



The 1st International Conference on Local Resource Exploitation

www.lorexp.org / info@lorexp.org
REF: LOREXP_2021_PC0002 Pages: 48–66



Enabling small-scale food processing enterprises in Cameroon with business and digital intelligence

Booster les petites entreprises camerounaises de transformation alimentaire avec l'intelligence commerciale et numérique

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ABSTRACT:

Today, every university graduate wants to have a job, but very few of them wants to create a job. Despite Cameroon's riches in agro-resources, the country's agro-industrial sector still contributes only less than 12% to the National GDP, with majority of the agricultural products exported in unprocessed form. This weakness in the secondary agro industrial sector is attributed to the fact that university graduates who have been trained to process agro resources to value added products prefer searching for jobs than becoming agro-industrial entrepreneurs. In addition, 80% of the few businesses that are created fail within first 5 years of operation. Now I ask, Is it due to lack of funds to start a business, is it due to poor business approach thought in incubation centres? If you want answers to these two pertinent, the paper presents the scientific formula of entrepreneurship that has been developed and tested by the author on real-life business successes. It looks at the entire entrepreneurship landscape of Cameroon and provides detailed illustrations on how the scientific formula can be used to guide young agro-process entrepreneurs. If you have wished to have systematic approach to start businesses that must win, then congratulations, you have landed on the right information.

Keywords: Entrepreneurship, University graduates, Agro-industry, Scientific formula.

RÉSUMÉ :

Aujourd'hui, tous les diplômés universitaires veulent avoir un emploi, mais très peu d'entre eux veulent créer un emploi. Malgré les richesses du Cameroun en agro-ressources, le secteur agro-industriel ne contribue encore qu'à moins de 12% du PIB national, la majorité des produits agricoles étant exportés sous forme brute. Cette faiblesse du secteur agro-industriel secondaire est attribuée au fait que les diplômés universitaires qui ont été formés pour transformer les ressources agro-alimentaires en produits à valeur ajoutée, préfèrent rechercher un emploi plutôt que de devenir des entrepreneurs agro-industriels. De plus, 80 % des quelques entreprises créées échouent dans les 5 premières années d'exploitation. A cet effet, plusieurs questions peuvent être posées : est-ce dû au manque de fonds pour démarrer une entreprise ? Est-ce dû à une mauvaise approche commerciale pensée dans les centres d'incubation ? Si vous souhaitez avoir des réponses à ces deux questions, le présent article donne la formule scientifique de l'entrepreneuriat qui a été développée et testée par l'auteur sur des réussites commerciales réelles. Il examine l'ensemble du paysage entrepreneurial du Cameroun et fournit des illustrations détaillées sur la façon dont la formule scientifique peut être utilisée pour guider les jeunes entrepreneurs agro-industriels. Si vous êtes à la recherche d'une approche systématique pour démarrer des entreprises qui doivent gagner, alors félicitations, vous êtes à la bonne porte.

Mots clés : Entrepreneuriat, Diplômés universitaires, Agro-industrie, Formule scientifique.

1. PROBLEM

1.1 Graduates are liabilities than assets to the economy.

If you put money and bananas in front of Monkeys, Monkeys will take bananas because they don't know money can buy a lot of Bananas (see Figure 1).

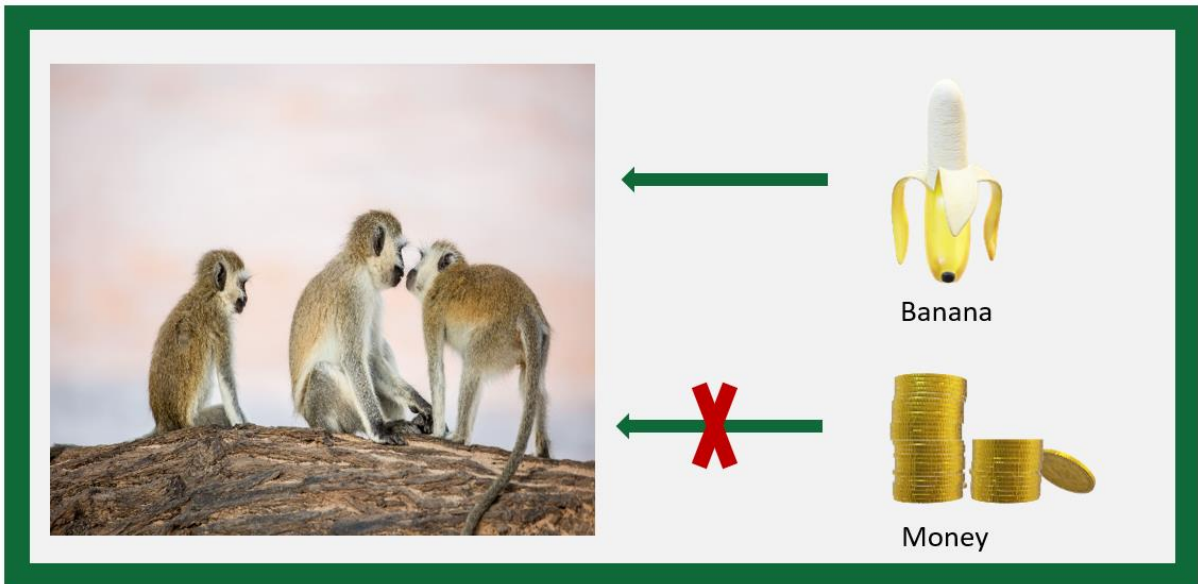


Figure 1: Monkeys will prefer bananas over money.

Today, if you put business and job in front of university graduates, graduates will take a job because they don't know a business can create several jobs (see Figure 2).



Figure 2: University graduates of today will prefer jobs over starting a business.

This situation is particularly magnified in Cameroon and most African countries where graduates only want jobs but don't want to create industries. Taking a case study in the agro-industrial sector, even though the government has made significant efforts in setting up university programs in agriculture and agro-process engineering, most of the country's university graduates rather become liabilities than assets to the economy. This is because every new batch of graduates enter the job market and put more pressure on the government to recruit them rather than help to create more jobs and expand the economy.

1.2 The Job-search mindset is killing our economy

There is a big problem. The current graduate mindset is creating lots of problems in the country. Just read on, I will real some interesting insights to you. Despite Cameroon's riches in agro-resources, the country's agro-industrial sector still contributes only less than 12% to the National GDP, with majority of the agro-resources exported in unprocessed form. What this means is that we produce raw materials, export to western world they transform and sell the final product to us in a more expensive form. This approach does not only limit the economic potential of the agricultural sector but also hinders the country's goal of becoming a Newly Industrialized Country. If you are a university graduate and still deeply passionate about getting a job than creating a small agrobusiness, I would like to share with you important facts about the job market:

- (1) Statistics show that 60% of all university graduates end up unemployed at some point in their career (Nature).
- (2) Graduates who have jobs make less money and achieve less overall in their careers compared to graduates who engage in business and entrepreneurship (Nature Biotechnology)
- (3) The average employee spends on average 25 years in education and work for 40 years to retire at 65 years, while an entrepreneur work takes an average 5 to 10 years to build a successful business.
- (4) For PhD graduates who plan to stay in academia, full-time lecturing positions are at an all-time low because they are being replaced by low-paying parttime lecturers (Science).

