



## PRACTICE ABSTRACT

### Digital technology

July, 2020

# CO<sub>2</sub> REVOLUTION

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CO<sub>2</sub> Revolution is a Spanish company offering a revolutionary approach to reforest big land extensions. As opposed to traditional reforestation methods, based on planting single tree species, the company uses airborne drones to spread a combination of 'intelligent seeds' (iseeds) aiming to create complete ecosystems by planting a variety of trees and plants. These services might be used to reforest burnt land after a forest fire or by companies and institutions interested in reforestation to offset their carbon footprint.

iseeds are composed of a biodegradable capsule that contains pre-germinated seeds, along with all the elements needed for their growth, including a combination of the different types of species that can create an ecosystem. The system uses advanced software and a navigation system to autonomously select the most suitable planting pattern in each piece of land.

The company can reforest large areas of land in a few hours at a significantly reduced cost (1/10 of the time and cost of planting with traditional methods), disseminate seeds in areas with difficult access, and regenerate complete ecosystems by combining different types of intelligent seeds in each area.

#### Application scenario

Reforest land using intelligent seeds, spread by drones based on advanced software and navigation systems to select the best planting pattern.

#### Digital technologies

Aerial drones, artificial intelligence, remote sensing.

#### Socio-economic impact

- Economic: Lower cost to reforest big land extension.
- Social: A potential negative impact is the loss of traditional jobs in land reforestation.
- Environmental: Reforestation of land after forest fires. Offset carbon footprint of major emitters and compensation of CO<sub>2</sub> emissions. Regeneration of entire ecosystem by combining different types of seeds. Planting in areas with difficult access.

**More info:** <https://www.co2revolution.es>



## Purpose of the tool

CO2 Revolution aims to fight climate change and desertification by offering a disruptive method to reforest land and compensate CO<sub>2</sub> emissions. The method allows for the creation of entire ecosystems proven to be self-sustainable. The company plans to plant 10 000 million trees in the next 10 years, to capture 500 million tons of CO<sub>2</sub> every year, and to do it at a reduced cost and in less time.

## Description of the tool

CO2 Revolution based its method on three main components: 1) a database containing all the variables influencing the creation of ecosystems and using advanced algorithms to select the most adequate for each piece of land to be reforested; 2) intelligent seeds contained in a biodegradable capsule with pre-germinated seeds along with all the elements needed for their growth; and 3) aerial drones equipped with containers to transport up to 10 000 iseedes using sophisticated software and navigation systems to select the best planting pattern in each location. In addition, different types of seeds (pasture, flowers, shrubs, trees) are combined in order create entire ecosystems. They use autochthonous species and carry out an intensive monitoring of the ecosystem evolution to make it self-sustainable in a short period of time.

## Areas of socio-economic impacts

<b>Social</b>	The main negative social impact is the replacing of traditional forestry jobs used to replant land and forest.
<b>Economic</b>	The method impressively reduced the cost of reforestation and creates the conditions to make it self-sustainable. Re-planting costs are also minimised.
<b>Environmental</b>	The system has important environmental impacts. It allows for the reforestation of big and small pieces of land, regenerating ecosystems by combining different types of seeds. These ecosystems offset the carbon footprint of major emitters and compensate CO <sub>2</sub> emissions. Drones can be used to plant in areas with difficult access. The use of autochthonous seeds favours adaptation to local conditions, sustainability, and minimises effects on local biodiversity.