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Cultivhacktion

Harvesting innovations through technology to create a more inclusive agricultural transformation in Indonesia

Cultivhacktion

Mentors' Package

Background

Indonesian agricultural sector is pushed for changes. By 2050, Indonesian population is expected to exceed 320 million, of which 234 million will be urban dwellers, which means sufficient production and strong logistics system is essential. The consumers are diversifying their food choices, whilst paying between 13% to 61 % higher than the prices received by farmers. On the other hand, high food prices, low dietary quality and unsafe food are important contributing factors to Indonesia's high rates of malnutrition in its different forms. Furthermore, land conversion and Climate Change will only act more as additional burden to the country's food production. On top of that, the overuse of fertilizer in horticulture threatens the sustainability of the environment. To adequately produce, transport and feed the growing population while keeping the environmental sustainability requires careful and thoughtful measures for changes.

However, the current condition of Indonesian farmers has plenty of room for improvement. 56% of the farmers are smallholders, in average earning only US$3.2 per day, which means they will face difficulty in obtaining sufficient financial support and to produce in large scales for better profitability. 61% of the farmers are already above the age of 45 years old and 74% have only received primary education. 75% still practices traditional and manual farming methods. These act as barriers to boost productivity, access to supporting infrastructure, capital, markets, and information. To avoid current situation further exacerbating and perpetuating, Indonesia's agricultural sector must find a breakthrough.

To operationalize and take full advantage of digital technologies in the agriculture and food sector, public and private actors will need to work together to develop a "digital agriculture ecosystem". The Government of Indonesia and the private sector would need to play different but complementary roles: (i) the GoI to address digital building blocks (digital literacy and connectivity), regulatory and incentive frameworks; (ii) private sector to develop and deliver solutions on sustainable business models. Strengthening digital technologies and approaches in agriculture and food systems aligns well with the Ministry of Agriculture's priorities for the transformation of the sector. Indonesia has a vibrant and strong agriculture technology (AgTech) community: at least 55 agriculture-specific digital solutions already exist in Indonesia, developed by the private sector, at varying stages of maturity and scale. Existing solutions cover five key areas, including supply chain and data management, market access, digital financial services, digital information, and precision agriculture.

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The World Bank Group, Microsoft, TaniHub, in partnership with the MoA and other key players in the digital agriculture sector, envision a series of hackathons and innovation challenges to facilitate the acceleration of disruptive agriculture technology adoption in Indonesia. Under the collaboration with GIZ, FAO, Grow Asia, IPB University, Data Science Indonesia, and the West Java Provincial Government, the first hackathon – "Cultivhacktion" will be held from September to October 2021, focusing on the West Java horticulture sector. The hackathon aims to demonstrate the value of agriculture data and digital technologies in addressing the key challenges in Indonesia's agri-food sector as well as build the capacities of young innovators, male and female, to develop digital solutions for agriculture. The hackathons and innovation challenges will serve as a platform for a wide range of actors in digital agriculture (e.g., governments, private sector, academia, civil society organizations (CSOs), tech innovators, and farmers) to interact and learn from each other, build networks, find synergies, as well as co-invest to support the further development and scaling up of promising AgTech solutions.

The objective of Cultivhacktion is to demonstrate the value of agriculture data and digital technologies in helping to solve Indonesia's agri-food sector's key challenges as well as build the capacities of agricultural tech innovators to develop replicable and scalable digital solutions. The platform also intends to identify promising pilots for mainstreaming under the ICARE Project and other relevant channels.

The event will comprise of the hackathon itself, as well as a series of accompanying webinars on digital agriculture that will be open to the public. Considering the COVID-19 pandemic, the hackathon will take place in a **fully virtual setting**.

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Hackathon

Participants will be invited to submit solutions (Registrations start on September 1, 2021) around three broad themes that reflect challenges faced by the central and subnational governments as well as private sector actors in agriculture.

- Enhancing farm productivity and making production systems more resilient to shocks, including climate shocks
- Facilitating farmers access to markets (finance, input, output)
- Supporting public sector decision-making.

The three Problem Statements come from three different perspectives - Central Government, Provincial Government and Private sector on the use of data.
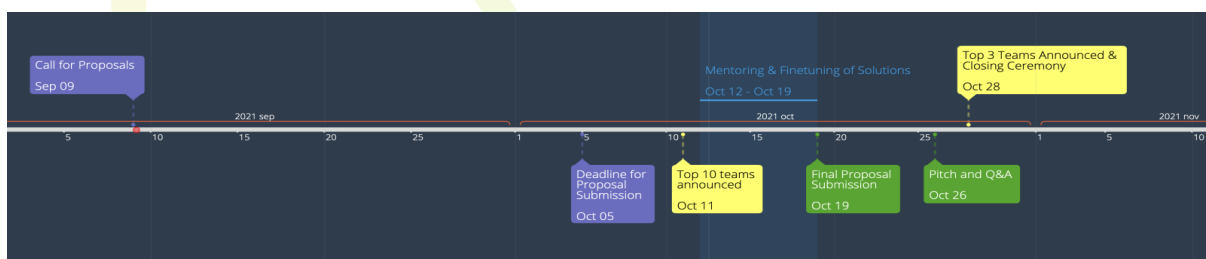
Ten teams will be shortlisted and announced on October 11th after the initial screening of proposals based on the following judging criteria

- Must be serving farmers in Indonesia
- Must be a registered entity with at least one year of operations
- Must have implemented a Minimum Viable Product on Microsoft Azure Platform
- Must have a revenue generating business model
- Must be in validation/scaling stage of the business
- Must address at least one of the 3 Problem Statements
- Must combine digital technologies, data analytics and innovations, and have a strong component of emerging technologies
- Must have strong technical and functional capabilities among the team members

These selected teams will be provided access to datasets, workshops, and mentoring opportunities until **October 19**[th] when the teams will have a deadline to upload the final proposal and pitch deck which will be evaluated based on the following criteria to choose the **3 winning teams**.

