5. Given that "drones will trace the movement of released animals," this may hinder air transport as the drones will take up air space and could cause air traffic. Aviation transportation like other drones, planes, helicopters may be disrupted if these drones fly around depending on animal movement. Currently, "air taxis" are being innovated and talked about, however, there is still much discussion and concerns about utilization of shared air space before they can be deployed.

6. Given that "anyone with a tablet will be able to follow the animals," this ability to track the animals may be exploited by illegal hunters or poachers. As a result, there may be an increase in hunting activity of de-extinct animals. Furthermore, animals can be easily recreated to replace hunted animals. In the past, passenger pigeons were hunted frequently to their extinction for food in 1914. If resurrected, hunting activities of such birds may start again.

7. Given that UN-Eco "plans to reintroduce more than one hundred birds, mammals, insects, and grasses," and the resurrected species are tracked with devices like cameras, AI and drones, this may result in UN-Eco incurring large expenses on this program. Research shows that to resurrect a single mammoth it requires about $10M. De-extincting all the species will be a large financial strain on the organization.

8. Given that de-extinct animals will be introduced into the ecosystems and may also be used to "replace apex predators," this may increase interspecific competition among animals/amphibians in the ecosystem. The newly introduced predators may feed on different prey as those they replace and introduction of more species may also increase interspecific competition between species as there will be limited resources. Ecologist Bengston research shows that interspecific competition increases extinction rates of animals.
9. Given that "anyone with a tablet" can follow and track activities of the de-extinct animation, this may become an additive part time for people and this could become a form of enjoyment and recreation for them. As a result, traditional recreation forms like outdoor parks, playgrounds, cinemas may become obsolete as people spend increasing amount of time watching these sites on the tablets. An example, a study found that children born in the 2000s have a 45% decrease in outdoor time compared to those born in 1990s as more time was spent on devices like television and phones.

10. Given that "a reality holovision experience is planned" and people can readily track and learn about these de-extinct species through tablets, this may be a problem for zoos as they may lose business as the tablets and holovision allow people to see and learn about the animals wherever they are. As such, the business of traditional zoos may drop.

11. Given that de-extinct animals will be "released in the wild", they may alter the ecosystem such that resources like food which people depend on from the ecosystem would be affected. Alterations in the food web may cause shortages in food sources other other resources that the community may depend on. For example in 1800, rats infected sugar cane fields on Virgin Island after being brought onto the island by ships. This caused massive crop failure.

* and thus affecting their basic needs.

12. Given that the EJ states that the UN-ECO "plans to reintroduce more than one hundred birds, mammals, insects, and grasses" into the planet, certain members of the UN may be in opposition with the UN's plan of releasing de-extinct animals, leading to conflict of interests and political tension between governing bodies. Previous instances of political tension between UN and country members can be illustrated to when Myanmar did not oblige to UN's demand to stop the Rohingya crisis on humanitarian rights of refugees.
STEP 1. Identify Challenges (continued)

13. Given that the FJ states that "the focus on De-Extinction may reduce the protection of current species or ecosystems", less resources and government attention may be allocated to animal conservation programmes, leading to possible fewer fundings or manpower to conserve existing animals. This may be a problem as the current existing animals, especially the endangered ones, may go extinct, decreasing overall biodiversity in the ecosystem. Research has shown that for every 33 species that are resurrected, conservation efforts of 29 species of animals will have to be sacrificed.

14. Given that the FJ states that "Animals can then be raised for release in the wild", resurrected animals may not have the training and hence ability to survive in the wild. For example, they may not know how to catch their prey if they have been fed by caregivers in research establishments. This may be a problem because when the animals cannot catch their own prey or seek water sources, their basic needs may be compromised. Research has shown that when domesticated tigers are released in the wild, they found difficulty catching their own prey and eventually returned to their original homes for food.

15. Given that the FJ states that "there will be "habitat cameras" and "auto-follow drones" that will be following the animals around, the animals may be scared of these foreign human technology and deem it as a threat to their safety. This may be a problem because the animals may face greater stress and worry for their safety, decreasing their psychological wellbeing. Studies have shown that lab rats who are in constant monitoring in a laboratory foreign to their team has led to greater symptoms of stress exhibited such as sleeplessness.

