

OCTOBER 2018



# ENGINEERING GAMES 2019

REACHING NEW HEIGHTS

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**ENTREPRENEURSHIP  
COMPETITION**

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## 1. Introduction

In recent years, the Quebec landscape has been marked by an increased growth in entrepreneurship. Numerous SMEs have sprung up everywhere in the province, both within the cities and out in the regions. Today, in 2018, we can find numerous startup accelerators within universities. Together with the incubators, some faculties provide their students with entrepreneurship courses, be it product design, marketing and sales, or business management.

As such, the 2019 Engineering Games offer you the brand-new Entrepreneurship Competition. This long-term challenge will allow students from each university to demonstrate entrepreneurial skills, innovation, and creativity.

The Quebec Engineering Games are a center stage for the well-rounded engineer. This person is characterized not only by their theoretical and practical knowledge, but also by their creativity, perseverance, and curiosity. The objective of this new competition is to put forward the know-how of an engineer and the asset they represent in the development of emerging companies.

In the context of an SME, the engineer of today will be called upon to make use of their resources and talent in order to ensure the survival and growth of the company. In fact, the complete engineer must be able to fill more than one role within it. Whether in product design, financial planning, or sales, nothing should be left to chance if a new company hopes to reach the market.

Through this challenge, engineering students will be asked to perform tasks related to the potential challenges of a new company. Among these, the focus will be on brainstorming, market research, prototype design, business plan refinement, and ultimately investor research. All stages will be at rendezvous in order to provide a complete and challenging experience for the Entrepreneurship teams of the various delegations at the 2019 Engineering Games.

## 2. Home. Chez nous.

### A. Home

Home is where a lot of time is spent. Therefore it must provide the most impeccable quality of life. Whether in terms of safety, health, ergonomics and beyond, the home is a utility space where efficiency and comfort are the order of the day.

In addition, technology is becoming more accessible and understood by the general public. On one hand, the younger generations grew up with the technology that was available and fully integrated it into their daily lives. On the other hand, the simplification and improvement of technological tools made them accessible to people who were more resistant to such changes. It is possible to affirm with a high degree of certainty that we live in a highly technological society.

The integration of technology at home has gained momentum in recent years. Among other things, the improvement of security systems and automatic temperature control systems have seen a large number of early adopters. You will have to create a company that will join this wave by offering a product that solves a problem related to the living space. You will be able to give free rein to your imagination to offer an innovative and interesting product.

To start your business, you will need to evaluate your opportunities in order to maximize your chances of success. You will then need to develop a product and evaluate its effectiveness in order to know if the targets of your company are reached. Each step of this new venture will be strongly documented in the different deliverables of this competition.

It is up to you to choose which aspect of everyday life can be improved with the help of technology and which deserves your attention. Your product must be accessible, and the maximum cost of the product shall not exceed **\$2000 before tax** for purchase and home installation, if necessary.

### B. Different approaches

Considering that your company aims to improve only one aspect of the living space, you will have the choice to either offer a single product that can solve the problem by itself or to prepare a range of consistent products that can, all together, solve the same problem.

In the case of a family of products, each one of the products must solve a subset of the problem chosen by your company. The addition of an extra item in your product group should not be mandatory and should only be a supplement to the first. A customer who has made the choice to purchase each item independently, as well as the installation if applicable, must not be forced to exceed the budget.

In the case of the sale of a single product, it alone must be able to completely solve the challenge that your company has chosen to tackle.

### 3. Progress report

The progress report is intended to validate each team's understanding of the task at hand, as well as the overall direction of the company as envisioned by each team. At the same time, an assessment of team readiness will take place. The report must be submitted by email before the deadline to benefit from comments from the Organizing Committee. Any delay in submitting the progress report will penalize the team.

Your report should include, at the very least, the following sections:

#### A. Product

It is important to properly present the product of the company. This part will allow the organizing committee to have an idea of the chosen problem and the approach to the resolution thereof. This part will serve as contextualization for the three main requirements of the progress report.

The product and the chosen problem can be as complex or as simple as the team wishes, as long as they are related to the home. By the same token, a variety of options are available to you.

