge media buzz about the energy waste caused by cryptocurrencies. xyzTech considered the negative impact of this perception associated with existing crypto-currencies and decided to look at the creation of their own crypto currency that would consume far less energy and can be labelled "eco-friendly."

Their new reward system would allow their SMP users the ability to mine for new cryptocoins. Thus, increasing the opportunities for users to be rewarded in several different ways. That is, users can get rewarded:

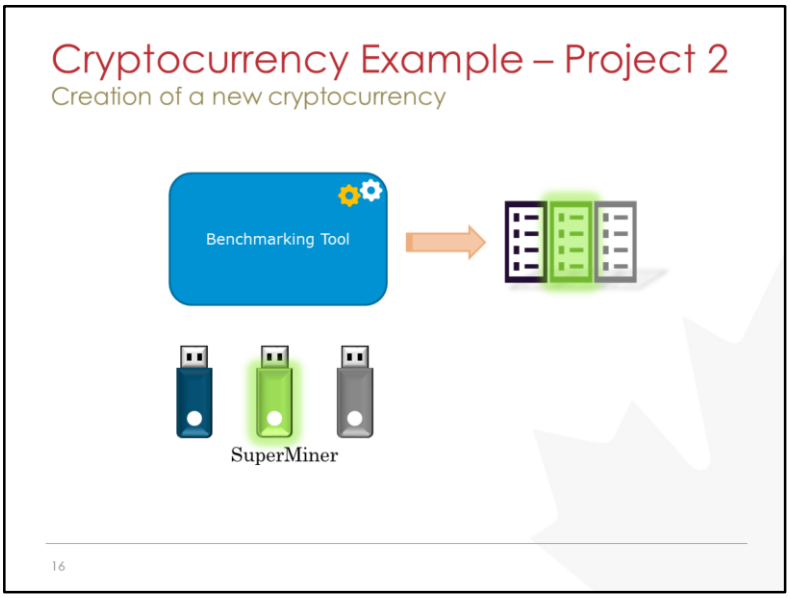
- for SMP contributions;
- for mining xyzTech's new cryptocurrency; or
- for both.



xyzTech decided to name the currency xyzCoin.

- The company would first roll out xyzCoin to their existing SMP User base.
- To increase xyzTech's penetration into the cryptocurrency market, xyzTech would later offer xyzCoin to non-SMP users. These users could participate solely in the mining of xyzCoins without specifically being part of the SMP network.

The company started a new project to achieve these goals in which the overall architecture will include the social media platform, a software client and a hardware mining device, both to be offered to SMP and non-SMP users.

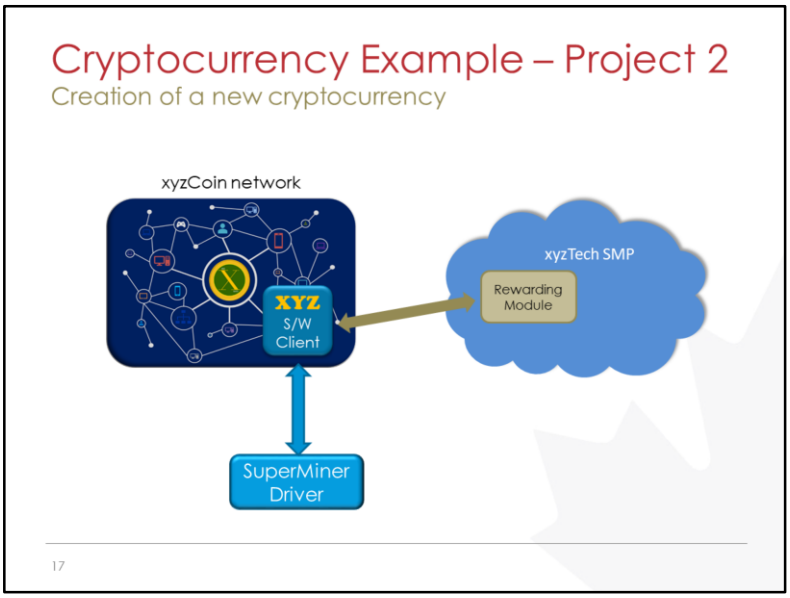


Knowing that ASIC-based mining devices are the most energy efficient, the R&D team thought about identifying the device having the best trade-off between processing rate and energy efficiency.

xyzTech looked into publicly available benchmarks to identify the best device; however, the available information was fragmented and did not provide a full picture of the performance aspects because some of the ASIC devices were not included, and some performance related parameters were not covered at all. As a result, xyzTech decided to perform their own benchmarking in house.

The company's R&D team used an open source benchmarking tool to test the most promising ASIC mining devices available in the market, but they encountered many compatibility issues with the benchmarking tool. The R&D team then looked into the hardware driver documentation, identified the proper API calls, and made the necessary changes to the benchmarking tool. Also, they modified the tool to include some additional parameters, and they also enhanced the automation of the testing.

Once the tool was functional, the team systematically tested the selected ASIC devices. The results showed that one of the devices (known as the SuperMiner) had the best trade-off between processing rate and energy consumption in the tune of 10 GigaHash per second and 0.3 Watts per GigaHash.



In parallel, another team started by first learning about the different ways to create new cryptocurrency as they lacked the know-how. Based on this information, they identified an open-source Blockchain software client that will serve as the basis for the new cryptocurrency.

They created a module within the software client to communicate with the Rewarding Module in their SMP. They also modified the Rewarding Module to add a new web services layer that will be invoked from the software client.

Lastly, they made further changes to various modules within their SMP to support their new xyzCoin cryptocurrency.

As a result of this project, the company created their own cryptocurrency, integrated it to their social media platform, and developed the associated software client for the users. Also, they identified the hardware mining device that provided the best trade-off of speed and energy efficiency in order to sell it to their users as part of their new “eco-friendly” solution.

Poll Question #2

- Do you think Project 2 qualifies for SR&ED?
- Do you still think Project 1 qualifies for SR&ED?

18

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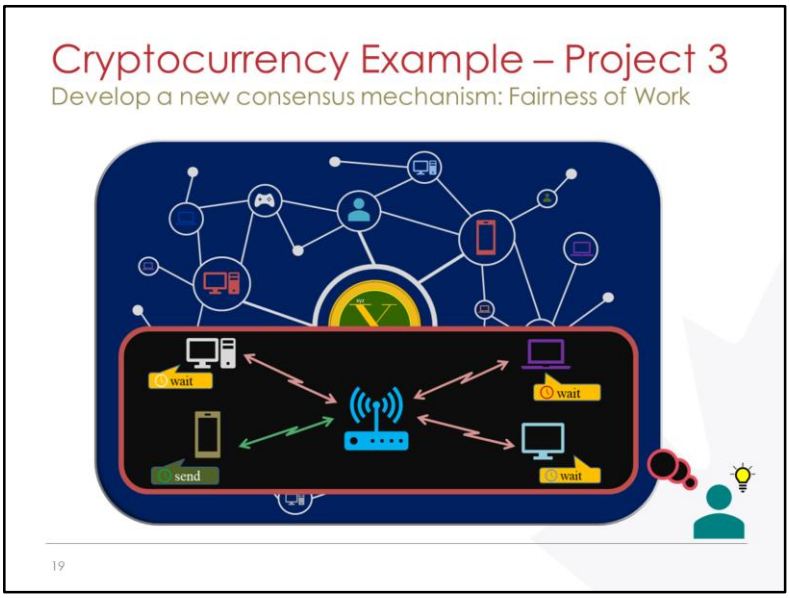


While learning about Blockchain technology and developing their eco-friendly solution, the R&D team decided to explore other ways of reducing energy consumption.