Now that you understand the position of the job market, I will share with you (In the next section), I will share with you some reasons why university graduates have developed a job mindset than a business mindset.

1.3 Painful facts about university graduates.

The entire agro-sector involves production (which includes animal and crop production from the farms), processing (which involves transformation of farm materials into value added products) and distribution (which involves marketing of the finished products to consumers). In the entire chain, production constitutes the lowest profits, which means if we only produce and export our agro-resources to the western world then we are giving away our profits.

The secondary transformation sector was supposed to be powered by the university graduates who have acquired advanced training in process engineering. However, during the industrial revolution, we were made to understand that in order to set up a transformation industry, you need huge number of investments in equipment which has been the barrier for many to start up an agro-process industry. Before I proceed to explain to you the solution, let me explain to you some painful truths about the youth and entrepreneurship situation in Cameroon.

- **Nature of student internships:** During studies, university students always like to do internships in large companies. Everyone wants to do an internship in SONARA, GUINNESS, SABC, SLUMBERGER, etc. The negative thing here is that when you do an internship in a large company, you build a large mindset. Large agro-industries teach you how to execute standard processes but will never teach you how to build those processes in order start a large company. Unlike Cameroon which has just three (large) breweries in the major cities of the country, Germany alone has over 1300 small-scale industries within various communities of the country. In another example, 70% of China's GDP comes from small-scale industries. This means you must learn to start small, do internships in small companies so that you learn to build the processes.
- **Certificates/diplomas over competence:** The focus of university graduates is on the diplomas or grades they earn at school and not in the competence. To succeed in the world today its not about the certificate or grades you earn at school but in what you can do. This is a big idea you must take seriously. Why is it that

our parents could produce detergent in an artisanal way but when you graduate from a process engineering school you can't produce better? Let me share with you a short story of Henry and Steve. Henry dropped out from formal education and went to spend 7 months to learn catering. He finally completes his training program and starts successful food processing business. However, Steve furthers his studies to finally earn a master's degree in agro-food processing engineering. He puts up his CV and after having several failed attempts with large companies he finally goes to drop his CV to work for Henry in order to take care of his financial needs. Do you agree with me that there is a big problem?

- **Fill knowledge gaps vs solve business needs:** In December 2019 over 200 PhD holders protested in the streets of Yaounde for Joblessness. Now I ask is education still the key to success? Yes, it is. The problem is that PhDs fill knowledge gaps or solve business needs. Before being awarded a PhD degree (or even masters) students must undertake a research project, where they work under a supervisor with the aim of solving a problem. In the case of PhDs, they spend on average 4 years to conduct research project. Now If students do this research project, how come they still graduate and search for jobs rather than implement the outcome of their research project? This is because these research projects are mostly conducted to fill knowledge gaps and publish scientific articles. The motivation for research projects is to publish scientific articles and/or write a thesis that either lead to promotion of the supervisor or the award of a graduate degree to the students. Today I totally criticize professors who pride themselves for several scientific publications but create no impact to the society. Will we use scientific papers to create jobs? A scientific paper will only make sense if it is oriented to solve the problems, we face in our society.

- **Failing business plan approach to start a business:** It is true the government has done well to set up business programs and incubation centres to help support young entrepreneurs who want to start a business. The big question is that what curriculum do we teach at these incubation programs. I am sure we will all answer how to register a company in Cameroon, how write a business plan, what resources you need to start a business and how to get funding in starting a business.

Now I will share with you the story of Jerry and Daniella who graduated from a business incubation program and wanted to start their business. They both thought of a business idea, drafted an accurate business plan (using the format and strategies they were thought) and established a total sum of money required to start their businesses. They then used the techniques they were thought to search for funding. The techniques include seeking government support, applying for competitions, talking to friends and family as well as saving from their day jobs.

Jerry's Case 1: He succeeded raise funds: He used the funds as follows: Got a physical location for his businesses, bought the equipment listed in his business plan, hired employees, registered the company build a website and was known around his community as a founder and CEO. A few months after you launch a product/ service, spend more on marketing only to end up realizing sales are not what you expected. Put in another way, people are not willing to buy your product at the price you sell or the number of people who buy is not enough to sustain your business. The profits generated from the service is not enough to pay for your company expensive. You stop or delay paying salaries, employees lose motivation some start quitting and a few months or years after you finally close your company.

Daniella's Case: She fails in getting funding to start her business. This is what happens to most entrepreneurs. They never get funds to bring their business idea to life. Because Daniella could not get the resources required to start her business, she ended up abandoning the business plan and started searching for a job to sustain herself. So, the business idea dies because she had no one to provide the huge sum of money she requested in her business plan. I usually call

this paralysis by scale, because your business has been paralyzed by requiring large sums of money no one can provide. The so-called business plan approach to entrepreneurship has several challenges that can be enumerated from the example above.

- **Paralyses of your business by scale:** You placed a huge sum of money to start a business idea and because no one was available to fund the business idea, it finally died. This is what happened with the case of Daniella.
- **Lack of business knowledge:** Businesses fail not because they lack money, but because they use the wrong approach to start a business. According to Forbes, the number one reason why businesses fail is not due to lack of money but due to lack of market need. This is what happened to the case of Jerry, who was able to raise funds but still ended up failing.

1.4 Teaser

What if I tell you there exist one simple formula to start and grow a successful agro-processing industry, that require less amount of capital. What if I tell you that the business plan approach to entrepreneurship is no longer working? According to Steve Blank (Ref) business plan only works for large companies who execute known business models. For start-ups they are still searching for a business model and cannot make a reliable sales or market forecast when they are just starting.

2. SOLUTION

2.1 The Good News

Through partnership with LOREXP, we have worked to develop the Scientific Formular of entrepreneurship. When I understood the vision of LOREXP, to nurture a new generation of entrepreneurs that will work to put a stop to exportation of our natural resources, I decided to develop the Scientific Formula of Entrepreneurship. This formula has been based on Steve Blank's Customer development process (Blank, 2008), my understanding of process engineering as well as state-of-the-art digital strategies that can accelerate growth of businesses. Because I have applied this approach to build successful businesses, I decided to write this paper to help young entrepreneurs build successful businesses within the agro-processing sector.

2.2 The Scientific formular of entrepreneurship

The scientific formular of entrepreneurship (SFE) is a model to help aspiring entrepreneurs think objectively about their business idea to reduce risk and increase chances of success. It is a tool to help you identify the most important resources (finance and business model) for starting a business. Figure 3 presents the model architecture of the Scientific formula.

