

# Build a new paradigm of digital agriculture and rural areas, and jointly create new values of the industry

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# National policies continue to be introduced : identify direction and tasks, increase capital investment

## 《中共中央 国务院关于实施乡村振兴战略的意见》 首次提出数字乡村战略

实施数字乡村战略，做好整体规划设计，加快农村地区宽带网络和第四代移动通信网络覆盖步伐，开发适应“三农”特点的信息技术、产品、应用和服务，推动远程医疗、远程教育等应用普及，弥合城乡数字鸿沟。

2018年1月

## 中共中央办公厅 国务院办公厅印发 《数字乡村发展战略纲要》 明确总体要求、重点任务

数字乡村是伴随网络化、信息化和数字化在农业农村经济社会发展中的应用，以及农民现代信息技能的提高而内生的农业农村现代化发展和转型进程，既是乡村振兴的战略方向，也是建设数字中国的重要内容。

2019年5月

## 中央农村工作领导小组办公室、农业农村部、国家发展和改革委员会、财政部、中国人民银行、中国银行保险监督管理委员会、中国证券监督管理委员会《关于扩大农业农村有效投资，加快补上“三农”领域突出短板的意见》 实施重大工程项目、扩大有效投资规模

智慧农业和数字乡村等11个农业农村重点领域补短板重大工程项目建设，从四个方面部署加大农业农村投资力度。

2020年7月

## 《中共中央 国务院关于坚持农业农村优先发展做好“三农”工作的若干意见》 中央一号文件再次点题数字乡村战略

深入推进“互联网+农业”，扩大农业物联网示范应用。推进重要农产品全产业链大数据建设，加强国家数字农业农村系统建设。继续开展电子商务进农村综合示范，实施“互联网+”农产品出村进城工程。全面推进信息进村入户，依托“互联网+”推动公共服务向农村延伸。

2019年1月

## 农业农村部、中央网络安全和信息化委员会办公室印发《数字农业农村发展规划（2019—2025年）》 总体思路、发展目标、重点任务

到2025年，数字农业农村建设取得重要进展，有力支撑数字乡村战略实施。

构建基础数据资源体系、加快生产经营数字化改造、推进管理服务数字化转型、强化关键技术装备创新、加强重大工程设施建设、以及保障措施。

2019年12月

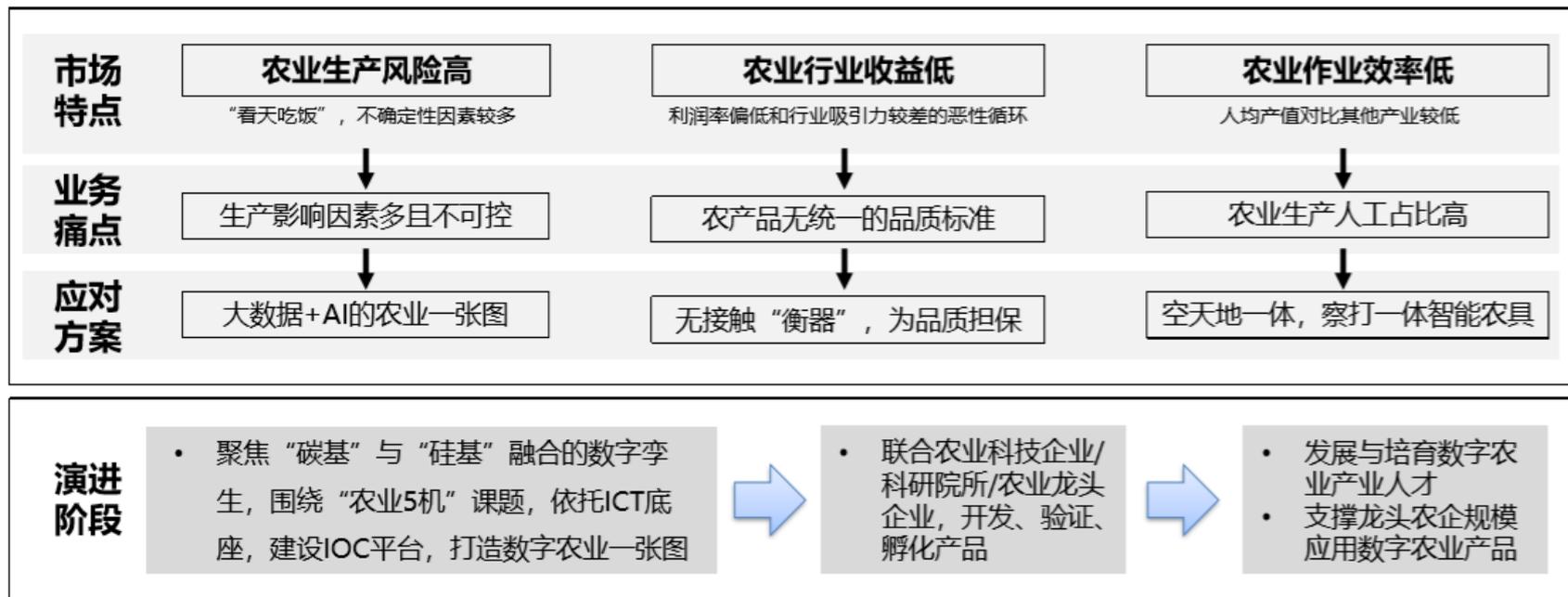
## 中共中央办公厅 国务院办公厅印发《关于调整完善土地出让收入使用范围优先支持乡村振兴的意见》 国家拓宽实施乡村振兴战略资金来源

