# Innovation in ornamental plants: from cultivation to the end client with blockchain technology

## Summary

The project involves the implementation of a decentralised platform to provide maximum traceability for the plants distributed by the CORMA cooperative, from their production, including the raw materials used, until they reach the end customer, and the integration of the platform with the ICT systems currently used by CORMA. This new platform will be based on Blockchain2 technology – a type of decentralised data structure in which information is stored in blocks chained together in a timeline; and blocks are added to the chain after a process of consensus between the validating nodes in the network. These characteristics mean that the information contained in the blockchain can be considered unalterable.

## Objectives

The project aims to have an impact on the entire production and commercial chain generated by the cooperative, and the optimisation of processes due to this innovation will enhance CORMA's productivity.

Errors, inaccuracies and malfunctions in all the processes to which the proposed innovation is to be applied lead to losses of both material resources (especially product) and energy, with considerable logistical impact, and as such an improvement in the management of resources could be significant.

The project seeks to improve the economic results of the members of the cooperative and agricultural producers, and to enable the cooperative to be restructured and modernised, guaranteeing and improving its participation in the ornamental plant market in which CORMA operates. It also ensures and improves the competitiveness of this agricultural product for the members of CORMA involved in production, as it affects all the phases in the chain which must be efficient, as the market will penalise shortcomings in this respect, and then the producer will undoubtedly suffer as a result.

## Description of the actions carried out in the project

- Activity 1. Definition and design of the blockchain platform:
  - Define all the aspects needed to carry out the project described above, from its development to its validation.
- Activity 2. Development and deployment of the blockchain platform:
  - Implement the blockchain platform on which the validation will be performed.
- Activity 3. Validation of the blockchain platform:
  - Validate the correct operation of the platform in the processes implemented in Activity 2 and evaluate its performance, cost, etc.
- Activity 4. Communication and dissemination:
  - Objective: Share and raise the profile of the project and the results obtained in the agricultural sector.

## Final results and practical recommendations

The pilot tests created an individual identification for each test, with a serial number which means that each plant can be individually traced.

For production:

- Sustainable cultivation certificate (SCC).
- Substrate data sheet. Proximity-alternative materials.
- Test data sheet. Composition, origin, biodegradability.
- Planting and cultivation proximity declaration.
- Cultivation visuals: videos, images during cultivation for each batch.

For the logistics phases:

Reception by individual image of the product

- Reception visuals (videos, images)
- Dispatch (videos, images)
- Route map. Transport conditions
- Delivery date at points of sale.
- Sale deadline advice

## Conclusions

The pilot project leads us to the following conclusions:

1. RFID technology must be implemented in order to be able to apply Blockchain technology to a wider range of products, and to be able to obtain its traceability from test to test without impacting on process management. This technology will provide mass readings of receptions, dispatches, and cultivation.
2. Blockchain technology is not yet well known in our industry, but we have attracted the interest of our more technologically minded customers with marketing campaigns and product presentations at trade fairs.
3. With this pilot project, CORMA has once again positioned itself as a technological benchmark in the ornamental plant marketing sector, which generates more trust among our partners and customers.

## Leader of the Operational Group

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## Other members of the Operational Group (not recipients of the grant)

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## Subject area(s) of application

☒ Agricultural production system

☒ Vegetable production and horticulture

☒ Supply chain, marketing and consumption

☒ Competitiveness and agricultural and forestry diversification

## Geographical area(s) of application

**PROVINCE(S):** Barcelona

**REGION(S):** El Maresme

## Dissemination of the project: publications, seminars, multimedia, etc. (State

-Presentation and final results at the FCAC Innovation seminar 6 July 2021 (PATT)

Video: https://www.youtube.com/watch?v=eTfmb8XWJW4 (minute 00:30:09)

PwP presentation: https://ruralcat.gencat.cat/c/document_library/get_file?uuid=772b3e97-0b4a- 4d54-8440-5d2c004d236a&groupId=20181

## More information on the project

| PROJECT DATES |
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| Starting date: July 2019 |
| End date: September 2021 |
| Current status: Executed |
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Order ARP/133/2017 of 21 June, approving the regulatory bases for grants for cooperation for innovation by promoting the creation of European Association for Innovation operational groups in the areas of agricultural productivity and sustainability and the execution of innovative pilot projects by those groups, and Resolution ARP/1282/2018, of 8 June, announcing the call for the grant.

Generalitat de Catalunya
**Departament d'Acció Climàtica, Alimentació i Agenda Rural**

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