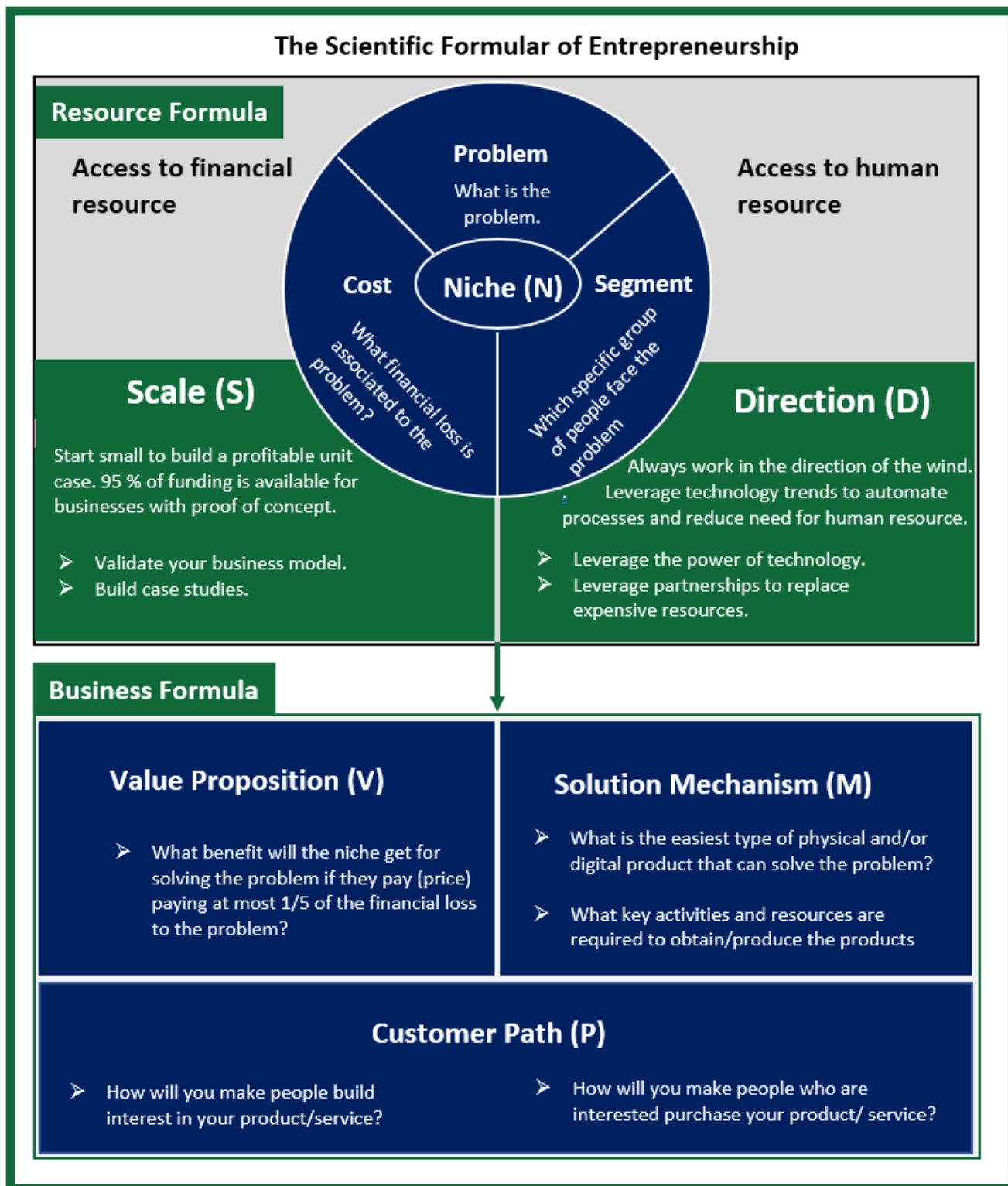


Figure 3: The scientific formula of entrepreneurship

The Scientific Formula is divided into two sub-regions: (1) the Resource formular, which helps you by-pass the need for financial resource for your business venture; and (2) the business formula, which helps you solve for a business model required to build a scalable business.

The Resource Formula

The Resource Formula stipulates that for a business to be radically successful; it must have a clearly defined **niche** (N), it must start small to understand the business model (S) and be in the **direction** of the wind (D). Now let me break this down to you.

2.2.1 Niche

Congratulations. Do you know why I have just congratulated you? It is because understanding the concept of business niche is the most important secret you will ever hear about starting a successful business. All the billion-dollar companies started by using this approach. To define a business niche for your business, you must identify three main things: the segment, the problem and the cost.

- (a) **The segment:** The segment is the specific group of people you want to serve with your business. The greatest error to commit when starting a business is trying to serve everyone. As a start-up, if you try to build a business to serve everyone, you end up serving no one. You must identify the segment of the market you want to serve. I always say the more specific your segment, the higher your chances of success as a start-up. Facebook started by connecting students in only within Harvard, Amazon started by selling only story books in the US. A niche can be defined in terms of domain (e.g., law firms, brewery companies, maize farmers, physics Lecturers, PhD students, engineering graduates, etc) it can be in terms of age (e.g., children, youths, old people), it can be in terms of financial status (e.g., poor, middle class rich people). Whatsoever the criteria of market segmentation may be, remember that your business must always focus on one segment at the start and the more specific your segment the higher your chances succeeding. As a big advise, always start with a segment you are knowledgeable or passionate about.
- (b) **The problem:** you must have heard the saying all successful businesses start as social enterprises, meaning they must solve a valid problem. This means your business must solve a real problem. Do not start a business because you are interested in transforming a particular raw material to final product, or because you have built and equipment, but start a business because you have identified a valid problem associated with the segment that you want to solve. As a start-up, you don't have enough money to withstand competition from the large market participants. The problem component will help you reduce competition in business. Or you don't have enough money to pay for marketing go make your product known to the masses. But if your product acts as a pain killer (solves a real problem), people will look for it just like you would rush into a pharmacy to buy a pain killer.
- (c) **The Cost:** This cost component will make you know if people will be willing to pay for your product/service. Not all problems are solvable. For instance, a button on your shirt can fall off, if that button does not cause you financial loss, you don't see that problem as urgency. In another example, there might be a noise coming out of your car when you drive but manage with it for weeks or even months. But if you realize that noise makes you consume more fuel, it becomes and urgency. This means businesses that become radically successful does not only solve problems but solve problems associated with a financial loss. People will happily and easily pay for a solution if they realize that the solution saves them money.

Summarily, your niche is the specific segment of the market who have a specific problem that is associated with a financial cost. The big idea to keep in mind is that if you are targeted and niche down to a specific audience, you create a lot of blue see for your business. When you identify a problem that has a financial burden, it becomes an urgency for your target audience, and they are willing to working with you (human resource) and provide funds (financial resource) to help you start your business.