提高土地出让收入用于农业农村比例。以省（自治区、直辖市）为单位确定计提方式。各省（自治区、直辖市）可结合本地实际，从以下两种方式中选择一种组织实施：一是按照当年土地出让收益用于农业农村的资金占比逐步达到50%以上计提，若计提数小于土地出让收入8%的，则按不低于土地出让收入8%计提；二是按照当年土地出让收入用于农业农村的资金占比逐步达到10%以上计提。

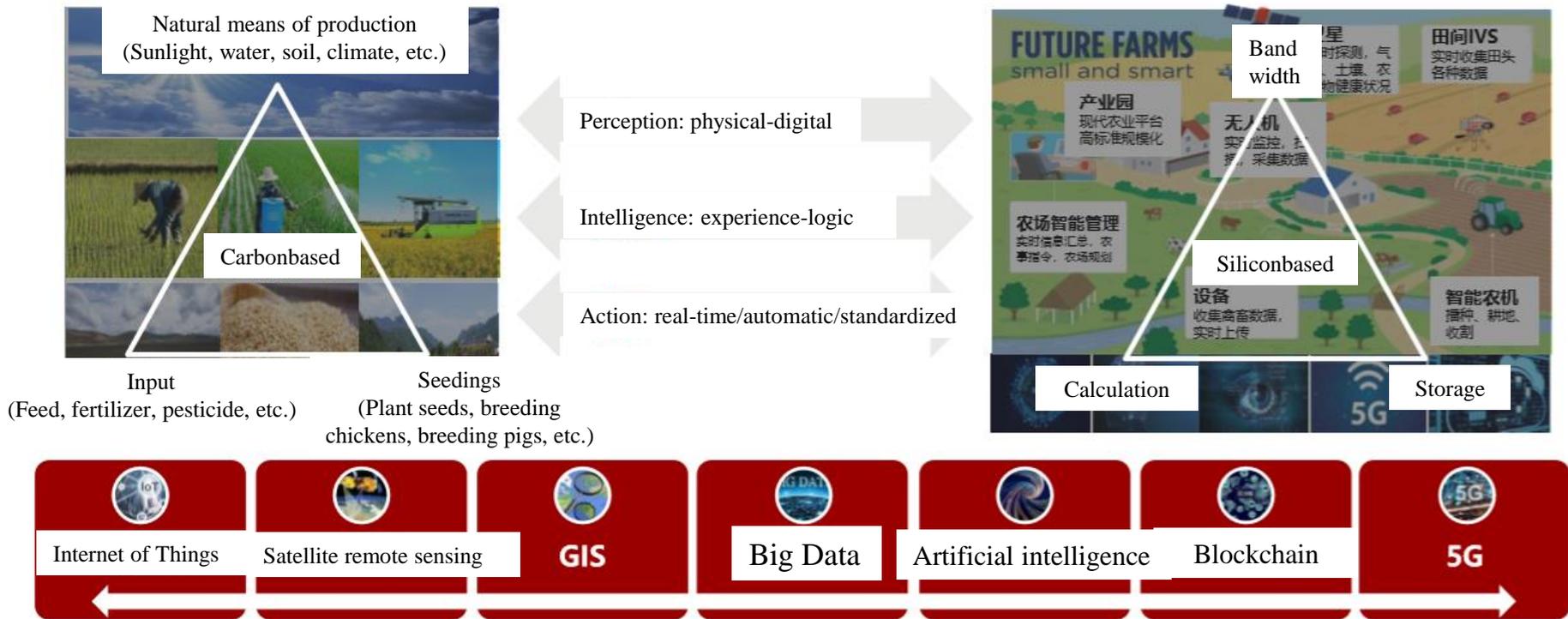
2020年9月

# Target: improve per capita production efficiency, standardize and improve the quality of agricultural products

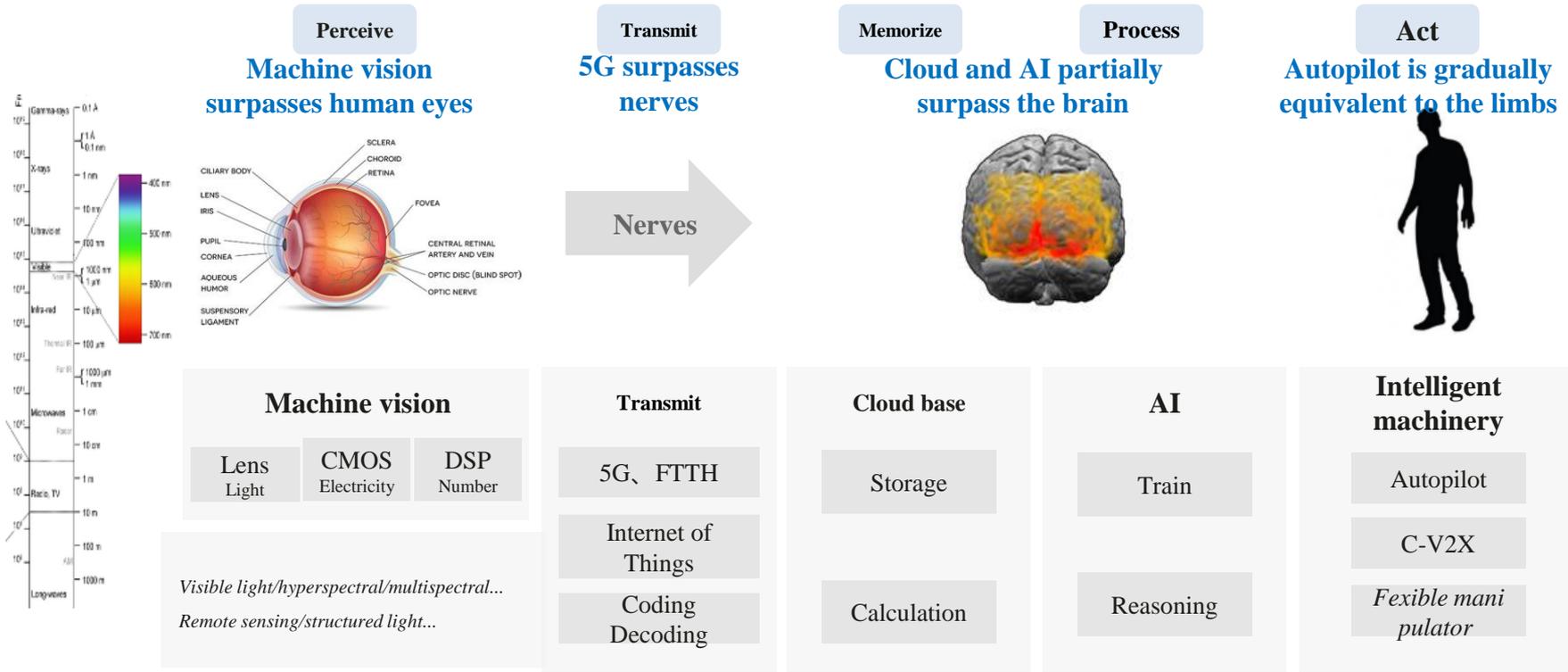
