

HUAWEI CLOUD Enterprise Intelligence Application Platform



Objectives

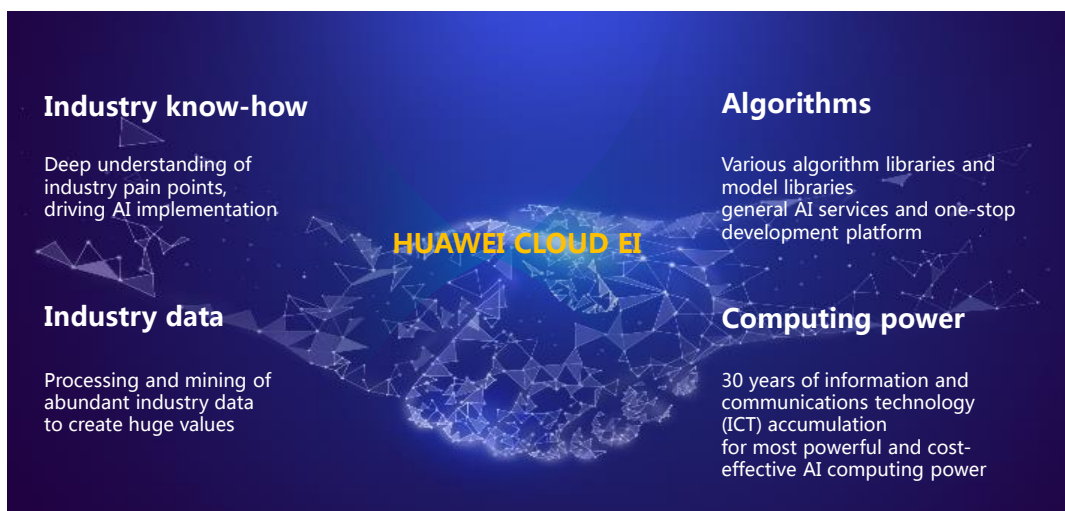
On completion of this chapter, you will be able to:

- Know the HUAWEI CLOUD enterprise intelligence (EI) ecosystem and services.
- Know the Huawei ModelArts platform and how to perform operations on the platform.

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2. ModelArts
3. HUAWEI CLOUD EI Solutions

HUAWEI CLOUD EI



Industrial Intelligent Twins










- The Industrial Intelligent Twins uses big data and AI technologies to provide a full series of services covering design, production, logistics, sales, and service. It helps enterprises gain a leading position.



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EI Products and Services

 <p>ModelArts</p> <p>ModelArts is a one-stop development platform that helps AI developers build models and manage the AI development lifecycle with data preprocessing, semi-automated data labeling, and distributed training.</p>	 <p>Graph Engine Service</p> <p>Graph Engine Service (GES) facilitates querying and analysis of graph-structure data based on various relationships. It is specifically suited for scenarios requiring analysis of rich relationship data.</p>	 <p>Data Lake Insight</p> <p>Data Lake Insight (DLI) is a Serverless big data compute and analysis service that is fully compatible with Apache Spark and Apache Flink ecosystems and supports batch streaming.</p>
 <p>Video Ingestion Service</p> <p>Video Ingestion Service (VIS) ingests massive volumes of video data in real time. Its superb data collection, real-time transmission, and video retention capabilities allow easy intelligent video analysis.</p>	 <p>Data Warehouse Service</p> <p>Data Warehouse Service (DWS) is a fast, easy-to-use, and reliable enterprise-class converged data warehouse service that can extend queries and analysis to your data lake with the help of DWS Express.</p>	 <p>Cloud Stream Service</p> <p>Cloud Stream Service (CS) is designed to process streaming data in real time. Computing clusters are fully managed by CS, allowing you to run StreamSQL or custom jobs without learning any programming skills.</p>
 <p>MapReduce Service</p> <p>MapReduce Service (MRS) provides enterprise-level big data clusters on the cloud. Tenants can fully control clusters and easily run big data components such as Hadoop, Spark, HBase, Kafka, and Storm.</p>	 <p>Question Answering Bot</p> <p>Question Answering Bot (QABot) helps enterprises quickly build, publish, and manage intelligent Q&A bots.</p>	 <p>Image Recognition</p> <p>Image Recognition uses deep learning technologies to accurately identify objects, scenes, and concepts in images using a pool of visual content tags.</p>