16. Given that the FJ states that "anyone with a tablet will be able to follow and discuss new photos, videos and data", the tablet may be some an educational platform for people to learn about these de extinct species. This may be a problem as the information and data provided on tablets may not be a full and accurate representation of the de extinct species, as cameras and trackers may only capture certain activities and behaviours of the animals. As a result, people do not have a full understanding of de extinct animals.
STEP 2. Select an Underlying Problem

Using the challenges listed in Step 1, identify a problem of major importance to the Future Scene situation. Write your Underlying Problem making sure your question clearly explains the action that will be taken and the desired results/goal of that action.

Writing on reverse side or in margins will not be scored.

Challenge #(s)  8, 11, 13, 14

Given that the FS states that "introducing a new species into an ecosystem can go horribly wrong" and "we can't assume humans can successfully rebalance the delicate ecosystem through De-Extinction efforts", species how might we reduce the risk of De-Extinct & destabilising the ecosystem, such that we can better protect the health of ecosystems around the world in 2039 and beyond.
STEP 3. Produce Solution Ideas

Generate solution ideas to the Underlying Problem in Step 2. Choose the 16 most effective solutions and write the elaborated ideas in the space provided. Writing on reverse side or in margins will not be scored. One additional page for both challenges and solutions is provided. (Page 14)

1. The Welfare of every State’s Economic Policy (WESP) will create a new quota system that, to control the population of de-extinct species reintroduced into each ecosystem. The quota system will stipulate a required maximum number of new de-extinct animals that can be introduced into each ecosystem through a series of trials to determine the most suitable combination of animal numbers in each ecosystem. This will help reduce the use of de-extinct species destabilizing the ecosystem of the number population of these species will be in control at all times. Thus, the health of each species can be better protected through controlled species population in the long run.

2. The Psychological Health Department (PSHD) will introduce animal stress detectors that will be placed inserted into de-extinct animals during the de-extinction process. The detectors within the animals’ body system will detect levels of stress by monitoring fluctuations in adrenalin level and cortisol levels within the animal’s system. When levels of these two hormones are high, the detectors will send a signal to de-extinction monitoring staff in the animal welfare department to alert them of animal stress so that they can take measures to reduce animal stress. This is research that animals stress can result in alteration of the ecosystem in the long run through changes in animal behavior, these detectors will reduce the likelihood of animals being stressed.

3. The Physical Health Department (PHD) will introduce a mandatory center of physical health check among all animals in every ecosystem. The health checks will be conducted monthly using micro-imaging techniques that are able to scan the internal body organs of the animals to detect any abnormalities or health concern. Given these current imaging techniques such as MRI and X-ray scans are able to detect health defects, these regular health checks could ensure that the animals in every ecosystem remain healthy and thus display their predicted behavioral and psychological traits that do not destabilize the ecosystem to the ecosystem can be better protected.

4. The Transportation Aviation Department (TAD) will create high-speed motion-operating monorail (MOM) that transport species that display signs of destabilizing the environment ecosystem. The MOM will receive regular hourly updates from environmental agencies alerting them of the number, type and location of species that display signs of destabilizing the ecosystem. The hallway will then be transported by the MOM to a transportation depot quickly away from the ecosystem, so that they will not destabilize the ecosystem will be reduced. At the depot will be situated in every ecosystem, the health of the ecosystem can be better protected by reducing the change of species capable destabilizing the ecosystem from being present.
STEP 3. Produce Solution Ideas (continued)
Writing on reverse side or in margins will not be scored.

5. The Technological Department (TD) will create a series of nano quantum particles that follow the quantum entanglement theory. These particles will be dispatched at every ecosystem with de-extinct species and will move at high speeds to monitor the ecosystem through real-time cameras that record and transmit species' activities in every ecosystem to regulatory authorities.

6. The Algorithms Basic Council (ABC) will develop a new series of algorithms through coding techniques for the hybridation of new de-extinct species. These algorithms will regularly conduct checks on the activities of the de-extinct species on an hourly basis to record, determine the most suitable traits and characteristics of de-extinct species in the ecosystem. These de-extinct species with suitable traits will then be used for reproduction through breeding grounds in order to produce de-extinct species with the traits found in the ecosystem least likely to perturbate the ecosystem. If there will be a lower chances of species that can deteriorate the ecosystem, the health of ecosystems can be better protected.