## 围绕农业“5机”打造数字农业ICT底座



# Build a digital twin integrating "carbon-based" and "silicon-based" agricultural technology

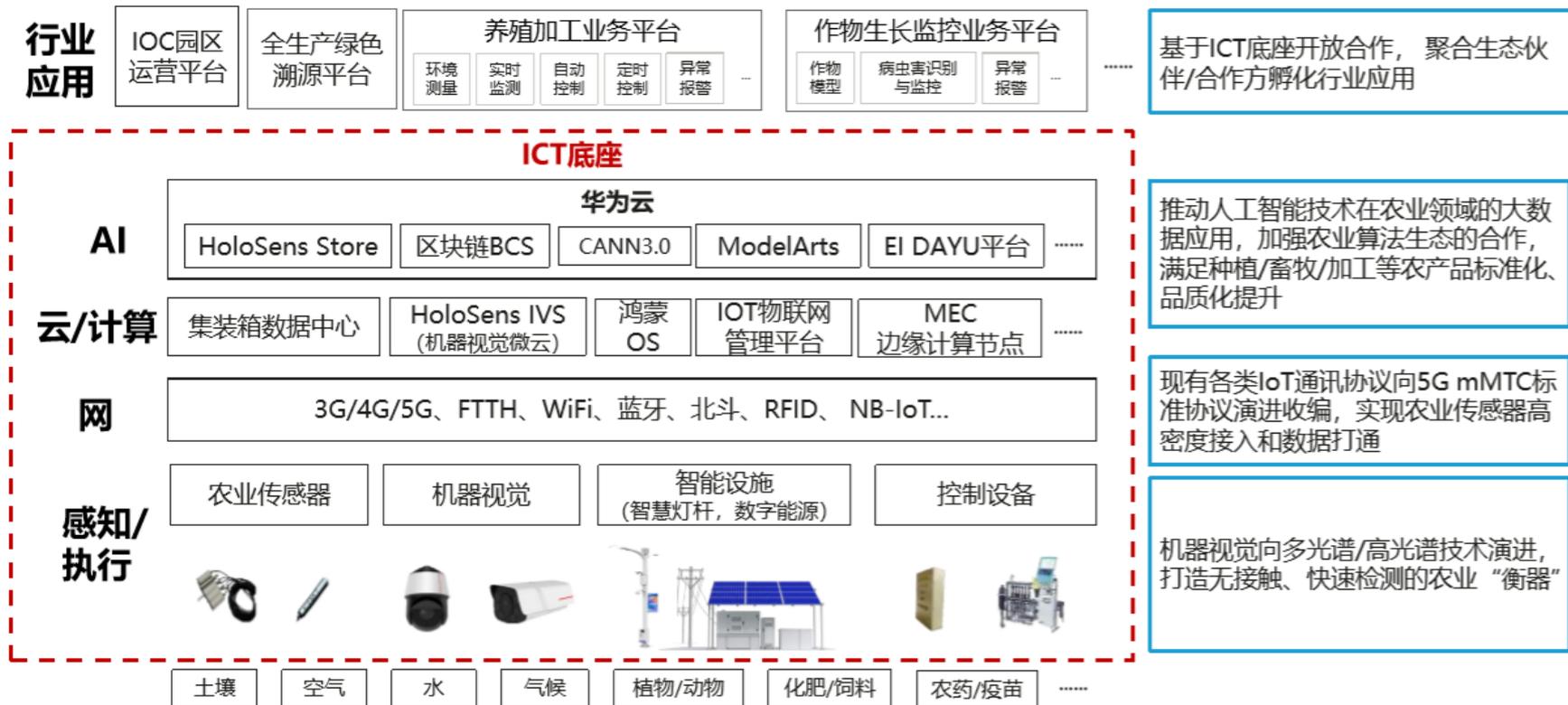


# Achieve four transcendences through "5 agricultural machines"



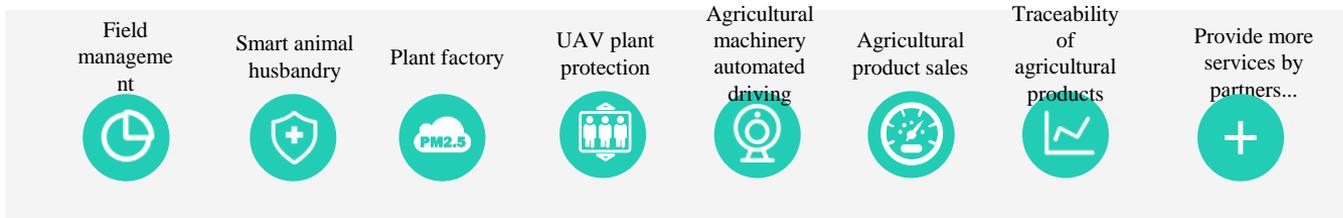
