



**UNTAR**  
FAKULTAS  
TEKNIK



**JONI FAT, ST. ME. MT.**  
Dosen Teknik Elektro  
(Internet Of Things)



**IR. WAHIDIN WAHAB,  
M.Sc. Ph.D.**  
Dosen Teknik Elektro  
(Dasar Sistem Kontrol)  
Ketua Yayasan Pendidikan  
Robotik Indonesia



**SHIENNY, ST. MM.**  
Implementor Sistem Otomatisasi  
(Smart Home, Smart Building)

## **WEBINAR INTERNET OF THINGS**

**PERKEMBANGAN IOT DI INDONESIA  
PADA ERA INDUSTRI 4.0**

**JUMAT, 21 AGUSTUS 2020 | 12.30 WIB S/D SELESAI**

LIVE AT :



CP : 083877681990 (BILLIE)

Link Pendaftaran : <https://cutt.ly/webinariot>



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# Internet of Things (IoT)

Joni Fat, ST. ME. MT.

Teknik Elektro

Jurusan Teknologi Industri



[www.untar.ac.id](http://www.untar.ac.id)



[Untar Jakarta](#)



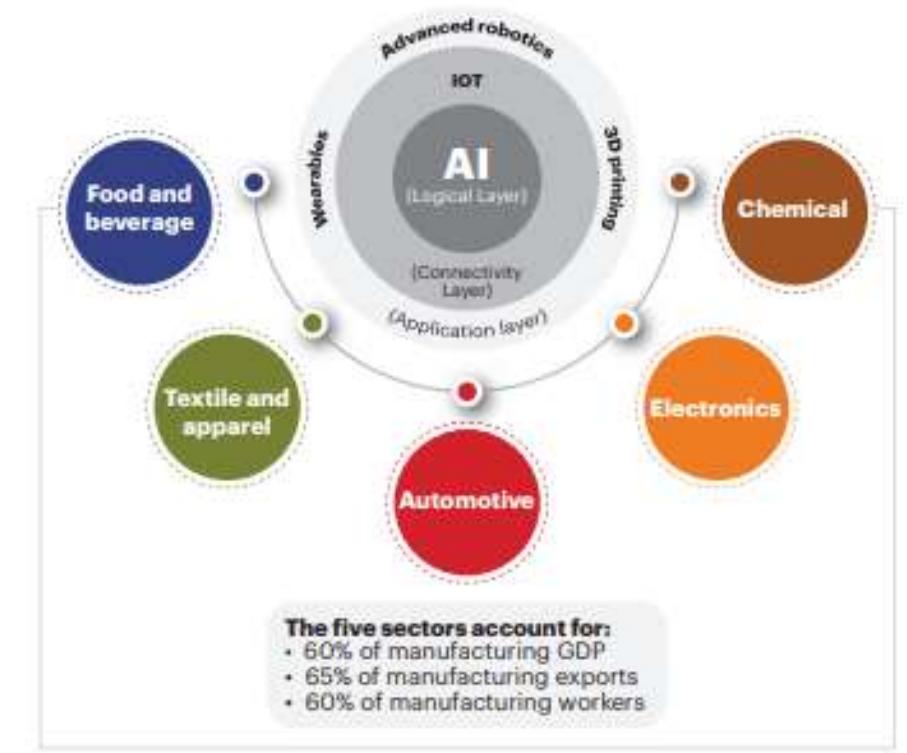
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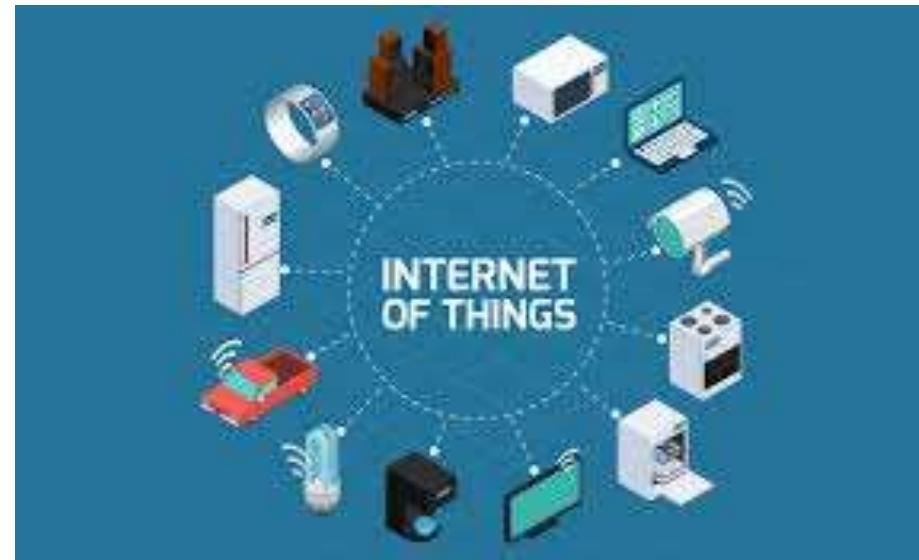
# Era Industri 4.0