7. The Ethical Watchdog (EWD) will create a new ethical code of conduct under the ethical department that mandates that all de-extinct species reintroduced into the ecosystem do not disrupt the current functioning of existing species. The EWD will mandate a monthly report on animal activities among de-extinction committees and relevant research to ensure that the introduction of de-extinct species has been well thought through and their prey and coy has been analyzed. This may reduce the risk of de-extinct species degrading the ecosystem such that the health of the ecosystem can be better protected. Current ethical codes of conduct have been successful in regulating the activities of authorities, may this solution will be able to successfully solve the up.

8. The Technological Department (TD) will create a series of nano robots that will be injected into the de-extinct animals during the de-extinction process. These nano robots will constantly navigate through the body of the species to immediately repair any genetic defects during the DNA replication, transcription and translation processes by adding or removing correct base sequences and repairing DNA fragments. Currently, nano robots have been experimented with to be inserted into human bodies from research. Thus, these robots will ensure that all de-extinct species have all expected traits that are not likely to harm the ecosystem and prevents unexpected traits and known from muting that could deteriorate the ecosystem through behavioral or evolutionary changes. This may they ensure the ecosystem to be better protected.
STEP 3. Produce Solution Ideas (continued)

The Big Investigation Group (BIG) will be a business alliance created to work on the genetic alteration of de-extinct animals such that their DNA will be mutated to suit the ecosystem they are introduced into. The BIG will comprise of many nano-technology businesses from all over the world and using their research and collaborative efforts, they will edit the genetic code of the de-extinct animals' DNA with CRISPR technology using recombinant genes to change the genetic makeup to fit in terms of their diet, predation, and so that they will be able to co-exist with, not harmfully with other species in the ecosystem and not cause detrimental changes to the future, thereby improving the ecosystem. Hence this will reduce the risk of de-extinct species destabilizing the ecosystem as they will complement the ecosystem, better protecting the health of the ecosystem.

The Government of Defence (GDF) will create a policy that regulates all de-extinct species. Based on the study and analysis of the de-extinct species by the research teams in the 12 universities monitoring the project, a risk assessment will be conducted. As well as after receiving consultation from these researchers, they will either object or agree to let these animals into the environment based on the conclusion from the risk assessments of the de-extinct species. The risk assessment will score the de-extinct animals from a scale of 1-10. I believe the least likely to destabilize the environment and 10 being the most likely to destabilize the environment. Only species ranked from 1-4 will be permitted into the environment. Thus, this will reduce the risk of the de-extinct species.

The Education Watchdog (EWD) will create a demonstration unit (EDU). All researchers will coordinate with UN-ELO to be mandated to demonstrate how to best educate students to best and most of the possible unprecedented rules of the de-extinct species based on the biota. The EDU will utilize state of the art Artificial Intelligence (AI) to provide the research to come up with these potential risks and possible solutions to mitigate the rules of de-extinct species stabilizing the ecosystem. Hence, this reduces the risk of de-extinct species destabilizing the environment, protecting the health of the ecosystem.

The Communications Department (CD) will come up with a neurologically enhanced earpiece that will be worn by all scientists, researchers, and stakeholders in UN-ELO. This earpiece relies on a special set of wavebands that are transmitted throughout the entire world so that people can collaborate from all over the world. People can share ideas from all over the world. People can share ideas from all over the world.
STEP 3. Produce Solution Ideas (continued)

Writing on reverse side or in margins will not be scored.

13. The LAWS AND ORGANISATION (LAW) will create a law dictating that all species that have been inadequately tested and its impact on the ecosystem is not known are prohibited to be integrated into any ecosystem till further testing is conducted. Those who break and bring this law will be fined $3390 and will be sent to do "community service" by having to work 5 for UN-ELO for 5 years as a deterrence to going against this law. This will reduce the risk as species that are still uncertain require the ecosystem will not be allowed to be introduced, better protecting the health of the ecosystem.

14. The SOCIETY ORGANISATION (SOS) will create an online platform that allows viewers to upload their comments on the de-extinct animals based on their observation. A website for any comment will be shown through these comments to deter if any of these comments reveal any potential risk of the de-extinct species. The microchip scanner will then send information about this potential species destabilizing the environment to the management of UN-ELO whereby UN-ELO will bring this species back to its headquarters before any harm can be done. Thus this reduces the risk of species destabilizing the ecosystem, protecting the health of the ecosystem.