The problem of energy consumption is inherent to Blockchain technology itself and not isolated to the hardware used for mining. They learned that in order to achieve consensus about validity of transactions, Blockchain technology relies on a mechanism called Proof of Work in which all miners willing to validate a transaction, compete with each other. Only the first miner to complete the transaction validation would get rewarded with newly generated cryptocoins. All the other miners abort their processing.

Thus, there is an overall energy waste due to this mechanism since the number of competing miners can be high, generating too much energy waste in validating a single transaction.

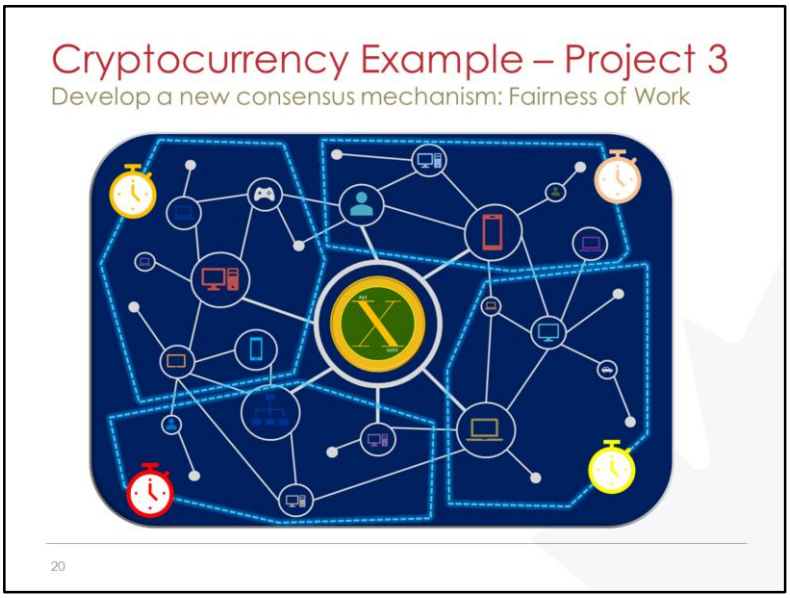
The R&D team then started by reading about the *Proof of Work* consensus mechanism in both forums and technical papers.

They found that Proof of Work has many alternatives, such as Proof of Stake. Some of these alternatives and their variations aimed to reduce energy consumption.

Although these solutions efficiently reduce the number of redundant mining operations, they tend to create a centralized network of miners which have a monopoly over rewards. At the time it was not known how to reduce redundant mining operations while keeping fairness among miners.

The R&D team had the idea of applying the principles of the backoff mechanism which is used for medium access control in wireless networks to avoid frame collisions. The idea originated by drawing an analogy between both technologies. For example, reducing redundant mining operations in Blockchain can be seen as similar to reducing frame collisions in wireless networks. In the backoff mechanism, if a node within a wireless network detects that there is nearby activity, the node will temporarily backoff from sending packets using a random delay.

However, xyzTech determined it was not possible to apply principles of backoff directly to Blockchain.

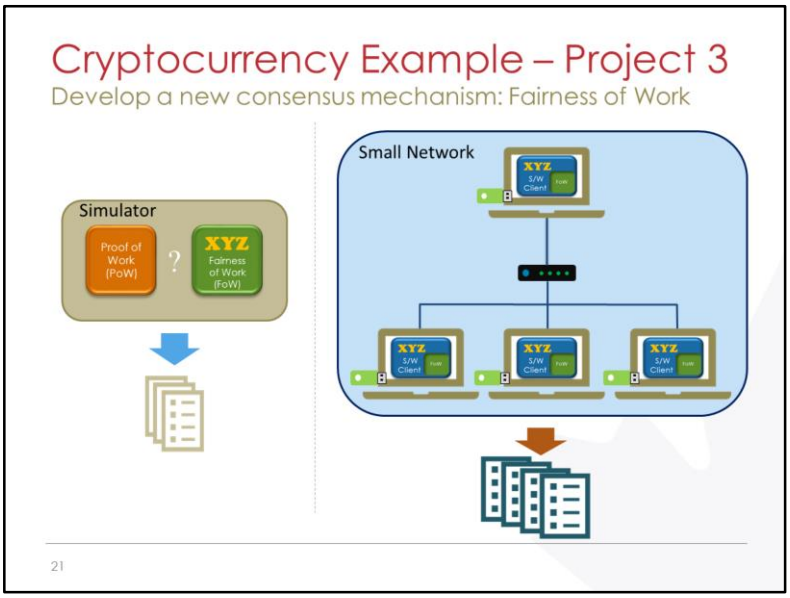


xyzTech then started a third project aimed at addressing the overall energy waste issue in Blockchain. At the start, the R&D team identified various limitations with applying the principles of backoff to Blockchain.

For example, backoff in wireless network assumes that, at a given time, only one node is allowed to communicate – all other nodes must backoff. In the case of Blockchain, this would mean that only one mining operating can happen. They had to determine if it was possible to allow for multiple concurrent mining operations while still adhering to the backoff principle.

The R&D team also had to deal with adapting the principles of the backoff mechanism to the context of Peer-to-Peer networks. The backoff mechanism is intended to work in an environment where wireless nodes can sense the channel activity. However, this is not a native behavior in Peer-to-Peer networks.

They came up with an idea to create regions of miners allowing them to detect the level of localized mining activities within a certain neighborhood and to correctly apply start, pause, and resume operations of backoff delay timers.



Now, that the R&D team has designed their mechanism and defined its specifications, they had to test its efficiency against the Proof of Work mechanism.

Since xyzTech required running tests on a large number of users, the R&D team decided to use a publicly available, generic, discrete-event simulator as a first step.

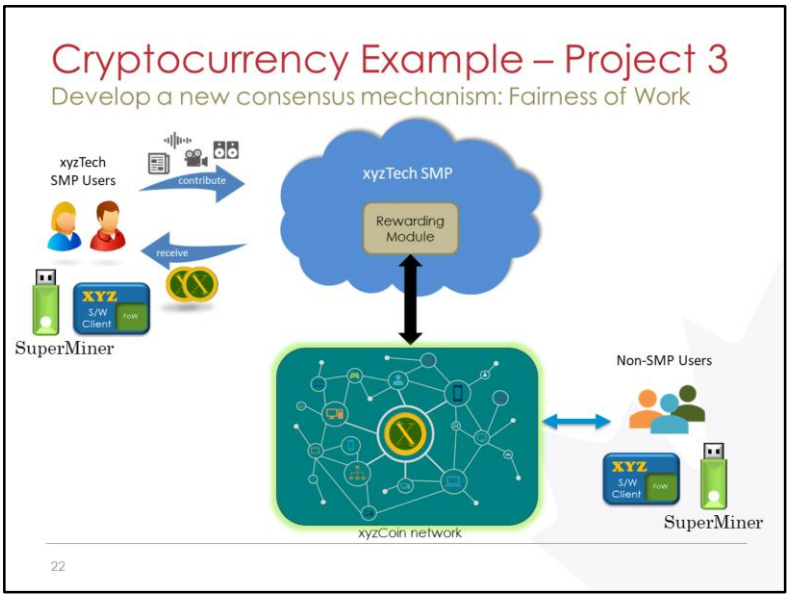
They implemented minimalistic models in the simulator to represent the behavior of both the *Proof of Work* mechanism and their new mechanism which they called *Fairness of Work*.