2.2.2 Scale

As can be seen in Figure 1, the second variable in the resource formula is the scale (S). The success of a business depends on how well u search and identify a good business model and not in the size of the capital you use to start a business. A business model is like a machine used to make money for your business. It is important to realize that a good business model is scalable. This means if the machine takes 1000FCFA and gives 2000FCFA profit, then It can take 1million FCFA and give 2million FCFA. If the machine fails to convert 1000frs to 2000frs, it will also fail to convert 1million FCFA to 2 million FCFA. Facebook started in a room in Harvard. Heineken, a million-dollar brewery company started in a garage in Amsterdam. Amazon, the world’s leading e-commerce company started in a garage. You must be able to start small to search, test and validate a scalable business model. Start small to build a testable solution If you have a business idea to set up a brewery, start by using your pot in the house to cook beer, sell to people and get real time figures. Today, 95% of funding are available to business ideas that have been proven. No one will fund a business idea that is still in the paper.

2.2.3 Direction

I always tell my students work in the direction of the wind. You agree with me that it is easier to run in the direction of the wind as it helps to propel you. In the same way, it is easier to swim downstream that upstream as you get less resistance from the water current. Today the win is towards digitalization so if you want to work in the direction of the win your business must leverage the advantages of the digital edge.

One good thing about the Resource formula is that using digital strategies, you can sell your product or solution before you produce it. This means the client pays you money before you produce the solution. So, if you get money before developing the solution it means you get financial resources to fund your business.

Now let me show you how you can leverage digital strategies to sell your product or solution before producing it. Do you know real estate developers sell before the property is constructed? This is because they rapidly contact an architect who uses digital technology to design visual prototype of their concept with which they use to convince a client on how the solution will solve their problems. In the past, only architects were able to design houses and sell before the houses are constructed. With the advancement of digital technology, it is possible to design visual prototypes of your solution/service for every domain of business. You will always have early adopters (segments who really feel the pain) that will want to pay you to hasten development of the solution. This visual prototype you sell to a client is called a solution artefact. Table 1 presents a few examples of solution artefacts for different domains. If you want to develop a software development an artefact can be user interfaces of your products packaged in form of a clickable prototype. If you are in food processing, the artefact can be a graphical design of the final food product including packaging.

Table 1: Examples of artefact categories you can use to sell your business solution.

| SN | Nature of solution | Description | Type of artefact |
|----|--------------------|---|---|
| 1 | New food process | Solution presents a new process for producing a food product | Process flow diagram with excel dashboard |
| 2 | New food product | Solution presents a new formulation of a food product | Product formula (recipe) with graphic design of how product looks |
| 3 | New food software | Solution presents a new software for food processing or formulation | Excel dashboard to illustrate solution and user interface design |
| 4 | New agro equipment | Solution presents a new agro-industrial equipment | CAD model of equipment and operations manual |

Do you now notice from Table 1 that there are several possibilities to leverage your process engineering skills to sell your business solution before you produce it? You can also leverage the S formula (Start small) to produce a prototype where possible. Whatever the solution may be, remember the secret is always to be able to quantify the impact the solution will have on the target segment.

The Business Formula

The Business Formula says that for a business to be successful and scalable, there are three additional variables to the niche that the entrepreneur must solve for such that the business can be fully scalable. Remember the scientific formula talks about building a scalable business. A scalable business is one that can operate successfully even without the entrepreneur that started the business. If a business cannot operate for 90 days and stay successful without your presence, then it is your job. You have simply employed yourself. If you want to build a job that employs you, then the Resource formula is ok. But if you want to build a fully sustainable business, which is scalable, then you must also implement the business formula. The three additional variables to solve for a scalable business include the value proposition (V), solution mechanism (M), and the customer path (P). If your business cannot operate with you, then the business becomes a job. Now let me explain to you what each of these variables mean.

- **Value proposition:** The benefit your target audience (market segment) get for solving the problem and the price they are willing to pay constitutes the value proposition. In simple terms the value proposition is benefit plus purchase price.
- **Solution mechanism:** The engineering approach you use to deliver the value proposition to your target segment is called the solution mechanism. It includes an understanding of the key resources and activities you need to build the solution that solves the problem of the segment.
- **Customer path:** The journey you want your potential clients to follow before making a purchase of your product or service. This includes the means we use to make people know about your product and how you make them buy your product.

Summarily, the scientific Formula of Entrepreneurship stipulates that in order to start a successful scale business, you must solve for the Niche (N), the value proposition (V), the solution mechanism (M) and the customer path (P). Before I proceed to teach you how to implement the scientific formula to start your own business, I would like to clearly illustrate the benefits of using the formula to start a business.

2.3 Benefits of using the Scientific Formula

The greatest attribute of the scientific formula is that it helps you break the financial barrier for starting a successful business and ensures that you identify a business model that is scalable. The formula teaches you how you can identify a problem and leverage digital techniques to sell your solution to generate funds for starting your business. Figure 2 shows the traditional (business plan approach) to start a business compared to the novel (scientific approach) proposed by the scientific formula. You now see that entrepreneurs fail not because they do not know what to know, but because they do the right thing in the wrong order.