- Komitmen Indonesia ini ditandai dengan diluncurkan "Making Indonesia 4.0" oleh Presiden Joko Widodo (Jokowi) pada awal April 2018.
- "Harapannya dengan implementasi Industri 4.0, Indonesia dapat mencapai Top Ten (10 besar) ekonomi global pada tahun 2023 melalui peningkatan angka ekspor netto kita kembalikan sebesar 10 persen dari PDB," kata Presiden Jokowi.
- Berdasarkan peta jalan Making Indonesia 4.0, Kementerian Perindustrian (Kemenperin) telah menetapkan lima sektor manufaktur yang akan diprioritaskan pengembangannya.
- Lima sektor itu yakni industri makanan dan minuman, tekstil dan pakaian, otomotif, elektronik, serta kimia.



# Apa itu Internet of Things (IoT)

- IoT merupakan konsep yang menghubungkan antar-peralatan dan ke Internet.
- Contoh: *smartphone*.



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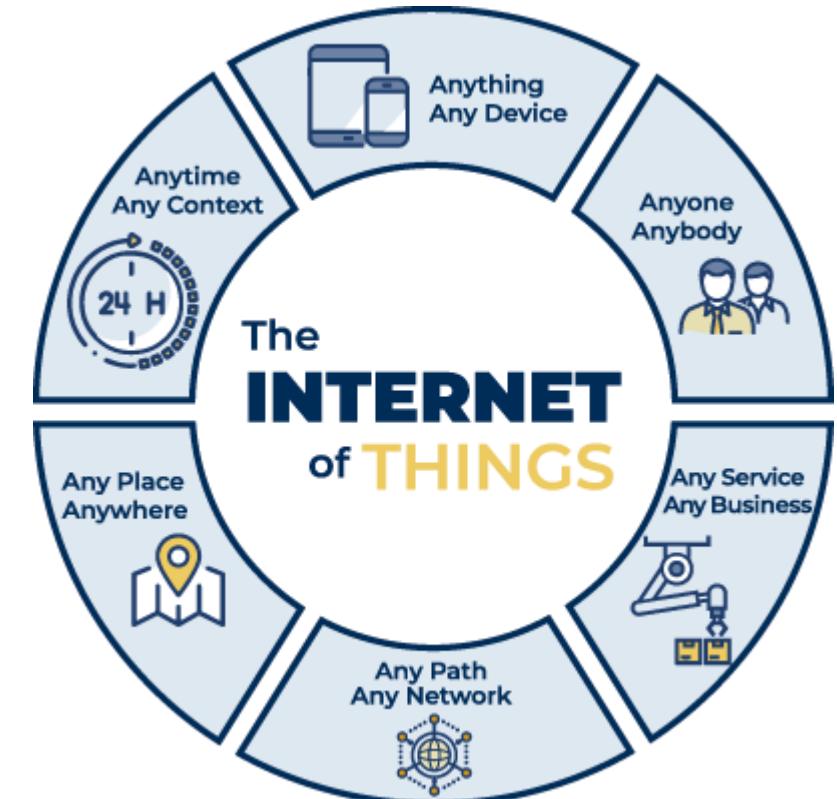


