

SMART

Issue 03

AICTO

Magazine

AGRICULTURE OF THE

future

*How technologies can
boost the sustainability of
food and water security?*

ARAB INITIATIVES

INTERNATIONAL EXPERIENCES

SUCCESS STORIES



مؤسسة ابو غزالة العالمية
Talal Abu-Ghazaleh Global



More technology leads to better farms, streamlining and automation of operations, lowers waste, improves crop quality, increases production volumes and allows for better environmental farming to take place. ””

HE/Dr. Talal Abu-Ghazaleh

Chairman and Founder
of Talal Abu-Ghazaleh
Organization (TAG-Org)

Feeding a Growing Population through **SMART** **AGRICULTURE**

Feeding a growing population is a great challenge for governments across the globe. This is an issue of paramount importance that must be given serious consideration as the world population is set to reach 9.7 billion by 2050 according to the United Nations, which means current food production levels will need to double. This has huge implications for global agriculture and it is clear that farmers need to be empowered to do more and to perform with greater efficiency, as the growing burden of feeding these numbers will strain resources globally.

In my mind, this can only be done through the implementation of smart technologies to help reform our agricultural practices so that we can meet increasing population challenges.

It is clear that the only way through is with the greater adoption of innovative farming technologies and by qualifying our farmers to become knowledge workers. We need to be investing more in smart agricultural technology so that they can work smarter. In particular, I see that Internet of things (IoT) sensors and related technology will play a growing role in enabling smart agriculture.

Vast fields of crops and cattle coupled with a huge array of factors governing the health, growth and harvesting of produce means that intelligent management is the only way forward in order to manage such complexity.

The synergistic effect of fourth industrial revolution technologies working together is allowing many novel applications to come about in this sector. Innovations in areas such as telecommunications, drones, internet of things (IoT) sensors, artificial intelligence (AI) based systems and big data, are starting to be used by farmers to make better decisions to improve their operations by giving them access to more meaningful information. This brings more certainty, predictability and control into farming as more informed decisions can be made based on live data, providing for better outputs and increasing yields.



The application of smart agriculture technologies provides numerous benefits that include:

1 The accumulation of data from across an agricultural estate which is correlated and analyzed through AI systems and presented in a 'single pane of glass' gives workers insights into all activities, ranging from equipment health, crop growth, weather conditions, right down to soil moisture levels.

2 Land can be easily and quickly monitored with the aid of drone technology which together with IoT data, provides for a very useful suite of technologies for smart agriculture to come about. Computers are far better at correlating and analyzing massive data than humans, allowing workers to make informed judgements using correlated information.

3 Better forecasting and more accurate knowing of how much farmers can produce ensures that supply chains and end users are better informed of the quantities they have. This means that produce is not left to rot in local warehouses and it allows for better distribution to take place.

4 Proper control over production allows for better management of expenses and it also reduces waste. By having technology that provided predictive analysis, agricultural workers can proactively work to mitigate risks livestock and yields may face by being better informed.

5 Increased process automation allows for greater industrial efficiency and frees workers to engage in important tasks than just physical labour. This also allows for better yields to come about as a greater amount of land can be managed, fertilized and harvested through automation which ultimately results in greater revenue.





This is just the tip of the iceberg

We have only just started to see the benefits of smart agriculture technologies; a sector is set to explode. According to statistics, the smart agriculture market is projected to reach USD 22.0 billion by 2025 which provides massive opportunities for those wanting to invest in this area.

I see that this technological ecosystem will become smarter as more agricultural big data becomes available and as online communities share more information and experiences. As this area matures, adoption will increase leading to a snowball effect where each iteration of technology will lead to greater improvement and growth.

The challenging quest for greater food production comes at a time where the amount of arable land per capita is decreasing and greater deforestation is occurring. Such factors are impacting soil quality and causing dangerous degradation; thus further complicating our ability to meet the global demand for food.

The only solution to this problem is the move toward data driven smart agriculture. This must be made affordable and available to all if real changes are going to be seen on a global scale. It is little use to limit access of this technology to developed countries. This must permeate through the entire fabric of global farming.

More technology leads to better farms, streamlining and automation of operations, lowers waste, improves crop quality, increases production volumes and allows for better environmental farming to take place.

All of these factors are essential in light of the burgeoning load that will be placed on our global food supply chains, which can only be addressed through the adoption of technology in order to meet this challenge in a sustainable and intelligent manner.

Current smart applications that can be seen in modern agriculture include:

- Livestock monitoring and management
- AI based precision farming
- Smart feeding systems
- Crop management
- Monitoring and managing climate conditions
- Greenhouse automation and industrialization
- Agricultural drones
- Remotely operated vehicles
- Water, humidity and rain monitoring
- Intelligent pest management
- Inventory and logistics management
- Complete farm management systems

Talal Abu-Ghazaleh