This section should contain, at the very minimum, a complete and clear description of the problem and a detailed description of your product and its use.

#### B. Preliminary prototype plans

The preliminary prototype plan is essential to convince investors that your idea is materializable. You will need to have a concrete idea of your product and its features to meet this requirement.

Your prototyping plan must ensure your prototype's adherence to the criteria described in the "Prototype" section of this booklet. Among the deliverables in this category, a three-dimensional technical drawing as well as a functional description of the prototype itself will be in order.

#### C. Market research

Market research can target a segment of the population, as well as competitors, to better define the product as well as the marketing strategy. This analysis will enable potential investors to ensure product-market fit. Thus, it must contain demographic data, a range of prices and an analysis of likely competitors.

First, in terms of demographics, your product may be better suited to certain age groups or socio-economic groups in our society. It will be necessary, through a statistical study, to demonstrate the purchase intentions.

Second, the price range has to be realistic and justified. Information such as a profit margin forecast on each product sold, or an estimate of the supply cost and assembly will be very useful for this initial evaluation. It is important to detail the various expenses associated with the purchase of your product which is limited to **\$2000, before tax**.

Finally, the companies targeted as competitors must be real companies. This will allow potential investors to understand the positioning of your company in comparison to the existing market.

#### **D. Business Model Canvas (iterations and explanation)**

A well-executed Business Model Canvas validates the idea and the chances of executing an entrepreneurial project. Each team must become familiar with this tool and be able to explain through it their organizational choices.

We strongly recommend that you take the time to understand and master this concept. To do this, several resources exist to help you.

To validate the progress of each team, it is imperative to validate the iterations of the BMC. To prove it, each team will have to submit a minimum of 5 BMCs numbered according to the iteration, and to explain in writing the changes that took place during each session.

In addition, each team must provide evidence to support the numbers and data used in their Business Model Canvas. The quality of these references and data will also be judged and validated.

For an example of a Business Model Canvas, please refer to Appendix A.

## 4. Business plan

The business plan is one of the main components of the Entrepreneurship Challenge. This document contains the necessary details for the valuation of a company by investors. To do this, data related to several functions of a company must be explicitly detailed.

This module is one of the most important of the Entrepreneurship competition. To give free rein to your imagination and creativity, a minimum of detail and form is provided. However, these are only minimal and non-exhaustive requirements. It is up to each team to produce the most complete and informative report.

### A. Detailed product report

A detailed report on the product must be in the foreground. This report is a thorough version of the description found in the mid-stage report. This section includes, but is not limited to :

- i. **Product Description;**
- ii. **Details of the opportunity;**
- iii. **Problem-solving;**
- iv. **Limitations and requirements;**
- v. **Three-dimensional technical drawing;**
- vi. **Functional description;**
- vii. **Categorization of the product;**

### B. Financial analysis

An in-depth financial analysis is essential if a company requires cash inflow. This analysis should include at least the following elements as well as their justifications:

- viii. **Production cost;**
- ix. **Supply Chain;**
- x. **Distribution logistics;**
- xi. **Cost of sale;**
- xii. **Price of the product;**
- xiii. **Break-even point;**
- xiv. **Secondary services;**
- xv. **Market analysis**
- xvi. **Valuation of the business;**
- xvii. **Request for financing by investors;**

### C. Business roadmap

A company cannot and should not exist exclusively in the immediate future. Thus, a three-year or five-year plan can convince investors of the sustainability of your company and

make it more attractive. Relevant elements to guarantee the achievability of your objectives can be:

- xviii. **Business strategies;**
- xix. **Business development;**
- xx. **Research and development;**
- xxi. **Hiring plan;**
- xxii. **Legal identity and patents;**

#### **D. One-pager. Feuille.**

In order to help the audience during your presentation, a sheet of no more than one letter size sheet (8½ "x 11"), single-sided, must be printed by the delegations and given to the judges during the presentation.

This sheet may take the form you wish and may contain any information you deem necessary to properly represent the highlights of your business plan. Any information found on the page will have to be drawn from the business plan itself since it will serve as a memory aid for the judges during the presentation and the deliberations.