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# Konsep

**Physical Object**  
+  
**Controller Sensor, and Actuators**  
+  
**Internet**  
=

**Internet of things**



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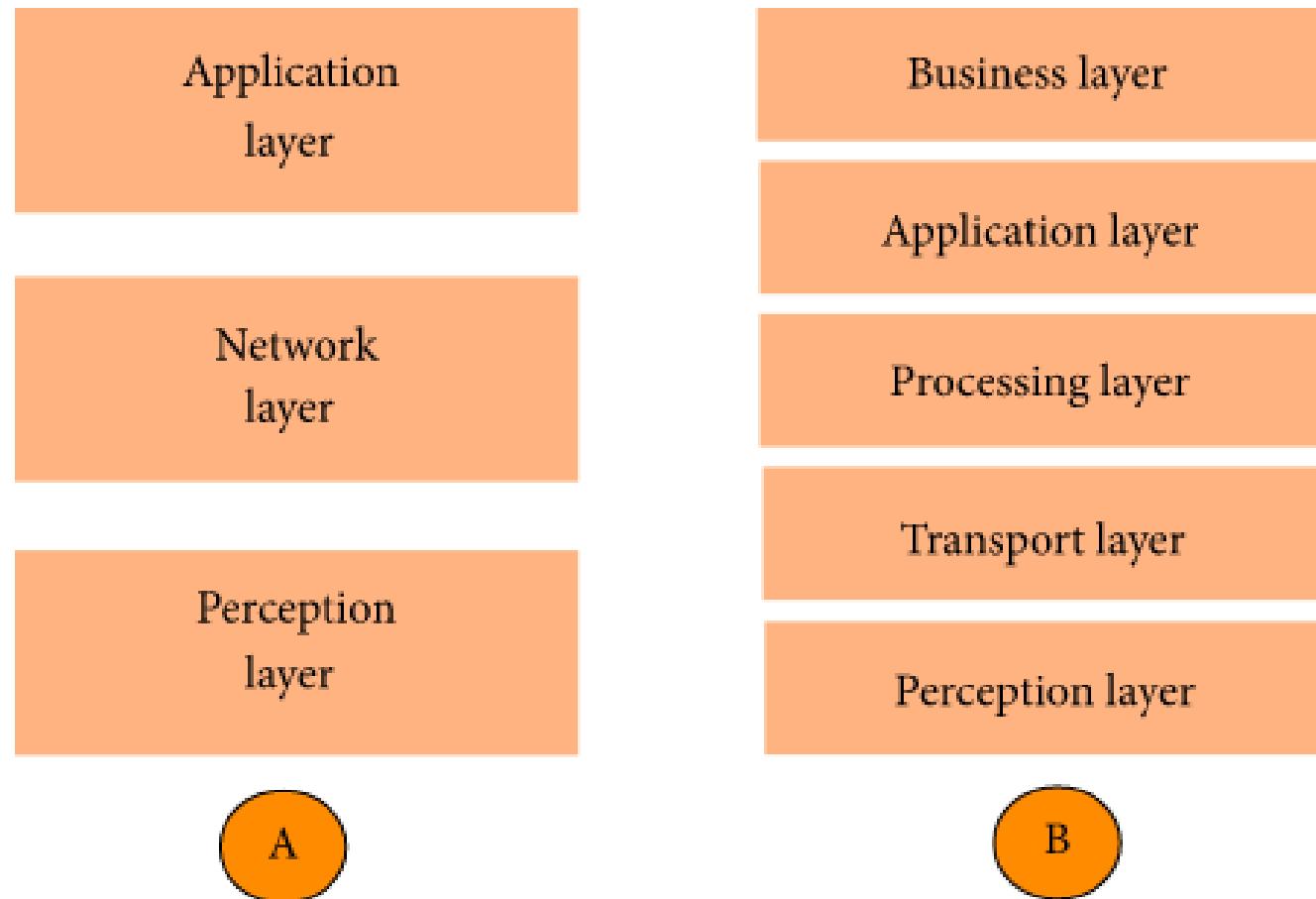
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# Arsitektur

