"Investing in Africa's future"

COLLEGE OF HEALTH AGRICULTURE AND NATURAL SCIENCES

NAEC407: ENTREPRENEURSHIP AND SMALL BUSINESS DEVELOPMENT IN AGRICULTURE

END OF FIRST SEMESTER FINAL EXAMINATIONS

NOVEMBER 2021

LECTURER: DR K. MUKUMBI

DURATION: 5 HRS

INSTRUCTIONS

Answer **ONE** question

All questions carry equal marks (100).

QUESTION 1

Read the passage below and answer the questions that follow.

THE REFILLERY: Your Planet-Friendly Grocer helping to make a difference, because there is no planet 'B'.

The Refillery is an exciting, new planet-friendly grocer offering a stylish, convenient, PLASTIC-FREE, 'weigh-and-pay' shopping experience that helps you to stock and re-stock your pantry with the highest quality, ethically-sourced products without all that wasteful packaging normally associated with a trip to the grocery store. We started The Refillery because we are really concerned about our beautiful planet and we want to try (in our own small way) to help.

THE PROBLEM

Growing worldwide awareness and concern regarding the environmental catastrophe brought about as a result of the uncontrolled use of non-biodegradable, single-use plastic packaging. Cyril Ramaphosa and Environment Minister Edna Molewa have recently launched the 'Source to Sea' initiative to try and combat plastic pollution around South Africa's coastline. The 'Great Pacific Garbage Patch' is currently estimated to cover 1,6 million square kilometres, an area larger than South Africa and Zimbabwe combined. "94% of all beach litter in South Africa is made from plastic of which 77% is packaging".

THE SOLUTION

'The Refillery' is an exciting new planet-friendly grocer supplying single-use plastic-free, responsibly sourced, refillable, everyday products for package-less pantries and households. The plastic-free, zero waste, weigh and pay retail business model is a fast-growing global trend. 'The Refillery' offers a casual, friendly, grocery shopping experience in a stylish, simple, modern, 'old-school cool' environment with a

repurposed feel of natural wood, textured surfaces and polished concrete floors. 'The Refillery' offers Home Delivery and Refilling service plus a Call and Collect facility. 'The Refillery' makes it easier for the environmentally-concerned as well as convenience-seeking customers to fill their pantries and play a part in helping to reduce South Africa's (and the world's) plastic pollution crisis.

You can either bring your own jar / container or vessel in store to refill. We weigh it first at the weigh stations and write underneath the weigh to tare at the end. You fill the container with as little or as much as you are after and then you weigh and pay at the end.

Want to start a plastic free pantry? We stock a wide range of glass containers in store, grab a jar and fill it up, weigh and pay at the end. We know the weights of all our own containers so no need to pre weigh these.

No need for jars? Grab a complementary recycled brown paper bag and fill it up with your desired quantity, weigh and pay. Head home and decant into your own container to keep fresh.

a) Is The Refillery a social entrepreneurial company? Explain.

(10 marks)

b) The Refillery would like to seek additional funding. Which sources of funding would be appropriate in this case? Explain why you chose that specific source(s) of funding. (10 marks)

b) What are five lessons you have learned regarding entrepreneurship from The Refillery. (15 marks)

d) Explain how you will apply the lessons learned to your own entrepreneurial venture. (15 marks)

e) Develop and entrepreneurial elevator pitch for The Refillery that they can use as they seek additional funding for their business.

(10 marks)

f) What can The Refillery do to ensure that they do not fail in the early years? (20 marks)

g) Would you be interested in investing in The Refillery? Why or why not? (20 marks)

End of Question 1

QUESTION 2

Read the passage below and answer the questions that follow

The Sky Tractors Are Here to Save Devastated Forests

By Ed Johnson

25 September 2020, 04:35 CAT

How drones are helping forests recover from devastating wildfires

As huge wildfires tear through California, Oregon and Washington, an Australian company says it holds the key to reseeding devastated forests and fast-tracking the recovery: Drones.

Dendra Systems surveys vast areas of scorched land with specialized drones, which can then be used to sow seeds of native species much faster than traditional manual planting. Ongoing overflights can also provide a constant flow of real-time data on the progress of regeneration.

"We've got an aerial feeding system, it has been called a sky tractor, so that we can get into those hard to reach places," said Susan Graham, Dendra's chief executive officer and co-founder. "It's much more efficient to be flying over the ground than walking over it." Dendra is also working with global resources giants including Glencore, BHP and Rio Tinto on restoring land to its natural state after a mine's life has ended.

The startup, Dendra Systems uses custom-built drones, ecology and Artificial Intelligence to help the biggest natural resources companies in the world clean up and replant degraded land. The company just launched its third-generation aerial seeding technology and analysis platform. This step takes its 'sky tractor' planting and mapping capability to a new level.

With the new technology, it lets companies rehabilitate degraded land 11 times faster and at a one-time cost as traditional methods of remediation. This means that the company can replant up to 60 Ha per day, which is an area equivalent to 85 football pitches.

Dendra Systems is seeking funding to help continue its work given the global demand for solutions that can be applied at scale.