Huawei 5G, machine vision, cloud, big data, AI, autonomous driving and other technologies support the advancement of agricultural science and technology

# Huawei positions ICT base to enable digital agriculture and rural areas



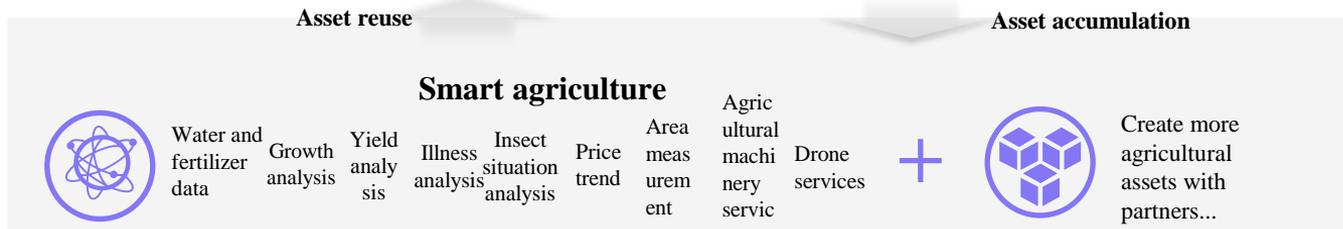
# Pull together industry strengths and ecologically support the development of digital agriculture and rural areas