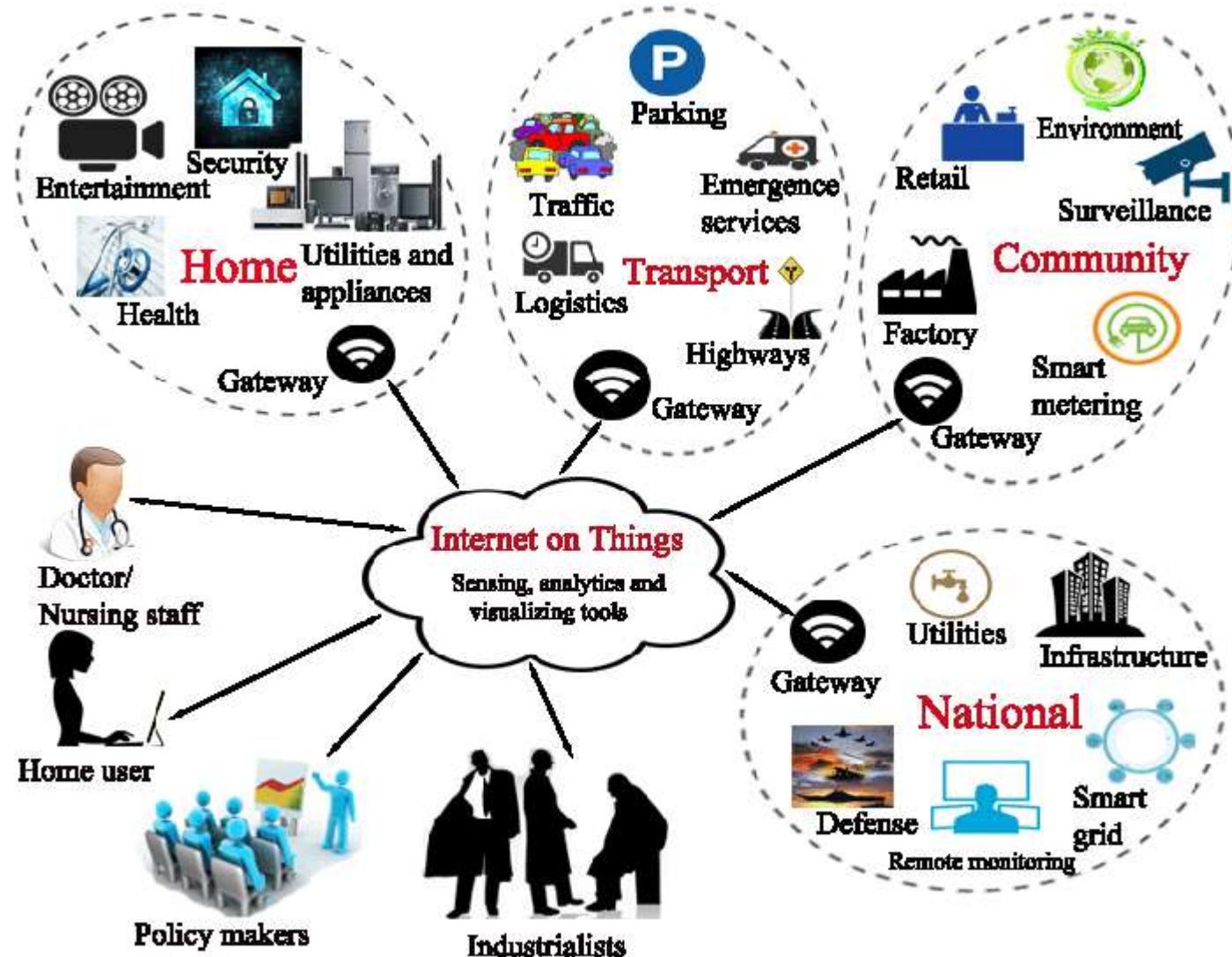


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# Applikasi



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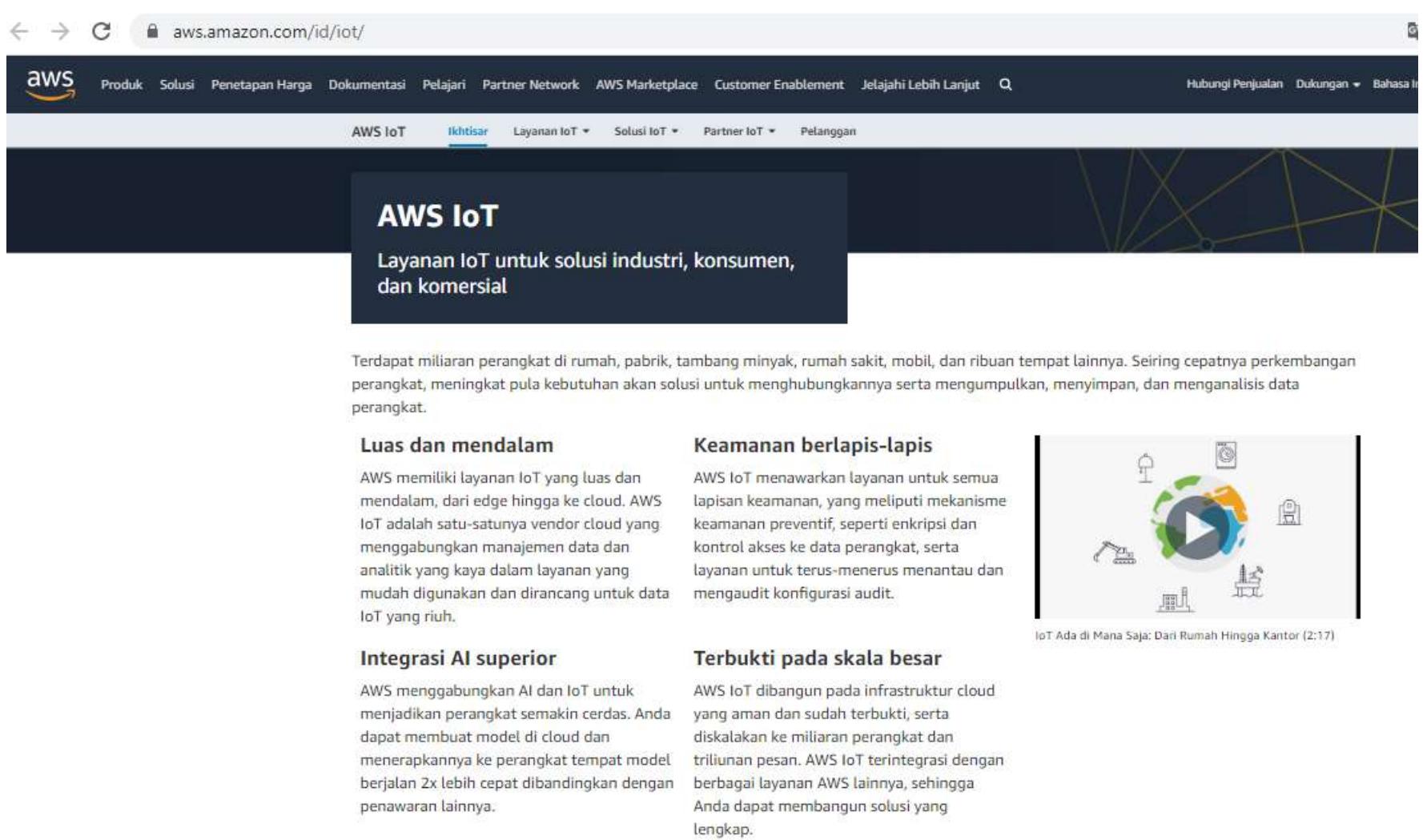
# Jarkeys – Christian, Dosen Teknik Elektro Untar

- Saat ini, aksi kejahatan berupa pencurian kendaraan bermotor semakin marak terjadi. Hal ini membuat seorang dosen elektro bernama Christian membuat sebuah aplikasi Android untuk fitur keamanan kendaraan bermotor. Nama aplikasi Android untuk tersebut adalah JarKeys. JarKeys memberikan kemudahan bagi para pengguna kendaraan bermotor dalam menyalakan mesin dengan sistem keyless atau tanpa menggunakan kunci.
- <https://www.metrotvnews.com/play/bD7UgqV8-jarkeys-aplikasi-motor-tanpa-kunci-1>

# Algoritma Apriori

- <https://www.youtube.com/watch?v=O0sd9ch0YBQ&feature=youtu.be>

# Amazon IoT



The screenshot shows the AWS IoT homepage on a web browser. The URL in the address bar is [aws.amazon.com/id/iot/](https://aws.amazon.com/id/iot/). The page features the AWS logo at the top left. A navigation bar includes links for Produk, Solusi, Penetapan Harga, Dokumentasi, Pelajari, Partner Network, AWS Marketplace, Customer Enablement, Jelajahi Lebih Lanjut, a search icon, and language options for Hubungi Penjualan, Dukungan, and Bahasa Inggris.

The main header "AWS IoT" is underlined, indicating it's the current section. Below it, a sub-header "Ikhtisar" is also underlined. Other menu items include Layanan IoT, Solusi IoT, Partner IoT, and Pelanggan.

A central dark blue box contains the title "AWS IoT" and the subtitle "Layanan IoT untuk solusi industri, konsumen, dan komersial". To the right of this box is a graphic of a network of yellow lines forming a triangular mesh.

The main content area begins with a paragraph about the widespread nature of IoT devices and the increasing need for solutions to manage them. It highlights the "Luas dan mendalam" (Wide and deep) nature of AWS IoT, mentioning its integration with AI and its use across various industries like manufacturing and healthcare.