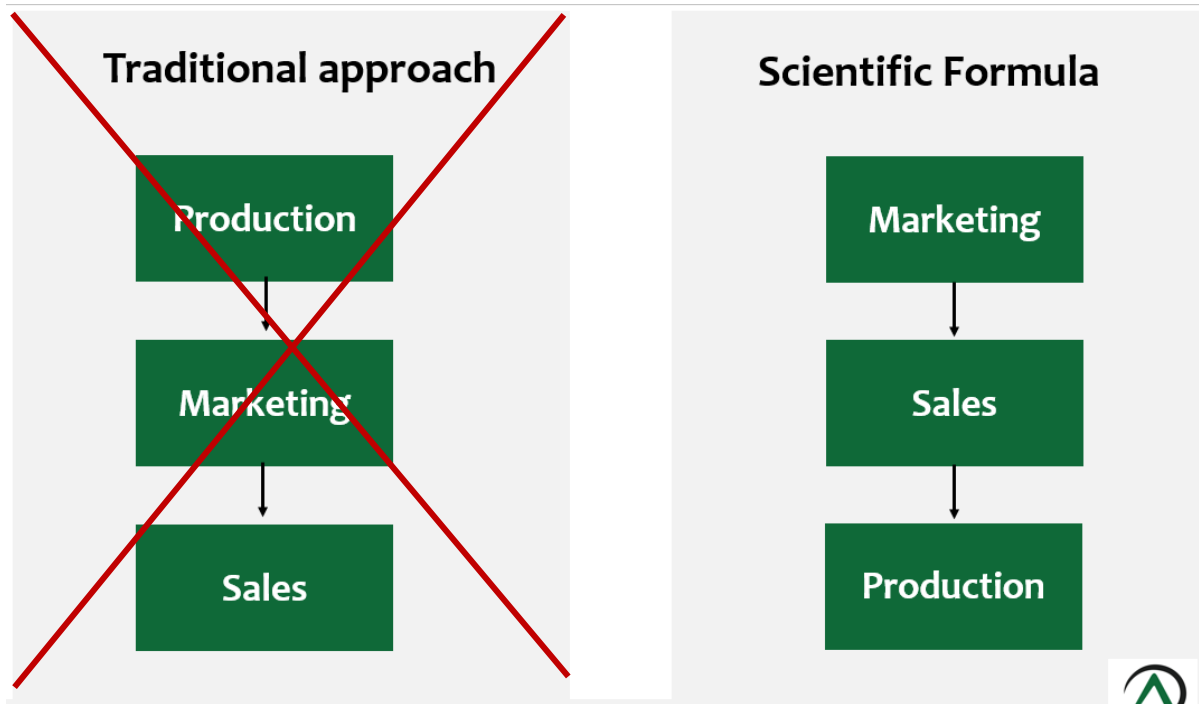


Figure 2: Comparing the traditional vs the scientific approach to entrepreneurship.

Summarily, the Scientific formula for entrepreneurship offers five main benefits for aspiring and existing entrepreneurs. These benefits include.

- (a) **Reduce competition:** by niching down to a specific segment of the market and identifying a problem which is unique to that segment, you reduce competition from existing players in the market.
- (b) **Reduce risk.** By identifying a problem which is associated to a financial burden, you are sure people will be able to pay for your product. In other words, people will happily pay money if your product/ service helps them make money.
- (c) **Start-up capital:** leveraging digital technology to build a solution artefact, you can sell your product/solution before you produce it. This helps you generate start-up capital to kick-start your business.
- (d) **Scalable business:** By starting small you can search, test, and validate a successful business model which is scalable.
- (e) **Human Resource:** Identifying a problem that has financial cost is like a pain point to your target client. When you identify a pain point, they are willing to work with you to help solve the problem. Your required human resources become your partners.

Now that you understand the how juicy the scientific formula is, I will carefully illustrate to you how you can apply it to start your business. Even though the formula can be used in all business domains, the focus in this white paper will be on businesses in the agro-industrial sector i.e., entrepreneurs who want to start a food processing business that transforms raw agricultural materials into value added food products. The scientific formula will therefore serve as a industrialization strategy which stands out to support Cameroon’s NATIONAL DEVELOPMENT STRATEGY for 2020-2030 (NDS30), where the country seeks to achieve the following targets by 2030:

- (a) Increase the share of the secondary sector in GDP from 28.2% in 2018 to 36.8% by 2030.
- (b) Increase the manufacturing added value from 12.9% in 2016 to 25% in 2030; and
- (c) Raise the share of export of manufactured products from 26.25% in 2015 to 54.5% in 2030.

2.4 How to start a successful business with the scientific formula

Figure 3 presents the steps you need to follow to apply the scientific formula to bring your business idea to life. The process helps you solve for the 4 key variables required to start a successful business.

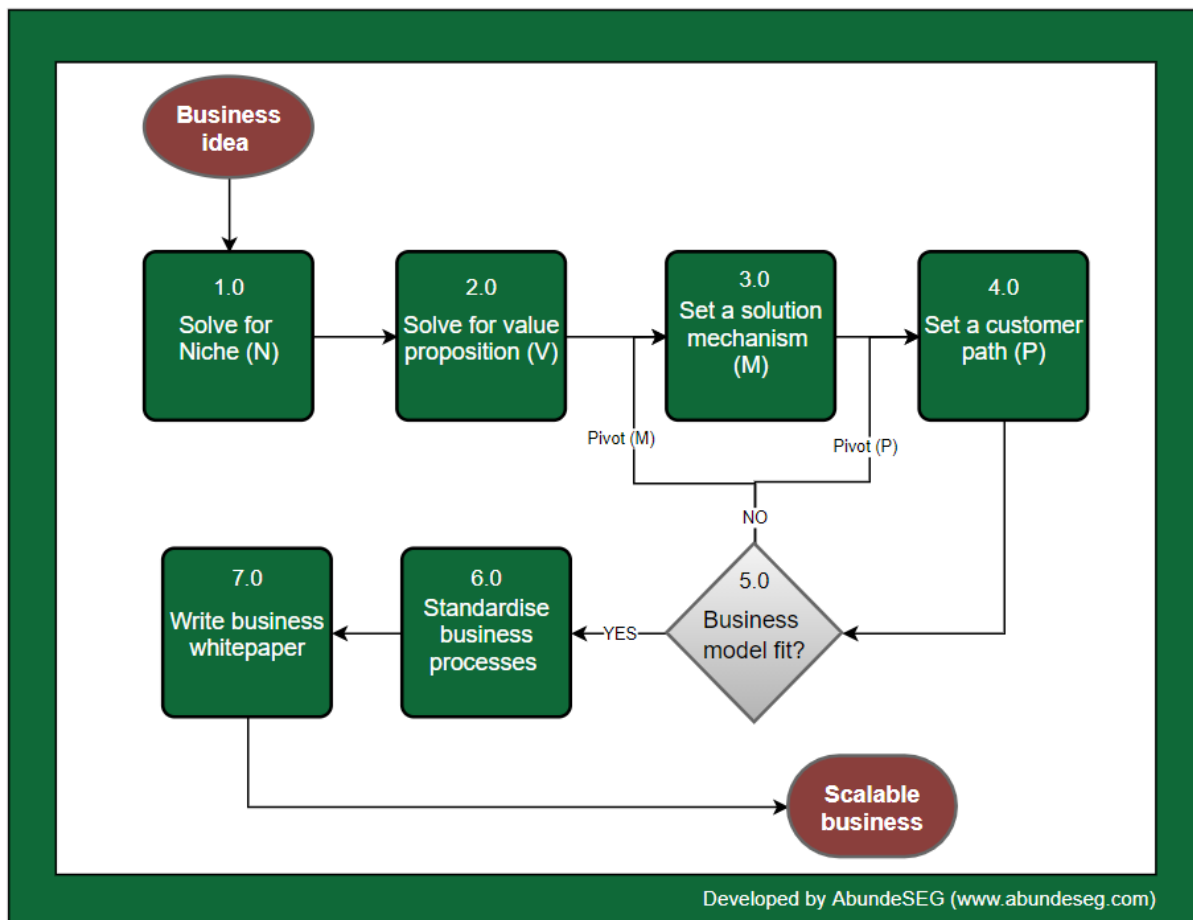


Figure 3: Steps to converts business idea into a scalable business.

The steps include solving for the niche, solve for value proposition, setting a solution mechanism setting a customer path as well as writing a business whitepaper. Now let’s dick deeper into each of the steps.