They determined the simulation scenarios, the variables to use, and the performance metrics to evaluate.

Simulation results were positive, as the *Fairness of Work* mechanism reduced redundant mining operations by 40% while having a fair distribution of mining chance among miners. However the results showed that the effectiveness of *Fairness of Work* decreases when the number of active miners grows above 200,000.

As a next step, the R&D team changed the software client, used in Project 2, and implemented their *Fairness of Work* mechanism. They conducted additional performance tests using a small network composed of the modified software clients.

The results were almost similar to the simulation results.



After the implementation of the *Fairness of Work* mechanism, and the creation of the related software modules, xyzTech performed additional integration tests and user-acceptance tests. From a technical perspective, they were in a good position to launch their new product.

As a result of this third project, xyzTech was able to develop an improved cryptocurrency that was far more energy efficient while maintaining fairness in the ability of the peers to be rewarded for mining.

Poll Question #3

- Do you think Project 3 qualifies for SR&ED?
- Do you still think Project 2 qualifies for SR&ED?
- Do you still think Project 1 qualifies for SR&ED?

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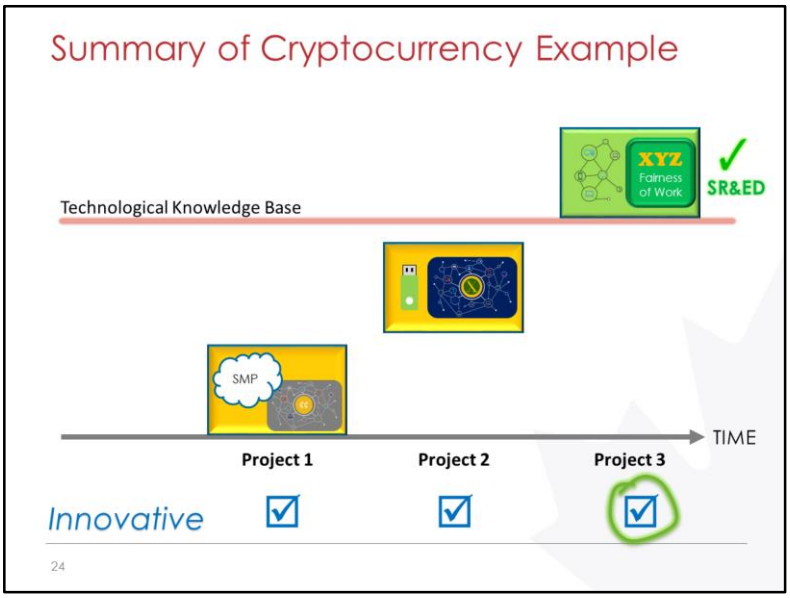

In our example, xyzTech's final product resulted from three separate but consecutive R&D projects.

In Project 1:

- xyzTech carried out work to integrate their SMP with a well-known cryptocurrency, ccCoin, in order to increase their user base and their user contributions.
- They considered this work to be innovative as they were the first to integrate cryptocurrencies into a social media platform.
- To do so, they developed an adaptor to communicate with the external ccCoin network through a published API.
- They also made changes to various modules in SMP including the GUI, security, and rewarding modules to accommodate the new cryptocurrency.

Although the work was complex, xyzTech's R&D team used their expertise and know-how, and resources publically available to achieve their objectives. Thus, the work in this project did not involve SR&ED.

In Project 2:

- xyzTech explored the creation of their own cryptocurrency called xyzCoin.
- They developed their own software client and modified several modules in their SMP following software development best practices.
- As for the hardware, there was no publicly available information about which ASIC mining device has the best speed vs energy efficiency trade-off.
- The R&D team performed benchmarks that revealed the best candidate device. This was done by enhancing a benchmarking tool to accept new drivers, and by systematically conducting tests on many ASIC devices.

Although the work was done systematically and new information was generated about various ASIC devices through benchmarking, the objective was achieved based on established techniques proven to generate such information.

The work in this project did not involve SR&ED because the company redesigned the benchmarking tool to make it work with the selected ASIC devices by reading available hardware driver documentation and by identifying the proper APIs, thus allowing them to make the necessary changes to the benchmarking tool. Similar to Project 1, the R&D team used their expertise and know-how to complete the project.

xyzTech also gained knowledge about the performance characteristics of the specific ASIC devices they chose to benchmark. The generated information is about how the specific devices performed in their environment and not related to technological knowledge.

In Project 3:

- xyzTech explored enhancements to Blockchain technology itself to tackle the problem of energy consumption.
- They thought that by applying the concept of medium access control found in wireless networks in developing their own *Fairness of Work* consensus mechanism, they can achieve their goal by going beyond the available technology. The effectiveness of this mechanism was validated by experimentation.
- This work resulted in enhancing the standard Blockchain consensus mechanism. They addressed overall energy consumption by randomly reducing redundant computations of miners while achieving fair mining.

In this case, the work did involve SR&ED as it generated new knowledge above and beyond the existing *scientific or technological knowledge base*. More specifically, xyzTech found that it is possible to transpose the principles of the backoff mechanism into Blockchain using a new design where this mechanism is instantiated for each transaction, and that by relying on localized mining information at the neighborhood level, it is possible to apply this mechanism to the overall Blockchain network and thus reduce the number of redundant mining operations while keeping fairness among miners across all the network.

Here, the scientific or technological knowledge base refers to your technical knowledge and experience and that of your contractors, as well as publically available sources of information.

Although the overall company project can be considered as innovative, it contains a mixture of development work and SR&ED**.** Usually, innovation is a good indicator of potential SR&ED but in itself does not guarantee SR&ED

The SR&ED program is focused on supporting innovative R&D work which results in the increase of the technological knowledge base, as illustrated in project 3.

From an SR&ED claim perspective, if xyzTech had claimed Projects 1, 2, and 3 as a single SR&ED project, the work would be incorrectly claimed as a company project. Although all three projects contain R&D work, only the work in Project 3 involves SR&ED. Such claim will likely require a review to determine eligibility.

This afternoon, we will explore further details about eligibility of the work by doing a deeper technical dive into our Cryptocurrency example.

Insights into CRA's eligibility determinations

Our work is innovative within our marketplace, can we apply for SR&ED?