Please note that the sheet and its contents will not be directly evaluated, but the absence of it will penalize the team.

## 5. Pitch

Upon arrival at the games, every delegation will submit to the organizing committee a USB key containing a PDF document. The file contained therein should have the name of the delegation. The USB key will have to be identified in the name of the delegation and the Entrepreneurship Challenge. This presentation will be started when the team enters the presentation room.

### A. Form

As for the form, the sales pitch will last a minimum of **5** minutes and a maximum of **7** minutes. It must minimally include, in any order:

- xxiii. Introduction;**
- xxiv. Presentation of the company;**
- xxv. Presentation of the opportunity**
- xxvi. Presentation and demonstration of the product;**
- xxvii. Presentation of the business plan;**
- xxviii. Request for financing;**

Following the presentation, a question period of up to 7 minutes will be held. During this question period, the 3 members of the team will have to answer the multiple questions of the judges.

To understand the basics of a sales pitch, programs such as "Dragon's Den" can be interesting sources of information.

### B. Schedule

The schedule of the first phase of the sales pitch will be determined by a random draw. It will be given to you during the first day of the Engineering Games. Entrepreneurship teams will participate in academic competitions, dinner, and then be taken aside for the first round of presentations.

The top five (5) teams in the first round will have the chance to make their sales pitch in front of all the participants of the Engineering Games. The order of presentations for the second round will once again be determined by a draw and will be communicated by the jury at the time of the unveiling of the five (5) teams that will participate.

Please note that you cannot edit your presentation for the second round and the same PDF file will be used. The performance in the second presentation will not affect the score of the first round unless a team does not respect the recommended decorum for the occasion.

**C. Dress code**

For the presentation before the judges, as well as for the second presentation, business attire is necessary.

**D. Prototype**

Your prototype will be given to you 30 minutes before the start of the presentation.

## 6. Prototype

The prototype aims to offer a representation of the final product of your company. It will be presented to the judges during the pitch phase and will be used to demonstrate the functionality and usability of your product.

### A. Deliverable

The prototype will have to be handed in on the morning of January 4th upon arrival at the hotel. Once delivered, it will not be possible to improve it during the Engineering Games. You will receive your prototype before the presentation in front of the judges as mentioned in the pitch section of the present booklet.

### B. Limitations

Your prototype will have to respect the following constraints and limitations:

**xxix. Forbidden elements**

1. Any and all animals;
2. Compressed gas;
3. Explosives;

**xxx. Security**

The use and storage of your prototype should not pose a threat to the audience, to you, or to the integrity of the room.

### C. Provided elements

The organizing committee will provide you with the following elements during the presentation:

- xxxi. Table for the showcasing of the prototype;**
- xxxii. 2 x 120-volt power outlets;**
- xxxiii. Adequate lighting;**

## 7. Contest scorecard

In order to ensure total transparency regarding the results for participants, spectators, and judges alike, the points scorecards will be as follows.

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<b>Business plan</b>	Financial analysis	17.50%
	Business roadmap	7.50%
	Detailed product description	5.00%
	Presentation	2.50%
	<b>Subtotal</b>	<b>32.50%</b>
<b>Sales pitch</b>	Content and relevance	15.00%
	Quality and use of visual support	7.50%
	Consistency with the business plan	5.00%
	Attitude and presence	2.50%
	<b>Subtotal</b>	<b>30.00%</b>
<b>Prototype</b>	Demonstration and functionality	7.50%
	Aesthetics and realism	7.50%
	Consistency with the business plan	5.00%
	<b>Subtotal</b>	<b>20.00%</b>
<b>Progress report</b>	Business Model Canvas (iterations and explanations)	7.50%
	Market analysis	7.50%
	Prototype planning	1.50%
	Presentation	1.00%
	<b>Subtotal</b>	<b>17.50%</b>

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## 8. Team composition

As guidelines for a team's structure, we hereby propose the following roles and positions in the company. Please note that these titles are only given as a reference point and that every company is free to structure itself as per their necessities and particularities.