Category	Description
Relevance	Problem Statement -Solution Fit, Robust to real-world and substantiated in the application, clear and differentiated value proposition
Innovation	Creativity and Originality of the idea, Potential to scale incrementally
Implementation	Datasets and Technologies used, Evaluation Methods, Data architecture and Infrastructure, User Experience and Design Validations
Collaboration	Team, Partners, Use of open tools/data, open code, sharing resources, Organization plan, and maturity
Impact & Sustainability	Demonstrated potential for real-world positive impact, identifying project risks and having a strategy to manage them, Sustainability, evaluating the technology for ethical issues and has addressed any potential negative outcomes or biases present in their technology or solution
Management Team & Pitch Delivery	Diversity and different set of capabilities should be demonstrated across the management team as well as staff members of the business. Team possess deep knowledge and expertise on the market, capacity to execute the scale-up of their business engaging and interesting pitch with use of visual aids, response of the presenter to the questions from the Judging Panel

Requirement for an MVP in Microsoft Azure

To be considered eligible to be a winner of the Cultivhacktion Hackathon, development of an MVP is mandatory. The top 10 teams should develop and deploy the MVP in the Microsoft Azure Databricks Platform. All the participants who **currently do not have an MVP** will be invited to sign up for the Microsoft Cloud Skills Challenge, an upskilling program designed to demonstrate the value of agriculture data and digital technologies in helping to solve Indonesia's agri-food sector's key challenges as well as build the capacities of young innovators to develop digital solutions for agriculture.

If the teams do have an **MVP developed but it is not yet leveraging the Azure Platform**, the Top 10 teams must migrate to the Azure Platform.

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Mentoring Platform

Microsoft Teams will be the platform used to facilitate the mentoring sessions. Each team will have a dedicated breakout room and check-ins will be scheduled with the mentors by the teams through this communication channel as and when required. There will also be mandatory check-in points where the teams will update the mentors as well as the organising team representatives on their progress. These check-ins will be around where the teams are currently, where they are going and where they are struggling.

Role of Mentors

Short-listed teams will receive mentoring from subject matter experts in agriculture, tech, and data science, and will be assigned **two mentors per team**. **Each mentor is only tagged to one team**. The role of mentors in the hackathon is to support the participants in Technical Skills (Data Science, AI, UI/UX, Software Engineering, Product Development, IoT), Domain Expertise (Food and Agriculture, Indonesia specific agriculture challenges and requirements), Business Development, Prototyping, and on effective and innovative Technical Communication. The mentors usually possess a combination of domain, technical, project management and social skills. **Each mentoring session is expected to last up to 90 mins** and the mentors can choose their preferred time slots from the Mentor Onboarding Form available in the invitation letter.

Mentor Profile

- Experts related to the theme or domain of the event
- Technically proficient in Data Science/AI, UI/UX, Software Engineering, Prototyping, IoT, Business Development, Agriculture and/or Food Sector
- Prior hackathon (mentoring) experience
- Able to guide teams and support them to perform to the best of their abilities.

Good Practices

- Proactively check on teams but do not impose feedback
- Keep the channels of communication open, encouraging the participants and guiding them
- Encourage and support ideas and in trying new things and not just on technical implementation
- If there is a specific problem or domain, connect the participant to the right resources (tutorials, blogs, publications)
- Help teams pivot
- Resist the urge to become a part of the team
- Offer to test their prototype

Things to keep in mind

- In the initial stages of development, the teams might need feedback on their ideas in terms of **feasibility**, **usability** and **design**

- The teams may also need support in setting up of **development environments** and choosing the right software and/or IDE

- As we will be providing a catalogue of potential open datasets to be used during the hackathon, teams might need help with accessing data using APIs and/or in API authentication.

- While creating the final prototype or demo, the industry experience and the business insights that a mentor provides is extremely valuable. As a mentor you could beta test the product and suggest enhancements or give feedbacks on giving an engaging demo. Feedbacks on Deployment, and DevOps will also add lot of value to teams to make a viable MVP.

- Throughout the implementation phase, the teams may require assistance in debugging and troubleshooting.

Datasets Shared with the teams

The top 10 teams are provided with a catalogue of open-source datasets that are relevant to the problem statements as well as a limited number of proprietary datasets. The catalogue of open-datasets is available at this link – Data Catalogue - Cultivhacktion
The mentors will also be provided with an overview of datasets provided to participants so as to better prepare for the mentoring sessions.

Some interesting resources for mentors

- **Forbes - Great Mentors**
- **How to be a mentor?**
- **How to mentor teams at a Hackathon**

Website:

cultivhacktion.id