- Although patents and white papers are positive indicators of potential SR&ED, they are insufficient to establish SR&ED by themselves.
- Understanding your innovation and the SR&ED program requirement allows you to better identify SR&ED in your work, which will ensure you receive your full entitlement.
- By educating your key technical staff on SR&ED program requirements, your organization is better positioned to identify SR&ED in your product development work.

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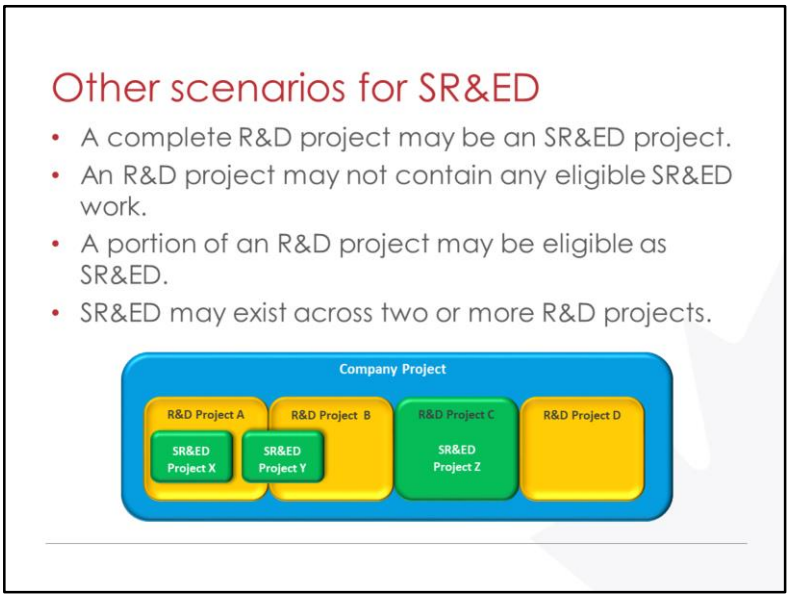
Let us now look at one of the questions we have heard from claimants:

- Our work is innovative within our marketplace, can we apply for SR&ED?
- Sometimes, claimants associate innovation with the creation of patents and white papers. Although patents and whitepapers are positive indicators of potential SR&ED, they are not sufficient to establish SR&ED by themselves.
    - In our Blockchain example, xyzTech may have created various patents and white papers for Projects 1 and 2.
    - However, Projects 1 and 2 were not eligible as SR&ED.
- Sometimes, claimants associate innovation with the development of a new feature which may be first to market. What is important for SR&ED is to explain the work that was conducted to achieve the final outcome.
- It is important to understand the work performed that led to your innovation and the SR&ED program requirements.
    - In our example, although all three projects were innovative to xyzTech, projects 1 and 2 do not meet the requirements of the program. Understanding this relationship would have saved time in the preparation of their claim and would avoid a difficult review if the work in these projects was included in their claim.
- By educating your technical staff on SR&ED program requirements, your organization will be in a better position to identify SR&ED in your product development. This will ensure you receive your full entitlement to SR&ED investment tax credits.

- Have your key technical leads and managers familiarize themselves with the *Eligibility of Work for SR&ED Investment Tax Credits Policy* available on the CRA SR&ED website.

- Also, our ICT Webinar 1 material which specifically covers eligibility is available online.



Now that you have an appreciation for how SR&ED program supports innovation, let us quickly illustrate some other scenarios of how company projects may relate to SR&ED:

In our Blockchain example, we have shown you two scenarios:

- A complete R&D project may be an SR&ED project (as was the case with xyzTech's project 3)
- An R&D project may not contain or involve any SR&ED as was the case with projects 1 and 2.

There are other scenarios that may be applicable to your company project.

- For example, a portion of an R&D project may contain SR&ED.
- Also, SR&ED may exist across one or more R&D projects.

In conclusion, SR&ED is a specific type of work with specific purpose.

Insights into CRA's eligibility determinations

We know of a company developing similar technology that has received SR&ED investment tax credits. Should we expect our claim to be accepted by the CRA?

- Two companies may be developing products involving similar technology; however one may be using available technology while the other may be advancing technology.

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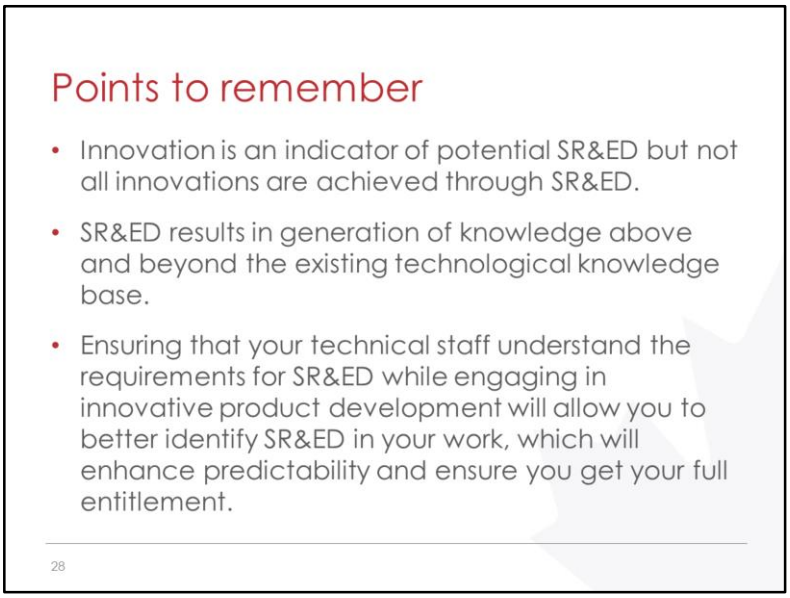
Let us now look at a question we have heard from claimants:

- We know of a company developing similar technology that has received SR&ED investment tax credits. Should we expect our claim to be accepted by the CRA?

- Two companies may be developing products involving similar technologies; however one may be using available technology while the other may be advancing technology.
    - In our example, three projects involved the same technology. However, suppose Company A developed Projects 1 and 2 using existing technology. Let's suppose Company B developed Project 3 and as a result, they advanced Blockchain technology. Although these three projects may have been done by two different companies, only Company B will be entitled to SR&ED investment tax credits.

- The CRA strives to be as consistent as possible in reviewing claims with the necessary oversights to achieve this objective. The technical and financial reviewers are trained the same way to use the same policies and procedures. It is unlikely that the work undertaken by two companies is identical. Having said this, all things being equal, the same body of work presented by two different companies will be treated the same way.