Step 1: Solve for the Niche (N)

- **Choose a market segment:** The big tip here is to start with a segment you are either passionate or knowledgeable about. When you identify the segment try to have an idea of the total number of people available in that segment. This is termed the attainable region of your business. The market attainable region defines the totality of clients that your business solution can reach considering all possible sales and marketing strategies you use. For instance, if you are designing a food product for diabetic patients in Cameroon, then the attainable region is the total number of diabetic patients available in Cameroon. Table 2 presents examples of some market segments you can consider when trying to develop a food product. The list is not exhaustive but only to be used as a guide in to show you how specific you market segment should be.

Table 2: Market Segment Grid for choosing a market segment for your food processing business.

| SN | Segment category | Criteria classification | of | Segment example (s) |
|----|------------------------------|-------------------------|----|---|
| 1 | Business-to-Businesses (B2B) | Food process domain | | Bakeries who spend long time baking bread |
| | | | | Restaurants who sell African foods that are time consuming to prepare |
| | | | | On-demand bakers of birthday and wedding cakes |
| 2 | Business-to-Consumer (B2C) | Profession | | Teachers who consume wine |
| | | | | Students who consume yoghurt |
| | | | | Truck drivers who travel long distances |
| 3 | Business-to-Consumer (B2C) | Health status | | Diabetic patients who don't eat sugar |
| | | | | Obese people who don't drink beer |
| 4 | Business-to-Consumer (B2C) | Age | | Children between 1 to 5 who consume milk |
| | | | | Old people between 60 to 90 who consume food |
| 5 | Business-to-Consumer (B2C) | Level of income | | Low-income people who consume wine |
| | | | | Rich people who consume beer |

- **Identify a problem:** There are four categories to consider when trying to identify a problem for your food processing business: (i) **Time burning problems:** problems related to complexity in producing food products i.e. It consumes so much time and hence cost to produce the product; (ii) **Product variability problems:** problems related to variability in product quality with personnel. This means the quality of the product varies based on the personnel (iii) **Side-effect problems:** health related problems, which prevents your consumers from consuming a given food product; People like a product but cannot consume it because it poses them physical or health side effects; and (iv) **Health related problems:** problems related to malfunctioning of normal body systems either due to disease attack or ageing.

Table 3: Food problem Grid to help you identify a problem category for your food processing business.

| SN | Segment category | Nature of problem | Consequence (pain point) | Example |
|----|------------------|---|---|---|
| 1 | B2B & B2C | Time burning problem (from complexity to produce a given food product) | High production cost because segment spends more energy & needs more employees | Achu, water fufu, ndole, bread, yoghurt, etc. |
| 2 | B2B & B2C | Product variability problems (Variability in product quality with personnel) | Decrease in profits because you lose clients from unsatisfactory product quality. | Roasted fish spice, achu soup taste, etc |
| 3 | B2C | Side effect problems (allergy, physical deformation, or other health challenges from consuming a food product) | Increase expenditure from frequent visits to hospitals. Unfulfilled desire to consuming favourite product | High cholesterol, pot belle, weight gain, high sugar level, sleep from consuming yoghurt etc. |
| 4 | B2C | Health related problems (Suboptimal functioning of natural body patterns/systems due to ageing or disease attack) | Lost of self-pride. Unfilled desire to perform desired activity | Low libido, lack of sleep, oversleep, flu-like symptoms, etc. |

All the successful food products in the market can be placed into one of the four categories presented in the Food Problem Grid. For example, Heineken (one of the most successful beer brands) solved the side-effect problems. At first, people who consumed beer had allergy from the presence of gluten. Heineken solved this problem by producing gluten-free beer. Guinness (another successful beer brand) solved the health-related problems at first, Guinness was

sold in Pharmacies because it helped to boost the immune system. After I sampled 100 people on why they consume Guinness, over 80% responded that they consume to enhance their strength during sexual intercourse. Both examples proof to you that your food product or service must solve a valid problem

- **Determine the cost:** Quantify the burden associated with the problem. That is determine how much money your target segment is losing for having that problem. Recall financial burden+ problem forms a pain point and customers are always willing to pay for a solution that relieves them off their pain points.

Step 2: Solve for value proposition (P)-

To solve for the value proposition, you need to get out of the building and have a real-time conversation with a few people from your target segment. Contact 5 to 10 people in your chosen market. segment. Ask them if they face the problem and if they are aware of the financial loss associated with the problem. Your goal as an entrepreneur is to make these 5 to 10 people agree with you that they face the problem and the problem cost them financial loss. Do not try to force them to agree with you, rather focus on understanding if they really face the problem and if they are willing to solve the problem. When they agree, ask them if they will be willing to have the problem solved at a fee. If they accept, then then you have successfully solved for a value proposition. If they do not agree with you, then consider changing the segment. It means the problem is not really a pain point for them.

It is particularly important to note here that you must have a way to quantify the impact of the value proposition on your market segment. People will be willing to pay for a service (and continue to pay) only if service if they understand how your service is making them earn money.

Step 3: Solve for solution mechanism (M)-

How do you want to solve the problem for the target segment? How do you want to deliver the value proposition to your potential clients? What resources will you use? What key activities will you perform? If you can answer these questions, then you have solved for the solution mechanism. Table 4 presents the different categories of mechanism that can help you make a decision for your own food product.

Table 4: Mechanism Grid to help you identify a mechanism for your solution.

| SN | Segment category | Mechanism | Description |
|----|---------------------------------|------------------------|--|
| 1 | B2B (producers of food product) | Augmented Training | Solution mechanism involves teaching your target segment how to solve the problem using videos, books, and live calls. We call this augmented training because you use media resources to support your training. |
| 2 | B2B (producers of food product) | Lean Execution | In this case, you apply business process intelligence to standardize a process and train your own staff to execute the process for your target segment. |
| 3 | B2B (producers of food product) | Augmented Intelligence | Develop a software which helps your client solve the problem of interest. E.g., you provide a food processing company a software, which saves time and money to process a food product. |

The choice of solution mechanism depends on (1) the size of your capital (2) profitability of the business. This means a change in solution mechanism influences the profits of the company. Some solution mechanisms can lead to a loss while others can lead to profits.

Solving the solution mechanism follows a two-step process based on the concept of agile food processing.

Step 1: Develop solution artefact (MVP)- get payment.

Step 2: Build solution-get confirmation of satisfaction from solving problem. In some cases the artefact already solves the problem

Step 4: Solve for the customer path (P)-

For every business venture, customers generally move through a road before arriving the desired destination of the entrepreneur (making a purchase). This road or path is structured like a funnel from top to bottom. This funnel through which customers move is referred to as a sales funnel. The sales funnel is divided into two sections: the top funnel (known as path one, P1) and the bottom funnel (known as path two, P2).