### A. Product Designer

This person is in charge of designing and manufacturing the product. As such, this person becomes responsible for the prototype planning, the execution of said plan, and the preparation of a pertinent demonstration in front of the investors. They will also be the person to answer when the judges ask questions about the product itself and the challenges regarding its construction.

### B. Pitch Leader

This person's role is to structure and put together the company's sales pitch. During the presentation, they will present their team and guarantee that the communication is clear between the audience and the team. They will broadly present the team before deferring to the subject matter experts for the financial and technical aspects.

### C. Business Architect

This person oversees the writing the business plan. Accordingly, the coherence, realism, and commercial innovation are their responsibilities. They will also be the person that has to know the inner workings of the financial plan in order to easily justify the numbers and data.

Beyond the aforementioned roles, there is the possibility of receiving the help of other people that you would require for the creation of your start-up. For every step of the competition, excluding the pitch, there is no limit on the number of participants. However, to respect the context and structure of the competition, any active and continuous participation by a person that is not a member of the engineering program of your own university could potentially cause the disqualification of your team.

## 9. Calendar

### A. 24th of October, 2018

Due date for designating the person responsible for the competition in every delegation

### B. 19th of November, 2018

Due date for the progress report

### C. 10th of December, 2018

Feedback from the progress report

### D. 4th of January, 2019 –

Beginning of the engineering games

xxxiv. **Business plan and one-pager due**

xxxv. **Prototype due**

xxxvi. **Pitch presentations due**

## 10. Precisions

### A. Questions

All questions should be sent to the entrepreneurship challenge email. Only the designated person of each team shall be the source. The answers will be sent via a mailing list once a week to maintain a high level of equity and transparency towards all delegations. The questions will be anonymized in order to preserve a competitive advantage.

### B. Rule changes

The organizing committee reserves the right to adapt and modify certain sections of the present booklet throughout the competition. Such modifications will be announced to the representatives of each university and will always be made to preserve a healthy and high-quality competition.

## 11. Conclusion

It is with great pleasure and ambition that the organizing committee has developed this very first iteration of the entrepreneurship challenge. Through your time and effort, you have the unique opportunity to make an engineer's value shine. In addition, your efforts will be rewarded by a unique experience in ideation and business creation. Surely, this will be a highly valued experience for the participants, the public, and the judges alike. The organizing committee, as well as the co-directors, wish you the best of luck.

The email address of the competition is : [entrepreneuriat@jeuxdegenie.qc.ca](mailto:entrepreneuriat@jeuxdegenie.qc.ca)

## 12. Annexe

<h3>Key Partners</h3>  <p>Who are our Key Partners? Who are our key suppliers? Which Key Resources are we acquiring from partners? Which Key Activities do partners perform?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>	<h3>Key Activities</h3>  <p>What Key Activities do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>	<h3>Value Propositions</h3>  <p>What value do we deliver to the customer? Which one of our customer's problems are we helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>	<h3>Customer Relationships</h3>  <p>What type of relationship does each of our Customer Segments expect us to establish and maintain with them? Which ones have we established? How are they integrated with the rest of our business model? How costly are they?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>	<h3>Customer Segments</h3>  <p>For whom are we creating value? Who are our most important customers?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>
<h3>Key Resources</h3>  <p>What Key Resources do our Value Propositions require? Our Distribution Channels? Customer Relationships? Revenue Streams?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>		<h3>Channels</h3>  <p>Through which Channels do our Customer Segments want to be reached? How are we reaching them now? How are our Channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>		
<h3>Cost Structure</h3>  <p>What are the most important costs inherent in our business model? Which Key Resources are most expensive? Which Key Activities are most expensive?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>		<h3>Revenue Streams</h3>  <p>For what value are our customers really willing to pay? For what do they currently pay? How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?</p> <p><small>Entrepreneuriat Jeux de Génie Jeux de Génie - Université de Sherbrooke Jeux de Génie - Université de Sherbrooke</small></p>		

[www.businessmodelgeneration.com](http://www.businessmodelgeneration.com)

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