**Application AI enabled**



**Agricultural applications**

**Data service/ application logic**



**Agricultural assets accumulation**

**ICT out of the box**



**Agricultural basic service integration**

# Huawei Internet of Things + intelligent connection and production

## Huawei agricultural IoT management platform



接入无关，任何网络

多种垂直行业，任何终端，任何接入方式



开放，快速上市

基于云，易部署；完善的生态系统；各种类型的API



弹性伸缩，端到端创新

自连接，自组网；融合通信技术；全球联合创新中心支持；即插即用

Support rich communication protocols and interfaces, widely adapt to different agricultural connection scenarios, and quickly meet the requirements of edge intelligent data processing in different scenarios and spark the rapid innovation of agricultural Internet of Things through open edge computing capabilities and cloud management architecture.



The IoT connection management platforms for things as well as that for people and things support the rapid integration of multiple vertical industry applications and provide multiple APIs to meet the access of diversified devices and the needs of large agricultural production companies to build end-to-end overall solutions for the Internet of Things.

## Huawei agricultural edge computing Internet of Things



定制化边缘智能

基于轻量级VM/容器，行业APP按需定制，满足不同行业边缘智能数据处理诉求



广泛场景适应

17+丰富协议&接口(PLC-IoT/RF/RS485/DI/DO/CAN...), 适配多行业场景



云化集中管理

百万级网关自动化，可视化，OPEX降低80%+

# Huawei 5G + smart agriculture

## 5G+ precision agriculture



Reduce investment,  
control drugs and fertilizers

## 5G+Smart Animal Husbandry



Precision feeding, asset preservation

## 5G+smart agricultural machinery



Reduce manpower and  
improve efficiency

## 5G+ unmanned equipment



Automatic driving,  
intelligent crop harvest

## 5G+ intelligent flight control



Precision fertilization and  
identification of pests

## 5G+ blockchain traceability



Full traceability to  
ensure safety

## 5G+ soil testing formula



Automatic soil testing and  
restore soil strength

## 5G+ smart cold chain



Pre-treatment to reduce losses

# Huawei AI + smart agriculture and rural areas

AI+ pest identification



Accurate identification of insects, control of drugs and fertilizers

AI+ estrus detection



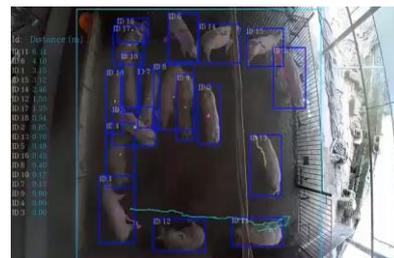
Precision perception, increase milk output

AI+ intelligent environment control



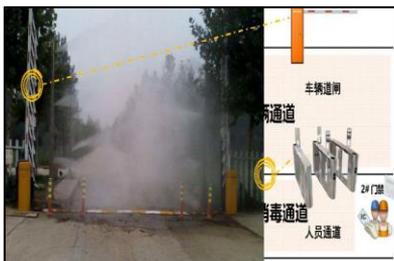
Environmental control, suitable for growth

AI + biological recognition



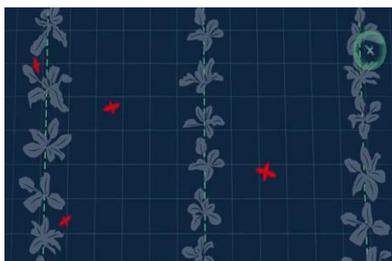
Automatic tracking, find problems

AI + biological prevention and control



Disease control, asset preservation

AI + weed recognition



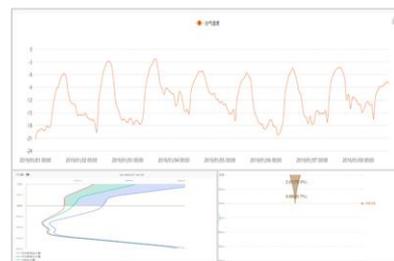
Precision recognition of weeds, reduce pesticide application

AI + agricultural robot



Whole-process automatic, high efficiency and energy saving

AI+ demand forecast



Water and fertilizer prediction, efficient and accurate

# Huawei big data + smart agriculture

Let data speak, make agriculture smarter

Visible

**Data presentation.** Through the integration of agricultural and rural business data, remote sensing data, Internet of Things data, Internet data, and other data, the data is presented in graphs by using data visualization techniques. It will help the government to figure out current agricultural and rural assets (resource assets...).