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EI Essential Platform

ModelArts

One-stop AI development platform

Huawei HiLens

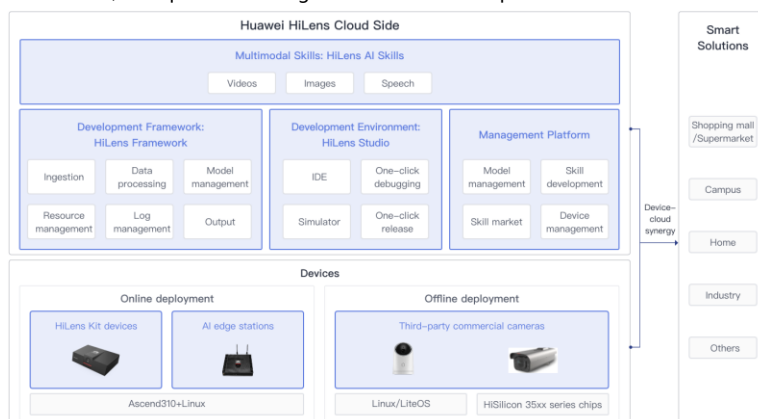
Multimodal AI development platform that enables device-cloud synergy

Graph Engine Service (GES)

First commercial self-built distributed native graph engine with independent intellectual property rights in China

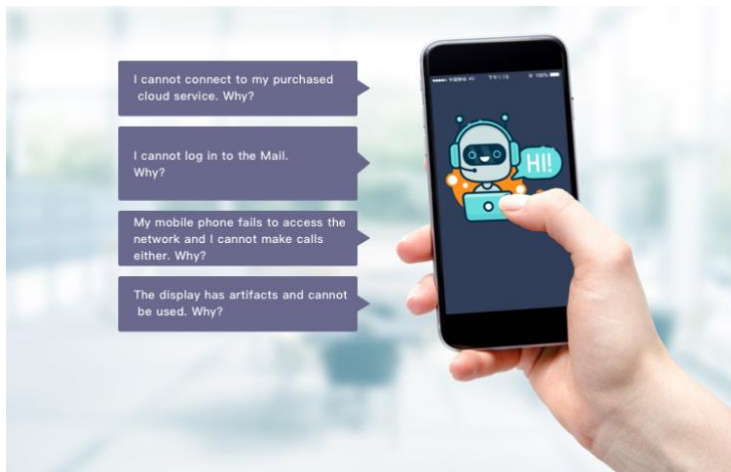
Huawei HiLens

- Huawei HiLens consists of computing devices and a cloud-based development platform, and provides a development framework, a development environment, and a management platform to help users develop multimodal AI applications and deliver them to devices, to implement intelligent solutions in multiple scenarios.

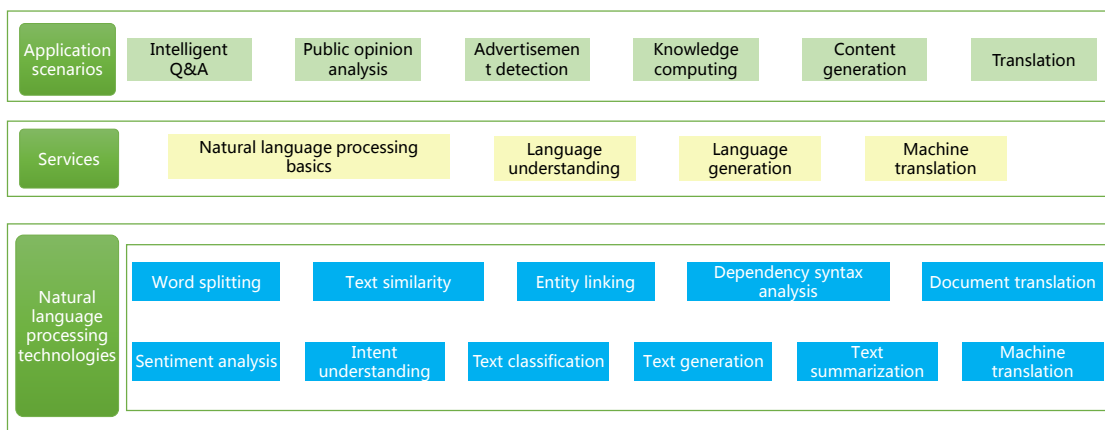


Conversational Bot Service (CBS)