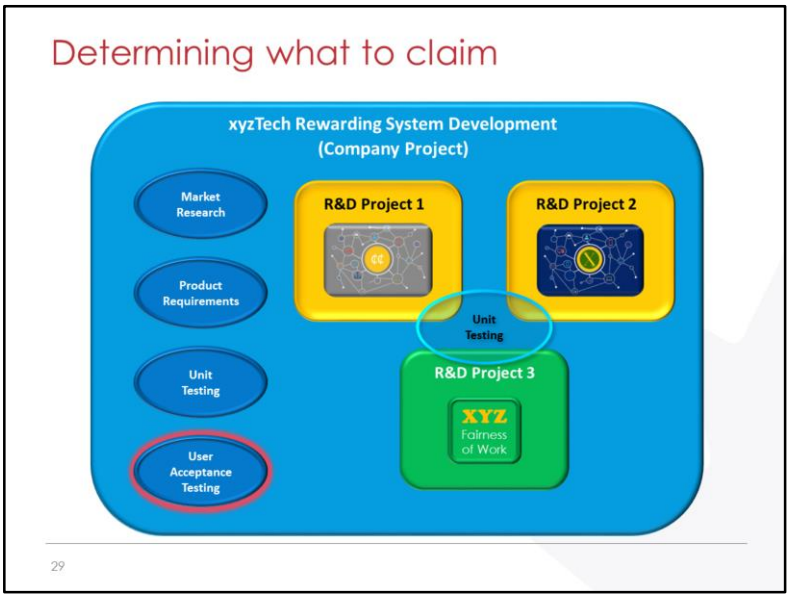
Some points to remember when relating your innovation to SR&ED.

- Innovation is an indicator of potential SR&ED but not all innovations are achieved through SR&ED. Innovation such as the development of new “first to market” product features may be achieved without involving SR&ED.

- SR&ED results in generation of knowledge above and beyond the existing *technological knowledge base.*

- Ensuring that your technical staff understand the requirements for SR&ED (while engaging in innovative product development) will allow you to better identify SR&ED in your work, which will enhance predictability and ensure you receive your full entitlement.

We will discuss technological knowledge base in greater detail in Session 2 this afternoon to ensure your technical leads and managers have a good understanding of how innovation and SR&ED relate.



Now that we have shown you how innovation and SR&ED relate, let's discuss how to determine what work to include in your SR&ED claim.

In general, there are specific types of work which must be excluded from your claim. The most commonly excluded types of work in the ICT sector include: Market research, Routine testing, Routine data collection, and Style changes.

In the diagram we show various work activities performed by xyzTech in developing their Cryptocurrency reward system.

- What is presented in the diagram is only a subset of a larger body of work performed by xyzTech.
- These particular work activities have been selected for the purpose of illustration.

In our example, xyzTech engaged in a market research study before they decided to augment their existing reward system with a new type of reward (based on cryptocurrency). xyzTech also created a set of user and product requirements. These activities should be excluded from the SR&ED claim.

Also, Projects 1 and 2 did not involve any SR&ED; whereas, Project 3 did. xyzTech must exclude the work related to Projects 1 and 2 in their SR&ED claim.

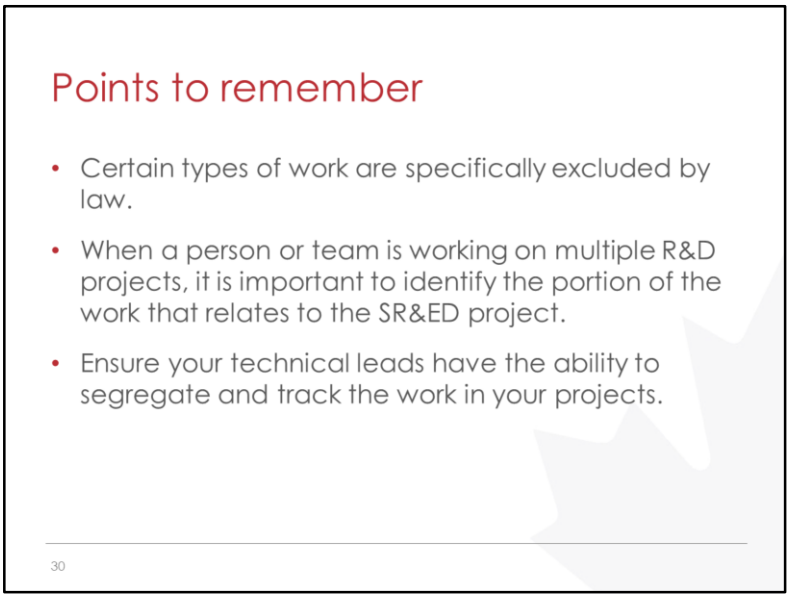
If there were shared R&D resources across all three projects, xyzTech must be able to separate the work associated with eligible projects from ineligible projects for each resource.

For example, let's suppose xyzTech employed a single testing team to perform unit tests.

- The portion of work related to unit testing in Projects 1 and 2 should be excluded from the claim.
- Only the portion of the work related to Project 3 should be included in the claim.

Let's now suppose xyzTech employed another team to perform user acceptance testing.

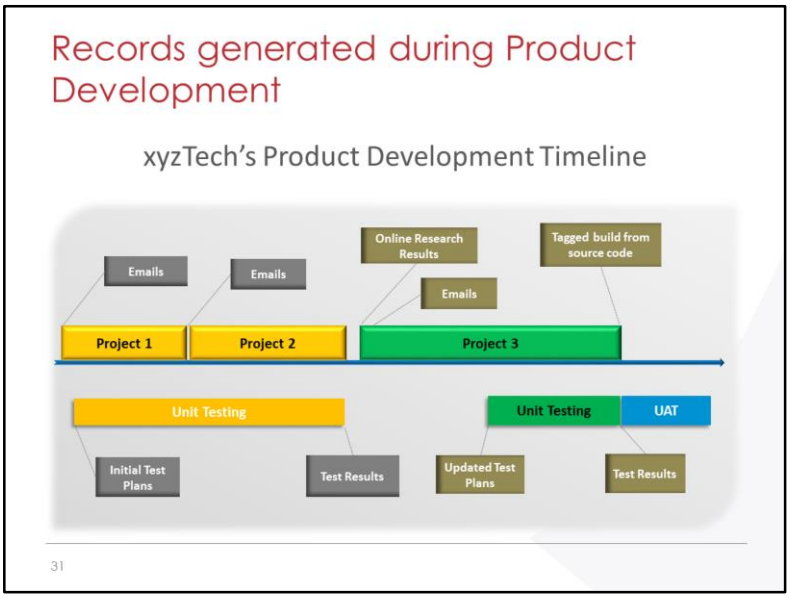
- User acceptance testing focuses on testing whether the functionality of the system meets user requirements. User acceptance testing was not required to perform SR&ED and should be excluded from the claim.



Here are some points to remember when determining what to claim:

- Certain types of work are specifically excluded by law and should not be claimed for SR&ED investment tax credits.
    - Encourage your technical staff to be familiar with the *Eligibility of Work* policy.
- When a person or team is working on multiple R&D projects, it is important to identify the portion of the work that relates to the SR&ED project.
- Ensure your technical leads have the ability to segregate and track the work in your projects.
    - In xyzTech's case, their unit testing team lead is best suited to identifying what portion of work relates to Project 3.

In the afternoon session, we will provide helpful tips on how to easily track the work.



Now that we have shown you how to determine what work to include in your SR&ED claim, let's discuss how records that are generated during product development can be used to support your claim.

In our Blockchain example, the SR&ED work starts at the beginning of project 3.

xyzTech generated various records during the development of their project, such as: Emails, Online Research Results, Source code, and Test plans.