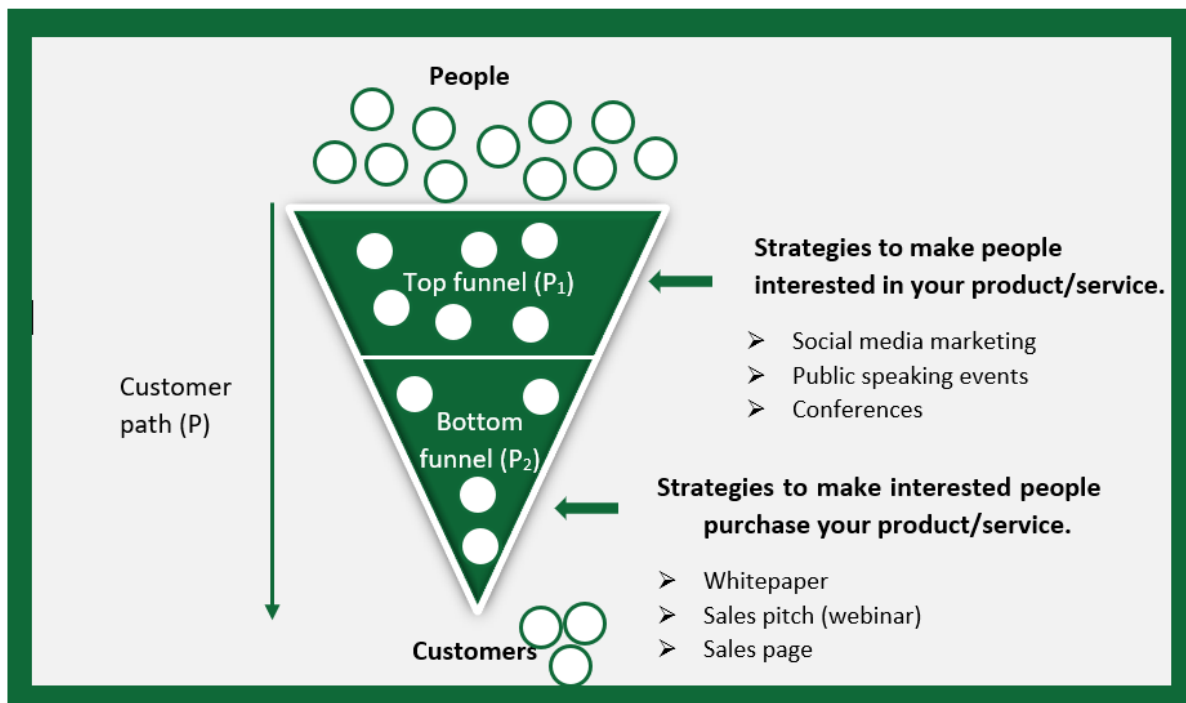


Figure 4: An illustration of how the customer path converts people to customers.

The role of path one is to get the attention of attract potential customers while path two is to demonstrate expertise, credibility to make them purchase your product or service.

Examples of path one (top funnel) activities include:

- Social media marketing: Using social media platforms like Facebook, LinkedIn, AgriSuites, Instagram, etc. to attract people's attention on your product or service.
- Public speaking events: Using speaking opportunities at events such as parties, schools, etc. to attract people's attention to your product or service.
- Conferences: Attending and presenting at conferences in a way that indirectly get peoples attention on your product or service.

Examples of path two (bottom funnel) activities include:

- Sales whitepaper: A whitepaper, which is written to teach about a particular topic while indirectly driving your target audience to make a purchase of your product or service.
- Sales pitch (VSL): A webinar or video, which is used to convince interested people to pay for your product or service.
- Sales page: A website, which is specifically designed to convince interested people to pay for your product or service.

To solve for a customer path, you must determine P1 and P2. i.e., you must determine the top funnel and bottom of funnel activity such that your business gives three times the return on investment (3xROI)

Step 5: Business model fit

At this step you need to perform a financial modeling on the entire business and determine if choice of solution mechanism, price to pay, and cost of customer path guarantees sustainability of the business. As a rule of thumb, we say the business model gives a good fit if the financial model gives 3xROI. The Scientific formula also includes an excel template to help young entrepreneurs easily implement financial modeling and determine a business model fit.

Step 6: Business process intelligence

The success of a business depends on how well the business processes are defined. Before you fully launch. What differentiates successful from unsuccessful businesses is how well they map out their operating processes and measure performance at every step. Performance can only be improved if it is measured against a benchmark.

- Food process: process in which you use to produce your food product of interest must be clearly mapped out using business process modeling techniques.
- Sales process: the entire sales process, which constitutes P1 + P 2.
- Business model: the logic through which your company intends to make money.

The business model, food process and sales process constitute the blueprint for your food processing business.

Step 7: Develop a business whitepaper.

After the business model has been fitted, you now must present the results in a format that is attractive to investors. You must document your journey for solving for a business model fit. The scientific formula proposes the use of business whitepapers as opposed to the standard business plan. Table 5 presents a comparison between business plan of the traditional entrepreneurship approach and the business whitepaper of the scientific approach.

Table 5: Business Whitepaper vs business plan

| Parameter | Business plan | Business whitepaper |
|-----------------------------------|---|--|
| Financial model | Based on market size hypothesis & sales forecasts | Based on validated data from customer development |
| Target | For large companies who are executing known business models | For start-ups who are searching for a business model |
| How to develop | Developed using ideas and beliefs of the founder | Developed using the scientific formula of entrepreneurship |
| Objective for writing | Help you search for funding or sponsors | Boosts brand awareness, increase credibility, lead generation, sales and funding |
| Ability to acquire funding | Weak. Only 5% of funding is available for untested hypothesis/ideas | Strong. Attractive to investors as business model has been validated |
| Purpose | steps to be taken, resources required for achieving your business goals and a timeline of anticipated results | To present your validated business model, sales process and production process to successfully operate your business |

Summarily the process for implementing the scientific formular can be summarized in a detailed methodological workflow presented in Figure 5: In the history of business venturing, the lean start-up process (Ref) emerged as a breakthrough in entrepreneurship by impacting how start-ups and incumbents innovate their products and services. However, certain aspects of the lean start-up process are either based on empirical evidence or founders vision posing significant variability in its implementation, which could sometimes result in false positives or negatives. The fundamental shortcomings of the lean start-up are illustrated as follows: (1) It focuses on using data (feedback from customers) to test and update the business model hypotheses but provides no systematic way to design and develop the hypotheses. (2) It emphasizes the importance of the experimentation process and feedback but with less emphasis how to carefully design successful experiments. These challenges limit the usability of the lean start up in food processing businesses. After several years of research in business, entrepreneurship and food process engineering, the author has built upon the lean start-up process to develop a process for starting businesses specific to the food and bioprocess sectors. This in-house process called the **Lean BioStartup** is a principled and resource-efficient approach that integrates food process engineering, business intelligence and digital strategies to develop new food & bioprocessing businesses.