- Question-Answering bot (QABot)
- Task-oriented conversational bot (TaskBot)
- Speech analytics (CBS-SA)
- CBS customization



Natural Language Processing



Voice Interaction



Short sentence/speech recognition



Real-time speech recognition



Audio recording recognition



Audiobooks

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EI Experience Center

- The EI Experience Center is an AI experience window built by Huawei, dedicated to lowering the threshold for using AI and making AI ubiquitous.

Image Tagging Dark Enhance Defog Video Content Tagging

Tag	Percentage	Tag	Percentage
Peacock	97.7%	Feather	95.3%
Birds	93.4%	Color	89.1%
Beautiful	88.8%	Bird	87.1%
Feathers	86.9%	Gorgeous	86.5%
Colorful ph...	84.7%	Wing	81.8%
Background	76.4%	Animal	75.3%
Close-up	73.1%	Gorgeous	71.5%
Colorful	71.4%		

Upload Image

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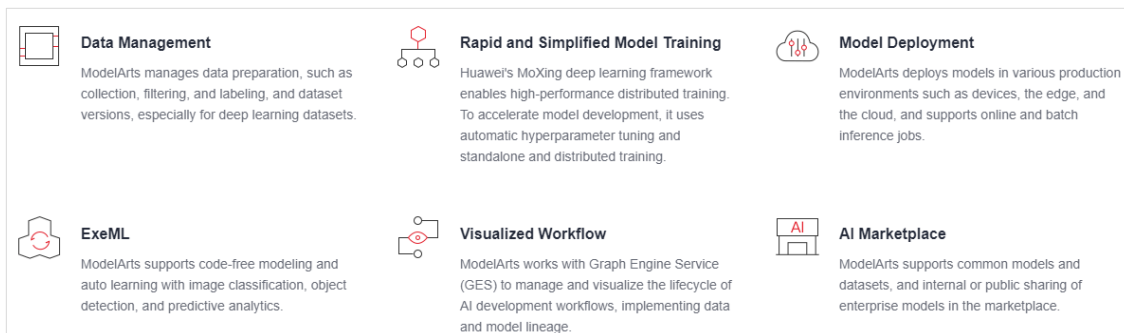
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ModelArts

- ModelArts is a one-stop development platform for AI developers. With data preprocessing, semi-automatic data labeling, large-scale distributed training, automatic modeling, and on-demand model deployment on devices, edges, and clouds, ModelArts helps AI developers build models quickly and manage the AI development lifecycle.



ModelArts Functions



ModelArts Applications

AI development lifecycle



Data

Data preparation

- Three scenarios (image, speech, and text)
- Seven labeling scenes

Model building

- Out-of-the-box and online development
- Powerful computing and accelerated development

Model deployment

- High throughput and low latency
- Batch inference
- Combined with HiLens and easily deployed on devices

ModelArts Highlights



One-Stop Platform

The out-of-the-box and full-lifecycle AI development platform provides one-stop data processing, model development, training, management, and deployment.



Easy to Use

Various built-in open source models and automatic hyperparameter tuning help you start model training from scratch. Models can be deployed on the device, edge, and cloud with just one click.



Excellent Performance

The Huawei-developed MoXing framework delivers high-performance algorithm development and training. GPU utilization is optimized for online inference. Huawei Ascend chips significantly accelerate inference.