Manageable

**Macro management, analysis and decision-making.** Through integrated data analysis, the trends, results, etc. are used for macro-business management and decision-making. Provide data sharing services to guide the management of fields and agriculture.

Available

**Intelligent analysis to guide production.** Through analysis of integrated data, discover the connections and values in the data, project them into production activities, so as to realize precision operations, standardized agricultural production environment, production process and production output, ensure the safety of agricultural products, improve agricultural efficiency, and enhance agricultural competitiveness.

Big data + planting



Visualized conditions of moisture, seedlings, diseases and insects, precision planting

Big data + farming



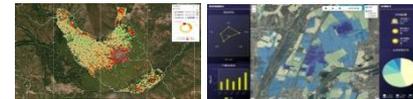
Unmanned breeding, optimized feeding, cost reduction and quality improvement

Big data + aquatic products



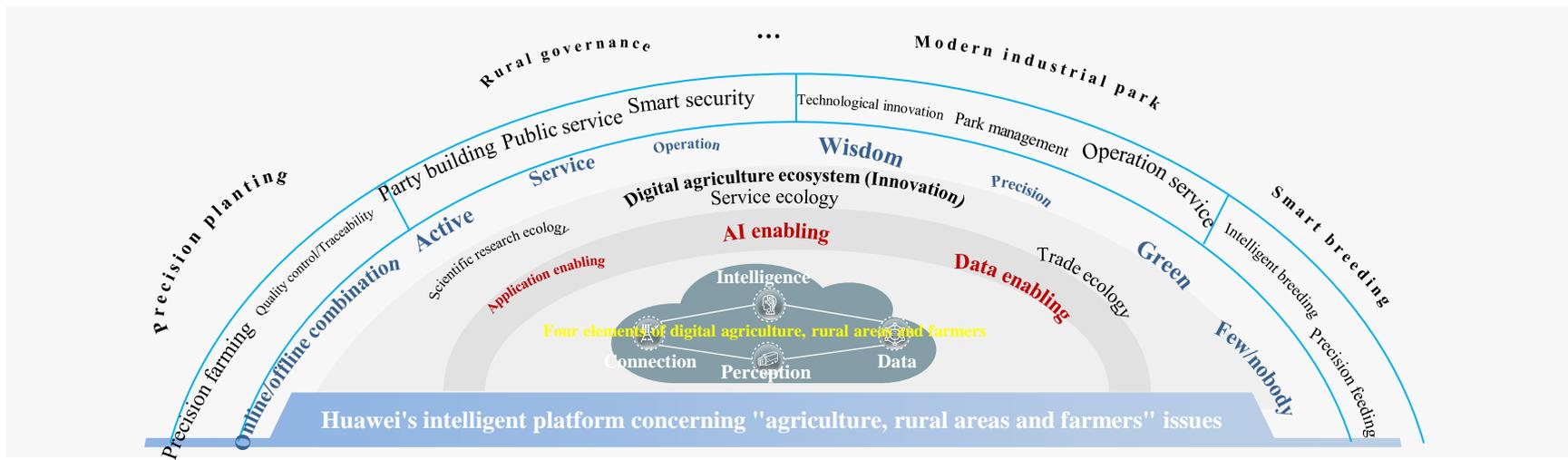
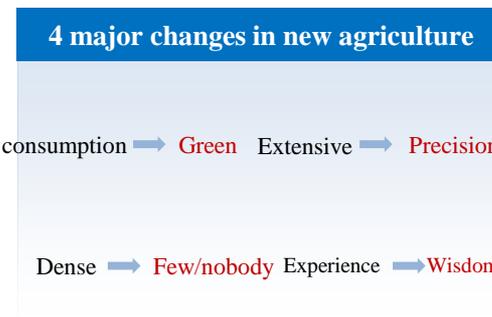
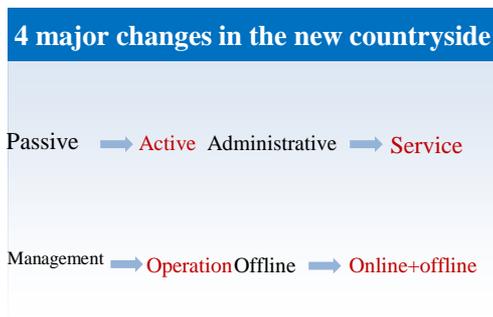
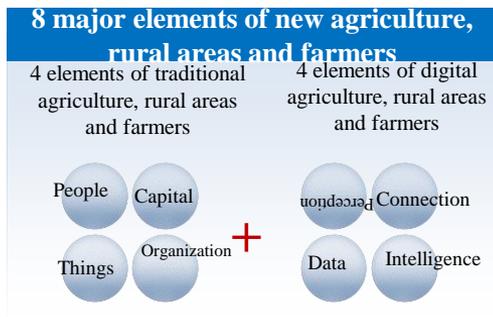
Precision management, environmental protection and improved efficiency