In the diagram we show various records generated by xyzTech during the development of their product

xyzTech identified specific information contained in certain documents that were best suited to support the work done in Projects 1, 2, and 3. As shown in the diagram:

- A set of emails and online research results showed <u>when</u> xyzTech started researching whether the backoff principles had ever been applied in the context of Blockchain.
- Various emails and tagged versions of their source code showed various attempts that were made to develop the final version of their *Fairness of Work* mechanism.
- Raw data generated by the benchmarking tool.
- Spreadsheets consolidating outputs from the simulator.

For illustration, we have shown a small subset of the types of records that xyzTech generated during their product development work. In this case, these records can be used to support the claim.

So far, we have not discussed the documents necessary to support the costs attributed to SR&ED and we will not be discussing these other aspects today. We encourage you to attend our general SR&ED webinars that discusses these aspects in more detail.

Points to remember

- CRA does not require you to create additional documents only for SR&ED.
- It is not the amount of documentation or the amount of detail within your documentation that is important.
- Having a system in place to capture and retain the records and evidence is beneficial to support your claims.

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Some points to remember when determining what information and documentation can support your work.

- CRA does not require you to create additional documents only for SR&ED. However, the documentation that is usually generated as part of your development work can be used to support your claim.

- It is not the amount of documentation or the amount of detail within your documentation that is important.
  Providing your entire set of engineering documents without identifying what is relevant will not help in the review of your claim. Likely, this will also result in delays in processing your SR&ED claim.

- Having the capability to capture and retain the records and evidence that supports your claim will help to ensure you receive your full entitlement of tax credits.

    - In the case of staff attrition, these retained records and information become part of your corporate knowledge and will be available to support any SR&ED claim.

    - Fortunately, in the ICT sector, many tools are used for tracking and record keeping and we will later show you some tips and best practices how these may be used to support your SR&ED claim.

Now we will examine several ways of preparing SR&ED.

Poll Question #4

- How do you currently track and identify SR&ED in your organization?

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[This slide is meant for interaction purpose]

So far, we have discussed how to identify SR&ED within your innovative R&D work and how to use your documentation to support your work.

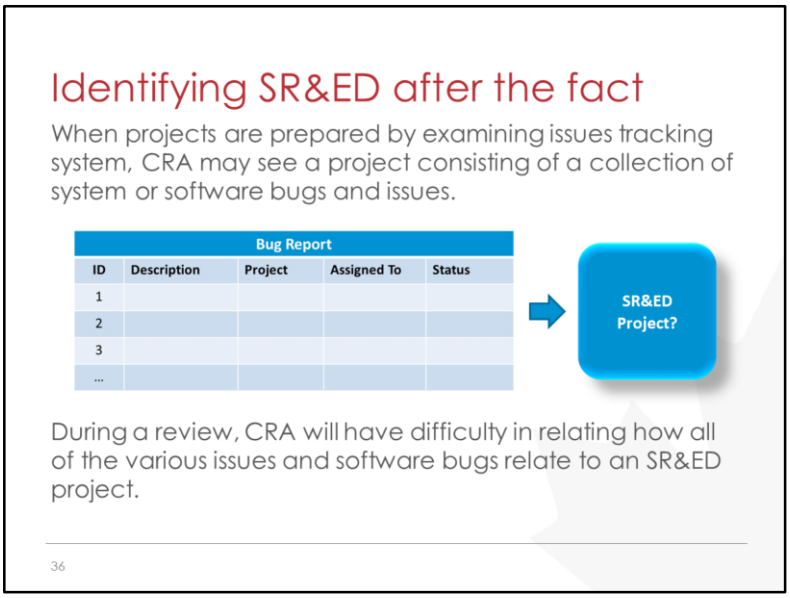
The CRA has seen that sometimes claimants prepare their claim by collecting information after the fact at the end of each fiscal period, similar to a forensic approach. Forensic here refers to identifying SR&ED in your projects in retrospect, which means by often relying on recollection and existing documents to assemble claim information.

Identifying your SR&ED after the fact, you will need to rely on the memory of your R&D team to recall what they did throughout the year.

- The danger is that you will likely miss key information required to prepare your claim due to staff attrition.
- Contractors may be reluctant to disclose the details of their work. Your contractors may leave with key information that is relevant for your claim. Additional costs may be required to involve your contractors during claim preparation or to support your claim if selected for review.
- You R&D staff may be unavailable during the preparation of your SR&ED claim, as they may have been assigned to other projects or have left your company.

If your R&D team is having difficulty in remembering the work, you may rely on Market and Product requirements, user stories, and user and technical requirements to construct your SR&ED claim.

If you use these types of documents, your may be incorrectly presenting a company project rather than an SR&ED project.



In addition to relying on recollection, the CRA has also seen claimants prepare their claim by examining lists of tracked issues and software bugs and only presenting a small subset of these as their SR&ED project.

If your SR&ED claim is constructed in such a manner, this makes CRA's job of identifying your SR&ED project difficult. Not only is the work described in your project fragmented, the reviewer will have difficulty in relating how all of the various issues and software bugs relate to an SR&ED project.

In such a case, the reviewer may end up assessing each issue or bug individually. Often these issues and bugs are addressed using available knowledge.

Insights into CRA's eligibility determinations

We believe our project is eligible. Why is the CRA rejecting our claim?

There are various scenarios where this may occur.

- Projects are presented as company projects or as a collection of activities, each undertaken using available knowledge
- Your key R&D staff may have left or cannot recall the work. As a result, you may not have key information to provide to CRA. The CRA reviewer will make a decision on the work based on incomplete information.
- You may have an R&D project which does not contain any SR&ED work.

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One of the questions we heard from claimants is:

- We believe our project is eligible. Why is the CRA rejecting our claim?

There are various scenarios where this may occur.

- When Market, Product, or User Requirements are used to construct an SR&ED claim, projects are presented as company projects.
- When a selection of historical bugs are chosen to construct an SR&ED claim, projects consist of a collection of activities that are undertaken using available knowledge.
    - If xyzTech used Market or Product requirements to identify their SR&ED project, they would likely be claiming at the company project level. In other words, the they would be incorrectly claiming a mix of eligible and ineligible work by including the work from projects 1, 2, and 3.
- Your key R&D staff may have left or cannot recall the work. As a result, you may not have key information to provide to CRA. The CRA reviewer will determine the work based on incomplete information.
- It may be the case that your R&D project does not contain any eligible SR&ED work.
    - This was illustrated in our Cryptocurrency example. xyzTech undertook three R&D projects. Only the 3rd R&D project was eligible as SR&ED.

Pitfalls of 'forensic' approach

Using a "forensic" approach to prepare SR&ED claims after the fact may lead to the following outcomes:

- The need for CRA to conduct a detailed review.
- Potential for not identifying and including all the work that may be claimed as part of your SR&ED claim.
- CRA reviewers cannot assist you in helping to identify SR&ED as the key information is not kept or not presented during the review.
- May lead to information requests or additional meetings to understand what work was done, resulting in delays in processing your claim.