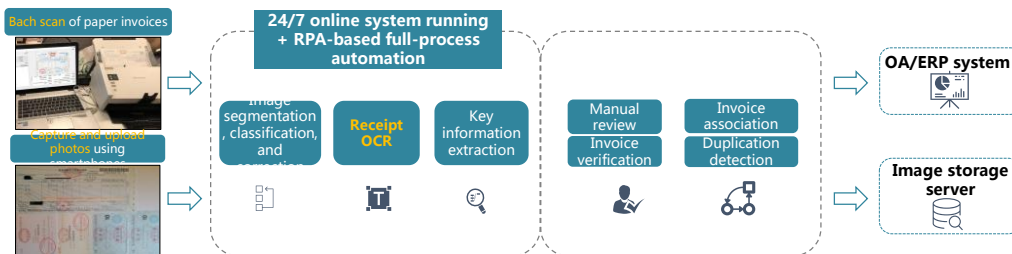
High Flexibility

ModelArts supports multiple mainstream open source frameworks, such as TensorFlow and Apache Spark MLlib, mainstream GPUs, and the Huawei-developed Ascend AI chips. Exclusive use of resources and custom images ensure flexible development experience.

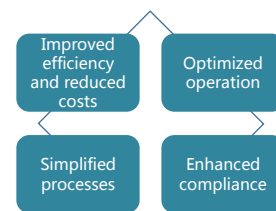
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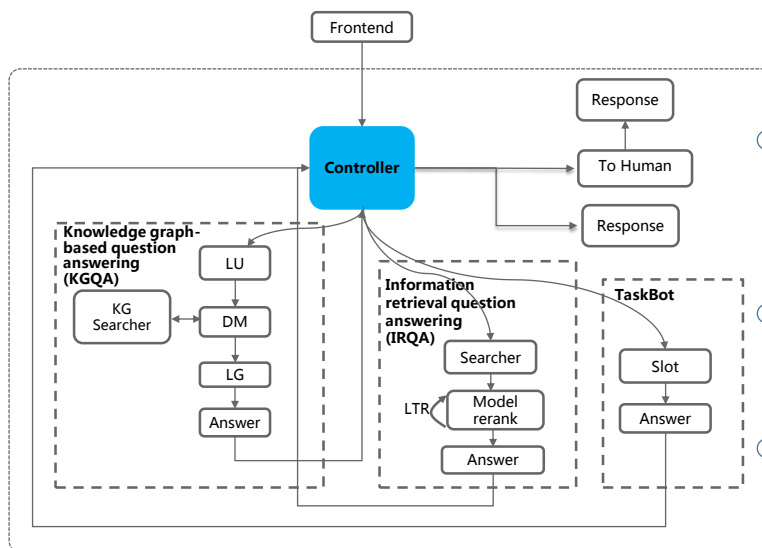
Case: OCR Implements Full-Process Automation for Reimbursement Through Invoices.



- **Multiple access modes:** automatic connection to scanners to obtain images in batches; image capture by using high-speed document scanners and mobile phones
- **Flexible deployment:** multiple deployment modes such as public cloud, HCS, and appliance, and unified standard APIs
- **Support for various invoices:** regular/special/electronic/ETC/roll value-added tax (VAT) invoices, and taxi/train/flight itinerary/quota/toll invoices
- **One image for multiple invoices:** automatic classification and identification of multiple types of invoices
- **Visualized comparison:** return of OCR character location information and conversion of such information into an Excel file for statistics collection and analysis



CBS



Intelligent integration of multiple robots for more comprehensive services

Robots with respective advantages are integrated and can automatically learn knowledge and optimize services to recommend optimal answers to customers.

Intelligent guidance via multiple rounds of interactions to better understand you

Multiple rounds of natural interactions are performed to accurately identify users' intentions and understand users' hidden meanings.

Knowledge graphs for more intelligence

Common domain language models + domain knowledge graphs
Dynamic updates of graph content
More intelligence of graph-based robots

Case: Conversational Bot with Vehicle Knowledge

Recommendations

- ✓ Please recommend a car priced at about CNY30,0000.
- ✓ Please recommend a commercial vehicle.
- ✓ Please recommend vehicle models with a torque greater than 310 Nm.