Big data + resources

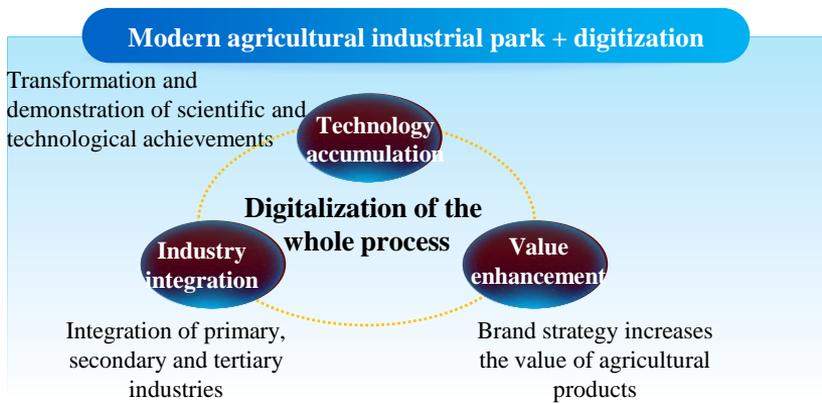
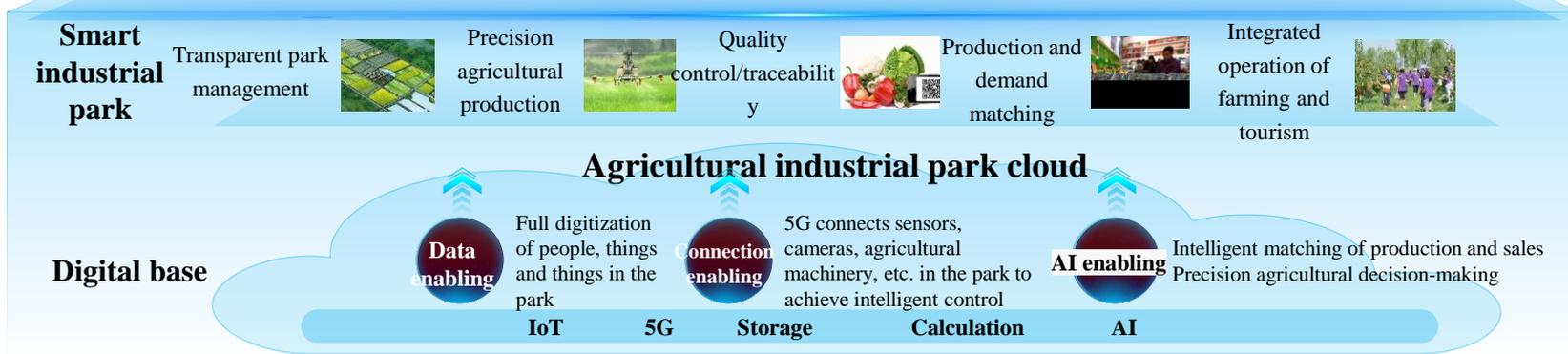


The situation is under control and the management is "efficient and orderly"

# Huawei's intelligent platform concerning "agriculture, rural areas and farmers" issues leads the construction of digital villages



# Practice 1: Jiangsu agricultural science park project: focusing on planting and creating a new model of integration of primary, secondary and tertiary industries



# Practice 2: Muyuan smart breeding project: enhance industrial competitiveness and realize the green development of enterprises



## Biosafety whole-region prevention and control

- **People:** face recognition-shoe replacement recognition-shortwave radar bath recognition-work clothes recognition-electronic fence
- **Car:** license plate recognition-gate linkage-decontamination time-decontamination process recognition-electronic fence
- **Object:** disinfection operation-decontamination time
- **Pigs:** identification of rushing pigs-identification of escaping pigs-electronic fences



## AI breeding, automatic all-weather inspection

- **Pig inventory:** pictures and videos as well as machine vision and edge computing are integrated, pig sheds, pig transfer channels, pig outlets, AI inventory of pig selling tables, assets are fully controllable and manageable;
- **AI weight measurement:** growth performance tracking and early warning, weight uniformity tracking and early warning, sales forecast;
- **Body condition analysis:** AI assessment of the body conditions of sows, precision feeding of pigs.