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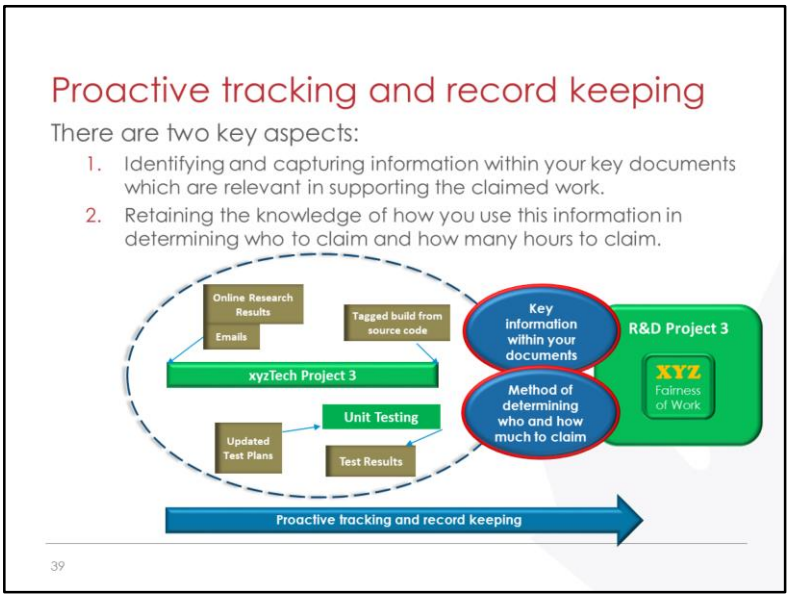
In summary, using a "forensic" approach, in other words, preparing SR&ED after the fact, may lead to the following outcomes:

- The need for CRA to conduct a detailed review.
- Potential for not identifying and including all the work that may be claimed as part of your SR&ED claim.
- CRA reviewers cannot assist you in helping to identify SR&ED as the key information is not kept or not presented during the review.
- May lead to information requests or additional meetings to understand what work was done, resulting in delays in processing your claim.



Now we will look at an alternative approach to preparing an SR&ED claim.

A best practice is one that involves proactive tracking and record keeping throughout the year.

There are two key aspects to a proactive process:

- Identifying and capturing information within your key documents which are relevant in supporting the claimed work.
- Retaining the knowledge of how you use this information in determining who to claim and how many hours to claim.

The diagram shows our xyzTech's Cryptocurrency example.

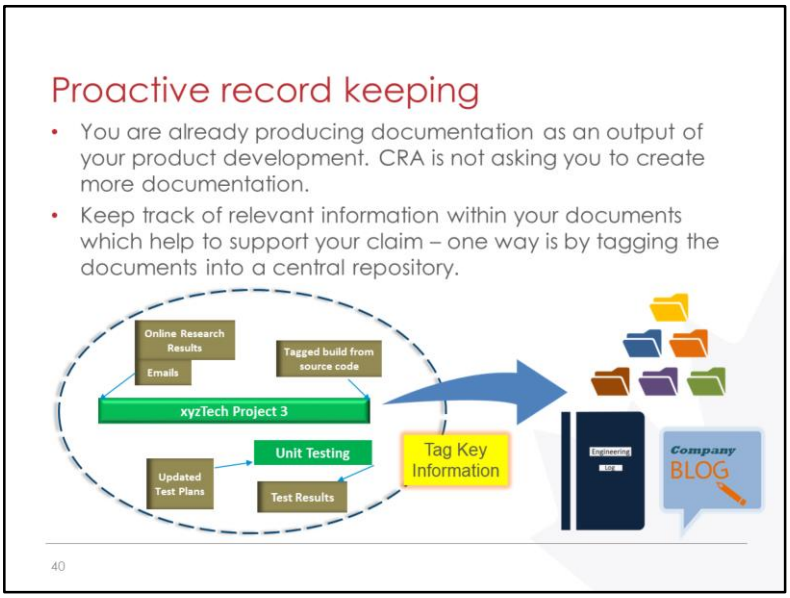
- We noted that the start of SR&ED happened when xyzTech started their research and development of their *Fairness of Work* Blockchain mechanism.
- We also noted that xyzTech had identified a set of emails and online research results which supports when this work started and who was involved.
- Similarly, the completion of the *Fairness of Work* protocol was identified by a specific tagged build from their source code repository.
- There were also specific unit test cases in their system tagged under Project 3.

It is this information which is relevant to supporting the claim.

It is important to note that xyzTech was not required to generate any new documentation for SR&ED.

Sending CRA an extract of all your emails or a listing of all of your release builds, or a listing of your entire set of test cases will not help CRA validate the work.

It is the company's responsibility to review their documents and identify what information is most relevant in allowing CRA to understand and validate the work.



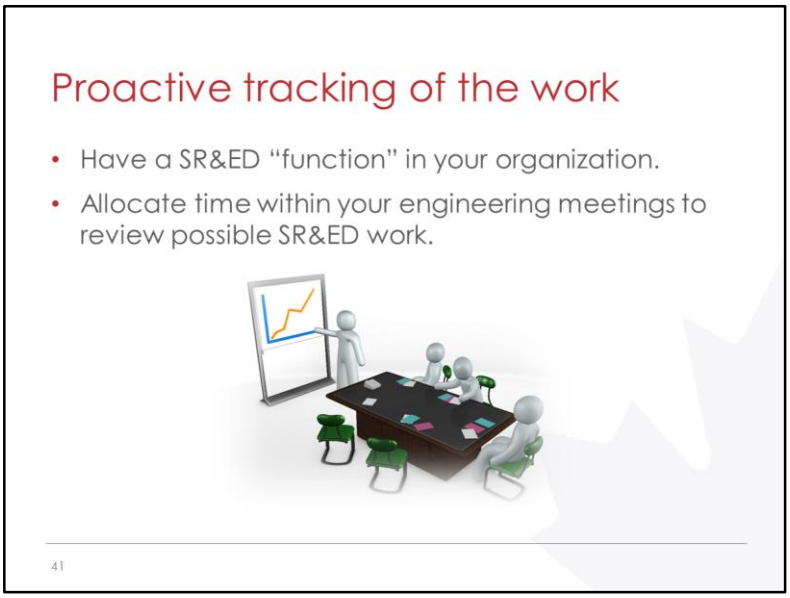
In summary, you are already producing documentation as an output of your product development. CRA is not asking you to create more documentation.

Keep track of relevant information within your documents which help to support your claim.

- One way is by tagging key information and documents in a central file repository or an internal company BLOG or Engineering Log book.

Be proactive rather than reactive in developing a process of identifying and retaining relevant information.

- Reactive means performing forensics on your company's documents and conducting yearend interviews with your R&D team to determine the work performed, and the related issues being addressed.
- Proactive means that your teams discuss and review potential SR&ED work and key documents throughout the year.



Some additional tips for proactive tracking include:

- Having a function within your organization which helps to drive a process to identify and track SR&ED work throughout the year.
    - This can be assigned to one person or spread across various leads.
- Allocating time within your engineering meetings to review possible SR&ED work.
    - Alternatively, consider having monthly or quarterly meetings within your R&D teams focused on SR&ED discussion throughout your development life cycle.
- Keeping a log of technical issues, people involved, potential solutions, decisions, and outcomes made during these technical meetings.
    - Capture a log of these details in your central file repository, internal company BLOG or Engineering Log book.