Puts an end to deforestation

It is reported that nearly 25% of the world's landmass has been degraded by farming, mining, logging and other industrial processes. As a result, soil carbon and nitrous oxide are released into the atmosphere and make land degradation an important contributor to climate change. As per scientists, unsustainable agricultural practices leading to land degradation could strip almost 95% of the Earth's land areas by 2050.

This is where Dendra Systems comes to play as it works with natural resources companies including Glencore, BHP and Rio Tinto, public agencies and governments in order to reverse the impact of industrial processes such as farming, mining and large road and rail building projects.

Deploys high-resolution imagery

Dendra Systems works all over the world on behalf of global natural resources companies to restore land. It claims that an upgrade to its technology will accelerate the rate at which it can regain natural woodland habitats for land that has lost all the flora and fauna.

With high-resolution imagery, the Oxford startup will be able to map the land equivalent to 400 football pitches a day per team. Also, the company can identify 120 species from the sky ranging from trees such as Brigalow acacia to perennial flowers like Ptilotus exaltatus. Dendra Systems can also identify animal species from lizard to kangaroo.

Using drones, Dendra helps conservation managers to see the land thousands of times more accurately than traditional satellite imagery. Its Artificial Intelligence technology helps in identifying and mapping all species on every square metre to enable accurate weed management and proactive stewardship.

With ecology-driven data science, conservationists can build an extremely detailed insight into every aspect of the land's condition. After getting a full picture of the land, Dendra uses bespoke drones that can carry increased payloads for aerial seeding. This

method increases the rate at which trees can be planted, and reduces the on-site risks for planters.

Founded in 2014 by Susan Graham, Dendra Systems claims that 10 drones could plant nearly 300,000 trees per day. On the other hand, up to 2,000 trees can be planted a day using the traditional hand planting method.

Susan Graham, founder of Dendra Systems, said: "Dendra Systems was founded to capture data about the land, turn it into insights about the ecosystem so that we can identify early risks like erosion or invasive species before they derail restoration work and then take action at scale. For the first time, Dendra's Generation 3 technology will dramatically speed up and reduce the cost of the work ecologists and land managers."

Lucy Roberts, Corporate Head HSEC and Human Rights, Glencore said: "Dendra helps Glencore overcome these challenges by providing unprecedented insights into the condition of the land and ecosystems using ecology-driven data science and artificial intelligence. Complemented by drone-based aerial seeding which increases the rate of planting and mitigates on-site risks. Together, Glencore and Dendra are restoring thriving ecosystems."

How to plant seeds with drones

So, how does it work?

First, the replanting areas are identified using a combination of satellite images and drone-collected data. Specialized planting drones take to the skies loaded with seedpods containing a germinated seed and nutrients. Once in position, the drones use pressurized air to fire the seeds into the ground – at 120 pods per minute. The seedpods penetrate the earth and start to grow once activated by water.

A 'step-change'

Dendra estimates its technology – combining speed and accuracy – would enable governments to restore forests 150 times faster than planting by hand, and up to 10 times cheaper. By using drones, governments can tackle deforestation faster and cheaper than planting trees by hand. Graham says it represents a new "step-change" in how we think about global ecosystem restoration. "We need to use technology to scale up our restoration efforts, and the scale we're talking about is tens of billions of trees every year. "We'll be able to see the ecosystems that we've restored from space."

a) Is Dendra Systems a social entrepreneurial company? Explain.

(10 marks)

b) Dendra Systems would like to seek additional funding. Which sources of funding would be appropriate in this case? Explain why you chose that

specific source(s) of funding. (15 marks)

b) What are five lessons you have learned regarding entrepreneurship from Dendra Systems? (10 marks)

d) Explain how you will apply the lessons learned to your own entrepreneurial venture. (15 marks)

e) Develop and entrepreneurial elevator pitch for Dendra Systems that they can use as they seek additional funding for their business.

(15 marks)

f) What can Dendra Systems do to ensure that they do not fail in their early years? (20 marks)

g) Identify and describe 3 types of intellectual property that Dendra System has to protect. (15 marks)

End of Question 2

QUESTION 3

Think of a business idea that you would like to pursue from one of the categories below:

- Digital technologies and data-driven solutions, sensing, and Internet of Things (IoT): Ag data capturing devices, decision support software, big data analytics
- Novel food: Novel ingredients, plant-based proteins, insect based foods
- Social innovation: Development and implementation of new ideas (products, services, and models) to meet social needs and create new social relationships or collaborations
- Circular economy: In agriculture, the reuse of resources, recycling and waste reduction (improvement of storage techniques and logistics, transformation of waste into fertilizers). In the processing industry, preventing food waste

a) Describe the business idea. Explain why you chose this idea. Your idea should be innovative. (10 marks)

b) What is the problem you want to solve? (10 marks)

c) Explain in detail how you plan to solve the problem. (10 marks)

d) List 5 possible names for your business (10 marks)

e) Prepare a Business Model Canvas for your business. Your response should be in table format. (20 marks)

f) Which legal format will you select for your business? Justify your response. (10 marks)

g) Many businesses fail in the early years. What will you do in order to ensure that your business succeeds and does not fail in the early years? (20 marks)

h) Identify 3 types of intellectual property for your business. How do you plan to protect it? (10 marks)

End of Question 3