Open consulting

- ✓ How about Mercedes-Benz E?
- ✓ How is the security of S90?
- ✓ How is Audi A6L's interior?

Precise answers based on vehicle knowledge graphs

How about the Mercedes-Benz A200 sports sedan?

The Mercedes-Benz A200 sports sedan... is equipped with... (details)

How is the security performance?

Active braking is provided in the standard configuration... (Introduce the security advantages.)
The unique xxx solution is additionally provided...

Comparison

- ✓ Comparison between Mercedes-Benz E300L Sedan and BMW 530Li xDrive
- ✓ Which of Audi A6L and the BMW 5 series is better?

Performance

- ✓ What is the wheel-base of 530 Li?
- ✓ What is the fuel consumption of Mercedes-Benz E300L?
- ✓ Can seats of Lexus ES be heated?

Multiple rounds of interactions and multimodal input

How is the interior?

...xxx top leather... (description of the interior)



After-sales

- ✓ What can I do if the steering wheel does not move?
- ✓ Why does the indicator keep blinking? (Figure)
- ✓ How long will the insurance be paid?

Pre-sales

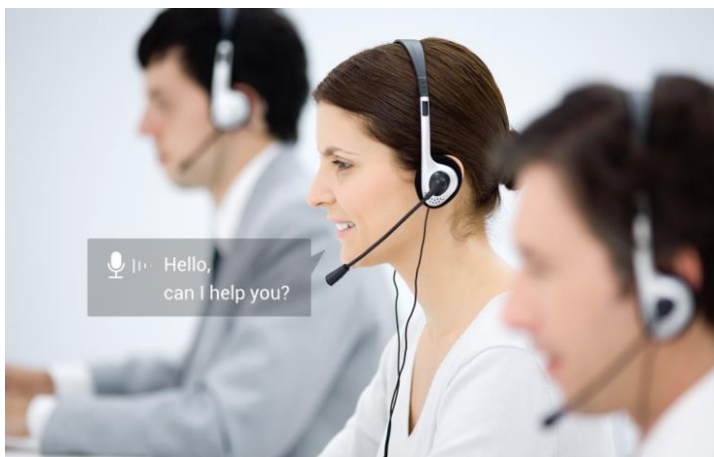
- ✓ Is test driving available for S90?
- ✓ Which 4S store has stock?
- ✓ Can I try Audi A4L next Wednesday?

Proactive guidance and preferential answers

What is the difference between S90 T5 and BMW 530Li?

The price of S90 T5 is CNY410,800, and that of the BMW 530Li is CNY519,900. BMW 530Li has 9 standard configurations as its selling points, while S90 T5 has 10. **The cost of BMW 530Li further increases if one additional configuration needs to be added for BMW 530Li to equal S90 T5.**

Case: Intelligent Q&A of Enterprises in a Certain District



Agent Assistant

Improves productivity and customer satisfaction with real-time analysis and helps on improving the interaction between agents in the call center and customers. During a call, the bot automatically extracts keywords, coils problems, searches for and displays the best answers to matching semantics, and provides real-time support for agents.

Advantages

* Real-Time Support

Offers real-time support for human agents by attempting to understand customer questions and matching the answers with high relevancy.

* Improved Efficiency & Satisfaction

Enables human agents to answer customers' questions at a faster speed.

Summary

- This chapter describes the following content:
 - HUAWEI CLOUD EI ecosystem, helping you understand the HUAWEI CLOUD EI services
 - ModelArts services in combination with experiments, helping you understand the ModelArts services more efficiently
 - EI cases

Quiz

1. Which of the following scenarios can EI be applied to? ()
 - A. Intelligent government
 - B. Intelligent city
 - C. Intelligent manufacturing
 - D. Intelligent finance

More Information

Huawei Talent Online Website

<https://e.huawei.com/en/talent/#/home>

WeChat public accounts:



EMUI



Huawei Device
Open Laboratory



HUAWEI
Developers



Smart-E

Thank you.

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

Bring digital to every person, home, and
organization for a fully connected,
intelligent world.

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