Insights into CRA's eligibility determinations

How much documentation is required for SR&ED?

- You are already producing documentation as part of your product development process. CRA does not require you to create more documentation.
- It is also not the amount of available documentation which is key. Rather, it is the relevance of the information within your documents which helps the CRA understand the work.
- Proactively identifying and tagging relevant documents throughout your product development lifecycle will allow the CRA to validate the work, the people involved, and the amount of work claimed.

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We often hear: How much documentation is required for SR&ED?

- You are already producing records as part of your product development process. CRA does not require you to create more documentation. However, you must provide relevant documentation to substantiate that the work was done, and identify who performed the work.
- It is important to remember that it is not the amount of available documentation but rather the relevance of the information that helps the CRA understand the work.
    - In the case of xyzTech, a set of the emails from the technical lead detailed how the backoff mechanism could be applied to reduce the number of mining operations in the Blockchain network. So, emails with such details would help validate the work, the timing and who was involved.
- Proactively identifying and tagging relevant documents throughout your product development lifecycle will allow the CRA to understand and validate: the claimed work, the people involved, and how you arrived at the amount of work claimed.
- Without this information, if the CRA cannot validate the work done, then the claim can be concluded as unsubstantiated.

Points to remember

Advantages to proactive tracking and record keeping:

- Easier to discuss and retain key technical information as work progresses.
- More likely to identify and claim all eligible work.
- SR&ED claim preparation and submission will be much quicker.
- If selected for review, the review will be more effective and efficient, reducing your overall compliance costs.
- Enhances predictability by putting your organization in a better position to more accurately forecast potential SR&ED investment tax credits.

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In summary, there are many advantages to proactive tracking and record keeping:

- It will be easier for you to discuss and retain key technical information as work progresses.
- You are more likely to identify and claim all eligible work.
- The SR&ED claim preparation and submission process will be much quicker.
- If you are selected for review, the review will be more effective and efficient, reducing your overall compliance cost in preparing and supporting your SR&ED claim.
- Enhances predictability by putting your organization in a better position to more accurately forecast potential SR&ED investment tax credits.

Poll Question #5

- Will you be modifying your R&D processes to incorporate some of the aspects of proactive tracking that were presented today?

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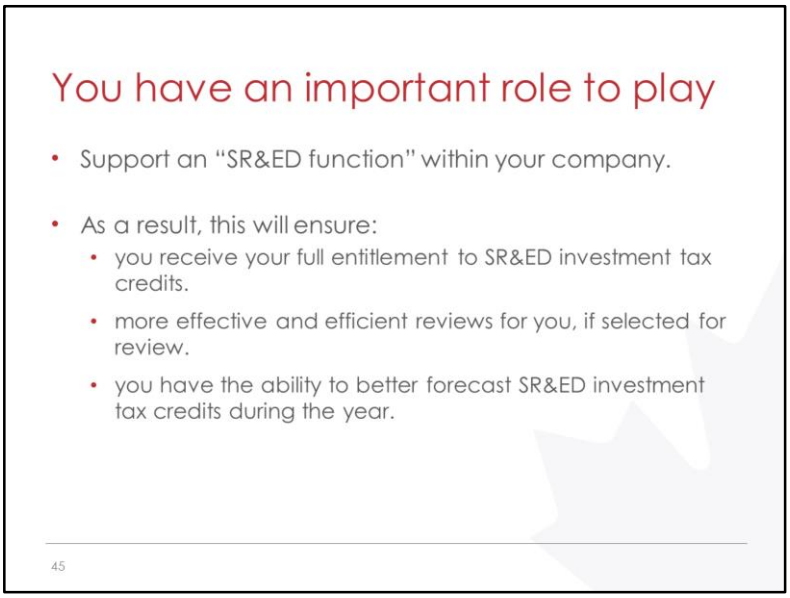

As leaders of your organization, you have an important role to play.

- Support an "SR&ED function" within your company.
  - The purpose of a SR&ED function is to review the work and documentation proactively during the product development lifecycle.

- Support proactive tracking and record keeping of SR&ED within your organization. This will lead to:
  - Ensuring you receive your full entitlement to SR&ED investment tax credits.
  - More effective and efficient reviews for you, if selected for review.
  - And your ability to forecast SR&ED investment tax credits during the year.

CRA can help you

- Take advantage of our services. These services are provided at no cost to you.
- Encourage your key technical leads to attend the CRA's ICT Webinars and presentations.
- Take advantage of CRA's Pre-Claim Consultation service.
  - This service is meant to provide you feedback while the work is progressing.
  - CRA does not have to review all of your projects during this consultation. You can select specific projects within your product development you wish CRA to review.
  - CRA will provide a binding determination on the projects reviewed.

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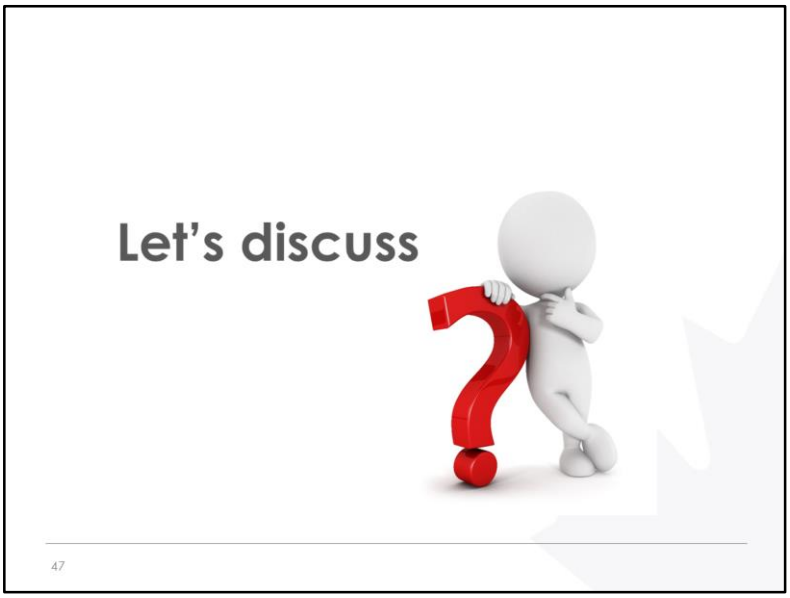
Here are some ways CRA can help you.

- CRA offers some tools and services to help you. Take advantage of our services as they are provided at no cost to you.
- Encourage your key technical leads to attend our ICT Webinars and presentations where we use examples to explain the key requirements of the program.
- Finally, we encourage you to take advantage of Pre-Claim Consultation service offered by the CRA.
  - This service is meant to provide you feedback while the work is progressing.
  - CRA does not have to review all of your projects during this consultation. You can select specific projects within your product development you wish CRA to review. The main benefit is that CRA will provide you with a binding determination on eligibility of your project giving you more certainty on eligibility and anticipated investment tax credits.



That brings us to the conclusion of this session. We value your feedback and would like to hear your thoughts. Let's spend a few minutes to discuss them.