15. The Hologram Allowing Management (HAM) will create a hologram platform that allows people watching the de-extinct species on their tablets to highlight and report to UN-ELO a de-extinct species that may appear to be a potential environmental hazard based on their behavior observed by the people viewing them. The hologram platform will act like a social media platform to report these findings. Thus by detecting these potential hazards, animals can be rescued, reducing the risk if them destabilizing the environment is reduced, protecting the health of the ecosystem.

16. The Basic Needs Repurposing (BNR) will create a Pill of Yummy (PY) that will be made of Num yum yum, a numbing chemical that will immobilize any parasite de-extinct animals that are shown to have signs of destabilizing the ecosystem native. This will no longer pose a risk to the environment and may be safely brought back to UN-ELO before to find a better suited environment for that de-extinct species. This will reduce the risk will be reduced, protecting the health of the ecosystem.
STEP 4. Select Criteria

Generate criteria to determine which solution idea does the best job of solving the Underlying Problem and/or addressing the Future Scene situation. Select the 5 most important criteria for measuring solution ideas and write them in the spaces provided. Writing on reverse side or in margins will not be scored.

1. Given that the EJ states that “the UN Food Programme transformation has already begun with the release of the phenacodus, which solution will be the least time-consuming so that the risks of destabilising the ecosystem can be mitigated as soon as possible?” from 2039 to beyond?

2. Given that the EJ states that the purpose of the UN-EO designation programme is to “save delicate ecosystems”, which solution is the most environmentally-friendly so that the goal of protecting the environment is better achieved from 2039 to beyond?

3. Given that the EJ states that “the program has attracted criticism”, which solution will be the most widely accepted by the community so that conflicts of interests between members of different groups in the community can be minimised from 2039 to beyond?

4. Given that the EJ states that there is a need to develop less costly technological equipments such as “habitat cameras” and “AI analyzers”, which solution will be the most cost-effective so that we can reduce cost of operations from 2039 to beyond?

5. Given that the EJ states that there is a need “introducing a new species into an ecosystem can go horribly wrong”, which solution is the most effective so that we can prevent negative impacts on the environment to the greatest extent from 2039 to beyond?

STEP 5. Apply Criteria

From the solution ideas written in Step 3, select the 8 ideas with the most potential to solve the Underlying Problem and list them on the grid. Use each criterion to rank the solutions on a scale from 1 (poorest) to 8 (best). The numerical ranking for one important criterion may be doubled.

<table>
<thead>
<tr>
<th>Step 3 Sol’n #</th>
<th>Solution Idea</th>
<th>Criteria</th>
<th>Total</th>
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<tbody>
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<tr>
<td># 5</td>
<td>Operation, Ecosystem Protection System (OEPS)</td>
<td>8 7 5 8 6</td>
<td>34</td>
</tr>
</tbody>
</table>
Please write your Underlying Problem from Step 2:

Given that the FL states that "introducing a new species into an ecosystem can go horribly wrong" and "we can’t assume humans can successfully rebalance the delicate ecosystem through de-extinction efforts", how might we reduce the risk of de-extinct species destabilising the ecosystem such that we can better protect the health of ecosystems around the world in 2039 and beyond.

STEP 6. Develop an Action Plan

Develop your top-scoring solution idea into an Action Plan. Thoroughly explain how the Underlying Problem is solved, how the plan will be implemented, and how the Future Scene will be affected.

Writing on reverse side or in margins will not be scored.

Solution # 5 (DUDE)

The Department under Defense and Environment will develop the Operation: Ecosystem Protection (OEP) System (OEPS). This is a comprehensive system that serves the purposes of 1. Predicting possible impacts that resurrected animals have on the ecosystem and 2. Providing constant monitoring of the ecosystem to better protect its health. The OEPS comprises of 2 systems, the Simulation Ground (SG), a virtual and AI-controlled program that will simulate the ecosystem and the Defense Signals (DS) robot critters that will constantly monitor the welfare of the ecosystem. These two will complement each other to fulfill the aim of reducing the risk of de-extinct species destabilising the ecosystem.