## Combination of planting and breeding, green energy, ecological self-closed loop

- **Return of waste liquid to the field:** fermentation of biogas slurry, integration of water and fertilizer, monitoring of water source soil moisture, as well as diseases and insect pests;
- **Green power construction:** solar and energy symbiosis, surplus electricity gets to grid, economic and social benefits

# Practice 3: Ningxia "Agriculture and Photovoltaic Complementation" Project: Open up a new path for dry deserts to cover greens, and drive farmers to increase their income



Ningxia Baofeng 1G W Photovoltaic Green Power Project

\* As of the end of 2020

- The Binhe New District of Ningxia, China was once a desert with a harsh ecological environment; Baofeng Group carried out ecological treatment of 160,000 mu of desertified land;
- Huawei helped Baofeng Group build smart photovoltaic parks, popularize the use of renewable energy, and develop a new industrial development model with multiple uses in one place and complementary agriculture and photovoltaics, which not only turns deserts into green, but also creates a new ecology in which man and nature live in harmony.
- Coordinate development of double green (green energy, green agriculture) to create a new form of industrial development

| 1G W | Produce renewable energy | Reduce carbon emissions | Equivalent to planting trees | Farmers' wolfberry income |
|------|--------------------------|-------------------------|------------------------------|---------------------------|
|      | <b>4.31 billion</b>      | <b>2.047 million</b>    | <b>89.01 million</b>         | <b>5000</b>               |
|      | degrees                  | tons                    | trees                        | yuan/mu                   |

# Practice 4: Qingyuan digital village project: solving the problem of the dual structure of urban and rural areas with practices

## Digital intelligent security zone

- Shared camera
- Surveillance/electronic fence
- Care for the left-behind elderly



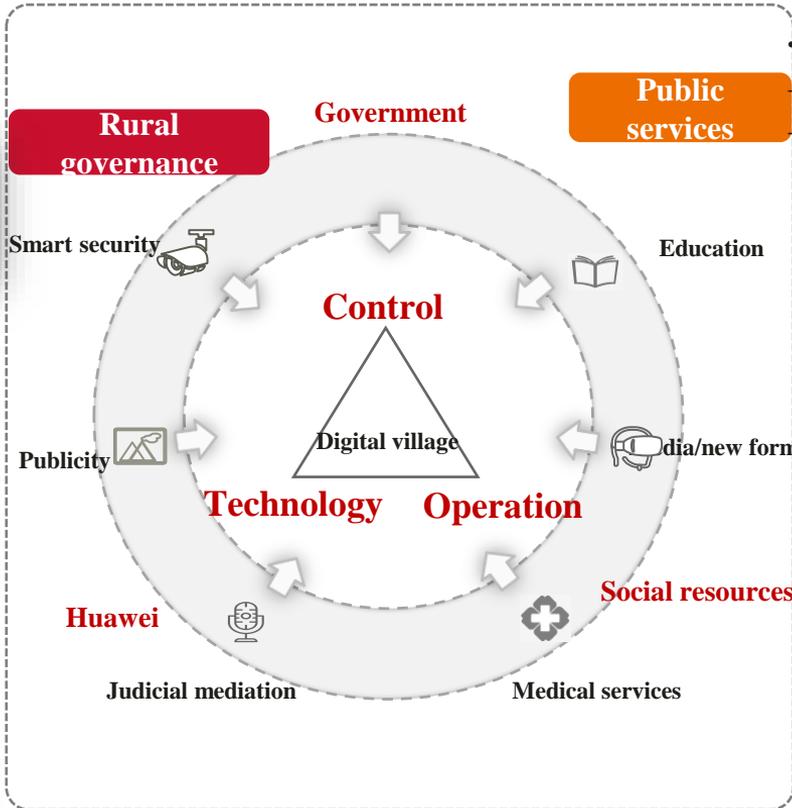
## Civilization practice center in the new era

- IPTV: publicity of civilized practices
- Volunteer service management
- Benefiting farmers service



## Online "cloud mediation"

- Cloud dispute mediation
- Cloud laws popularization training



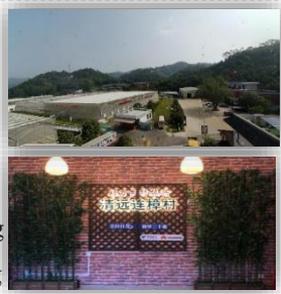
## 5G+VR+cloud school

- Online cloud classrooms
- Cloud VR classroom



## 5G cloud booth

- VR live broadcast in Lianzhang Village
- Slow 5G live broadcast in greenhouses
- Village live streaming
- Supply and marketing platform



## Telemedicine

- Remote video consultation
- Physical examination integrated machine linkage-health cloud files



Thank you.

THANK  
YOU

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