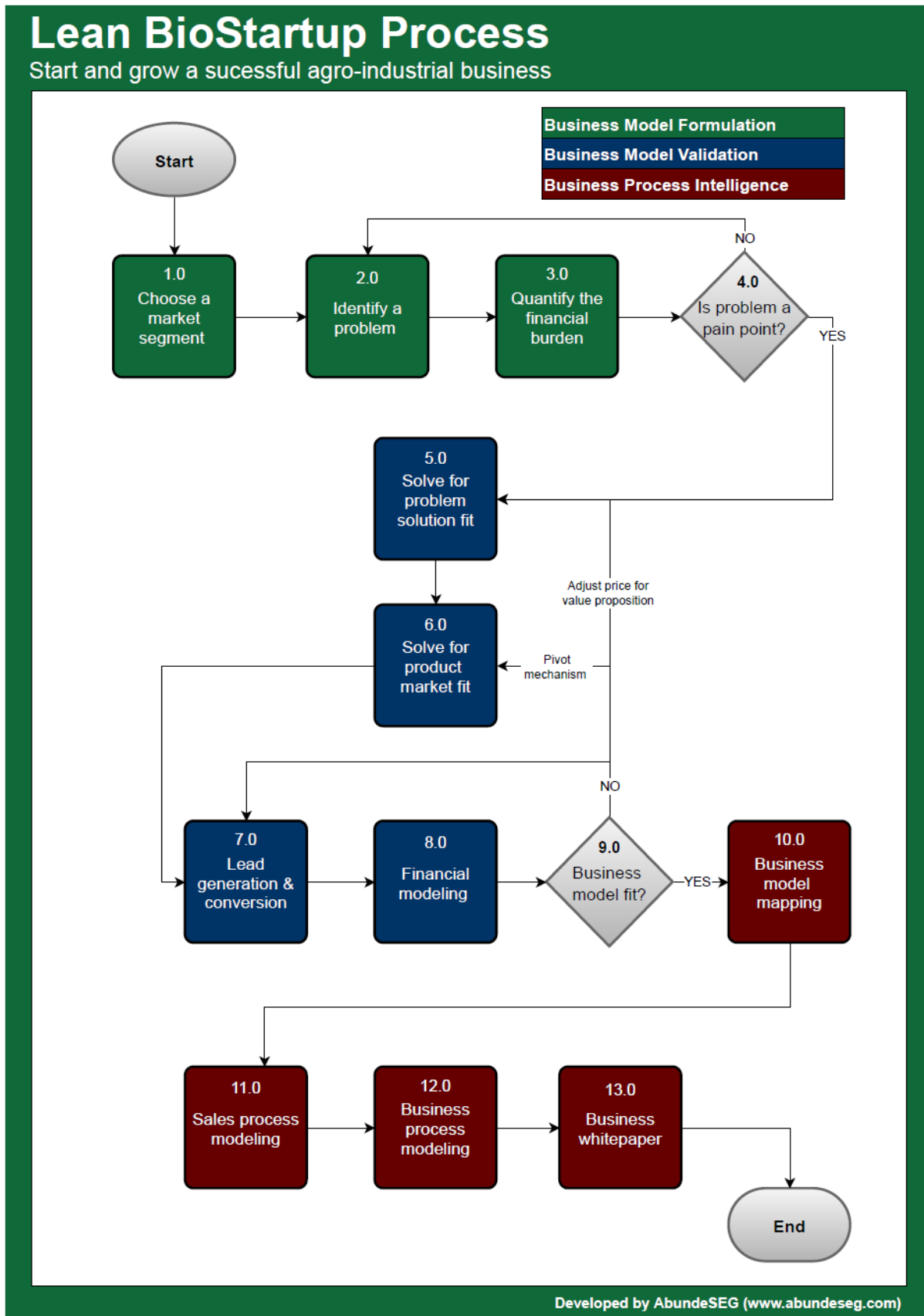


Figure 5: Methodological workflow of the scientific formula of entrepreneurship.

Table 6: Process documentation of the Lean Biostartup (Figure 5)

| SN | Task | Description | Templates |
|------|--------------------------------|--|------------------------------|
| 1.0 | Choose a market segment | Specific group of people you are interested to build food product for. The market can be segmented based on age, level of income, domain, location, etc. | Market Segment Grid |
| 2.0 | Identify a problem | What is the problem faced by the market segment that you want to solve | Food Problem Grid |
| 3.0 | Quantify the financial burden | Quantify the financial burden associated with the problem. i.e., what amount of money does the segment lost because of the problem | |
| 4.0 | Check if problem a pain point | If a problem is associated to a financial burden, it becomes a pain point, which makes it a stronger business opportunity. If problem has no financial burden, consider searching for a new problem | Mechanism Grid |
| 5.0 | Solve for problem solution fit | Is your target segment aware of the problem and the associated loss? Are they willing to pay money for the product to be solved? If 5 to 10 people in your target segment say yes, then then the problem solution has been fitted. | |
| 6.0 | Solve for product market fit | What type of product or service will your target audience want to solve the problem? Will they want you to teach them how to solve the problem or they will want you to solve the problem for them directly | |
| 7.0 | Lead generation and conversion | How will you make a larger group of people build interest in your product or service? How will you make those interested purchase your solution? Try out the chosen approach to see the number of people you get interested and the number who will make a purchase. | Experimental sales funnel |
| 8.0 | Financial modeling | After attracting people to purchase your product at a given price check to see if the unit economics is profitable. Build a financial model considering all the cost and revenue structures | Financial modeling dashboard |
| 9.0 | Check for business model fit | If the business generates at least 3 times the return on investment (3xROI) then the business model fits at a good accuracy. | |
| 10.0 | Business model mapping | Now, use the business model canvas to map out the logic in which your entire business makes money | Business model canvas |
| 11.0 | Sales process modeling | Prepare a detailed process flow diagram of your how you get people interested and how you make them purchase your solution. This entire process is called the sales process. | Sales process map |
| 12.0 | Business process modeling | Prepare a detailed process flow diagram of how you produce your solution. In this case the food processing flow | |
| 13.0 | Write business white paper | Use the business whitepaper template to map out an entire business document for your business. | Business whitepaper template |

3. CONCLUSION.

This whitepaper has successfully presented and illustrated the Scientific Formula of Entrepreneurship developed by the author. The paper also illustrates how the formula can be used to successfully start a food processing business. Use the process presented in this whitepaper, the author has started successful food processing businesses. Successful cases studies include Abunde Foods, AgriSuites, Awamel Foods, Dimples Foods, etc. It is now time for you to apply the scientific formular to start your own successful food processing business. If you want to know more about, join AgriSuites, the first and leading social media platform exclusive for the food and agricultural community (www.agrisuites.com). To know more about all the businesses that have applied the Scientific formular, visit www.abundesege.com. You can also contact the author or LOREXP at info@lorexp.org in case you have any question applying the lead BioStartup process to your business.