Phase 1: Prototyping

The DUDE will hire a group of environmental scientists to develop the SG. This project will be carried out with a funding of $2 million, gathered from the government and pro-de-extinction organisations, like the Genetic Rescue Foundation. The scientists will have to work within a time limit of 2 years, to ensure that the project will be completed in the shortest possible time to reduce potential harm done to the ecosystem after the reintroduction of the phoeniculus in 2039. First, drones will be dispatched to a particular habitat and through sophisticated laser scanners attached to the bottom of the drones, the physical topographies of the habitat will be scanned and transmitted to the central headquarters. The scientists will then post these data will also pick up information of the temperature and do intricate profiling of ALL the flora and fauna of the habitat. All these data will be transmitted to the central headquarters...
where the scientists will code all the data into a programme that is a recreation of the entire ecosystem, including the habitat, the food webs, and interaction between animals. With this interactive and virtual platform, scientists can run virtual avatars that is an accurate reflection of the proposed resurrected species into the SG. The SG will forecast the interaction between the resurrected animal and the ecosystem, allowing scientists to predict the possible consequences that they may have on the ecosystem, such as broken food webs, over-praying or overcrowding. If the results are bad, scientists will relay the information to the UN-Elo, who will have to seek a more appropriate habitat for the de-extinct species. This answers the FIs as the FIs states that scientists from UN-Elo only analysed species in confined habitats, and only ensured their suitability of the CLIMATE. This implies that they may have neglected the environmental repercussions that may arise from studying the INTERACTION with the ecosystem as a whole, which consists of many other organisms. Hence, scientists can predict possible environmental risks such as a broken food web and consider alternative habitats, hence adopting a PREEMPTIVE approach to mitigate the risk, instead of reactive and responsive measures after damage to the ecosystem has already been done.

The next part of the DEPS is the Defense Signal. After developing the FIs, these DUDER will develop the DS, an army of robot critters that will be dispatched to the ecosystem that houses de-extinct animals. These DS are AI-controlled, and have a camera attached to its body to film the behaviour of de-extinct animals and the interaction with other animals. They will also there will be various different armies of DS, each attached to a different species of animal in the ecosystem. The DS will count the The DS will count and tabulate the total remaining number of each species at every month, allowing the central command to monitor if the ecosystem is healthy and identify instances of over-praying or too high interspecific competition between resurrected animals and existing organisms of the ecosystem, which implies an unstable ecosystem and broken food web. The park rangers and researchers will be notified to immediately pull the de-extinct animal out and find a better habitat for them by running it through the SG.

This solution is humane as the DS are programmed to minimize interference with the animals in the system and sprayed in a smell so as to prevent animals from ingesting them. They are most environmentally-friendly as they are made of thall. composed of chitin extracted from discarded shrimp shells. Thay are biodegradable, preventing contamination of the ecosystem should they be accidentally damaged.

A possible issue is that members of the public, and object to the introduction of man-made foreign objects into the environment. To solve this, the UN-Elo will hold public forums and run a website that highlight the environmental benefits of their technology, to emphasize the importance of them to protect the stability of the ecosystem. Furthermore, the DS is biodegradable to protect the environment. This shows that the interests of the authorities and the public are aligned, which is to protect health of the ecosystem.
STEP 6 - Extension page for GRAPHICS, CHARTS, PICTURES, OR DIAGRAMS, if needed

Text must be limited to labeling. Reverse side will not be scored.
STEP 1 Challenges and/or STEP 3 Solution Ideas - Extension page, if needed

Clearly label the Step and # of the idea being completed. Reverse side will not be scored.

21. In the long run and they reduce the risk of de-extinction and stabilizing the ecosystem to better protect the health of the ecosystem.

*10. De-stabilizing the ecosystem through such government regulations, better protecting the health of ecosystems around the world.

5. The Department of Defence and Environment (DVE) will develop the operation: Ecosystem Protection System (OPET). This system predicts possible impacts that human activities have on the system by an algorithm between the affected animal and the ecosystem through a coding system. The algorithm will allow scientists to predict the possible consequences they may have on the ecosystem, and poor consequences will be relayed to UNESCO, who will seek to provide a more appropriate habitat for de-extinct species. Additionally, the operation will provide constant monitoring of the ecosystem through simulated and defensive signals that constantly monitor the health of the ecosystem. The monitoring will be done by mini robots equipped with cameras and thermal detectors to count and tabulate the remaining species in the ecosystem to ensure that the ecosystem is stable. These robots will send signals to alert the authorities when the ecosystem is destabilized. This allows researchers and authorities to predict and monitor the health of the ecosystem that may arise from an unstable ecosystem.