Two columns of text provide more details:

- Luas dan mendalam**: AWS IoT integrates AI and machine learning to make devices smarter and faster.
- Keamanan berlapis-lapis**: AWS IoT offers multi-layer security, including encryption and access control.
- Integrasi AI superior**: AWS IoT integrates AI to enable faster, more efficient operations.
- Terbukti pada skala besar**: AWS IoT is built on a proven cloud infrastructure that can handle billions of devices and trillions of messages per day.

To the right of the text columns is a vertical sidebar containing icons representing various IoT applications: a lightbulb, a smartphone, a play button, a factory, a building, a truck, and a person. Below this sidebar is a caption: "IoT Ada di Mana Saja; Dari Rumah Hingga Kantor (2:17)".



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# Alibaba IoT

The screenshot shows the Alibaba Cloud IoT Platform product page. At the top, there's a navigation bar with links for Contact Sales, Search, International Language selection (Indonesia), Cart, Console, and Log In. Below the navigation is a main heading 'IoT Platform' with a sub-description: 'Provides secure and reliable communication between devices and the IoT Platform which allows you to manage a large number of devices on a single IoT Platform.' There are three buttons: 'Buy Now' (orange), 'Contact Sales' (white), and 'Learning Path' (white). The page features a dark background with a network of glowing orange nodes and lines representing connectivity. Below the main heading are three tabs: 'Overview' (selected), 'Pricing', and 'Documentation'. The 'Overview' section contains a detailed paragraph about the platform's features, mentioning stable communication, low latency, security measures, data storage, processing capabilities, and customization.

alibabacloud.com/id/product/iot

Alibaba Cloud | Worldwide Cloud Services Partner

Contact Sales Search Intl - Bahasa Indonesia Cart Console Log In

Why Us Products Solutions Pricing Marketplace Resources & Support Partners Documentation Free Account

## IoT Platform

Provides secure and reliable communication between devices and the IoT Platform which allows you to manage a large number of devices on a single IoT Platform.

Buy Now Contact Sales Learning Path

Overview Pricing Documentation

Alibaba Cloud IoT Platform allows IoT companies stable communication between devices and the IoT Platform. Featuring nodes deployed globally, devices around the world can communicate with the IoT platform rapidly and with low latency. Alibaba Cloud IoT Platform also provides various security measures that guarantee individual device security as well as secure communication between devices and the IoT platform. Critical to Alibaba Cloud's IoT Platform is its data storage and processing capabilities which allow for the integration of APIs and other Alibaba Cloud services. Finally, Alibaba Cloud IoT platform is highly customizable, featuring a rules engine for rapid data collection, storage, and application development.



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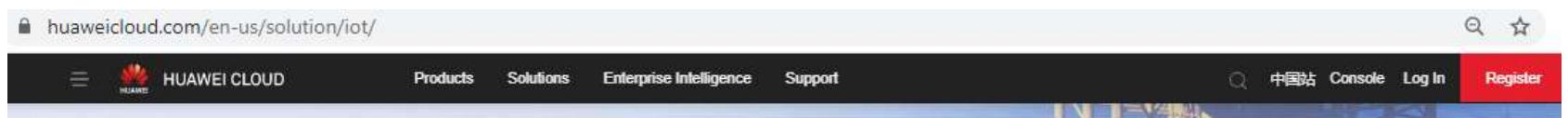
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# Huawei IoT



A screenshot of the Huawei Cloud IoT solution page. The URL in the address bar is huaweicloud.com/en-us/solution/iot/. The page features the HUAWEI CLOUD logo and navigation links for Products, Solutions, Enterprise Intelligence, and Support. On the right, there are links for Chinese version (中国站), Console, Log In, and Register. Below the navigation, there's a search bar and a button labeled 'Industry Trends'.

## Industry Trends



### IoT Development Trends

IoT has become a key enabler of digital transformation across industry verticals. Given the increased investment in and maturity of the technology, applications of IoT in connected car, public utilities, and industrial manufacturing are expected to enter a new realm of integration and promotion.

- Connected car

The connected car field is gradually evolving, from initial use only in high-end vehicles, to inclusion as a standard service in most modern vehicle models. Leading automobile manufacturers are engaged in exploring greater involvement in mobility services, while governments step into connected car supervision. A notable example of this is China's regulations on new energy vehicles.

- Public utilities

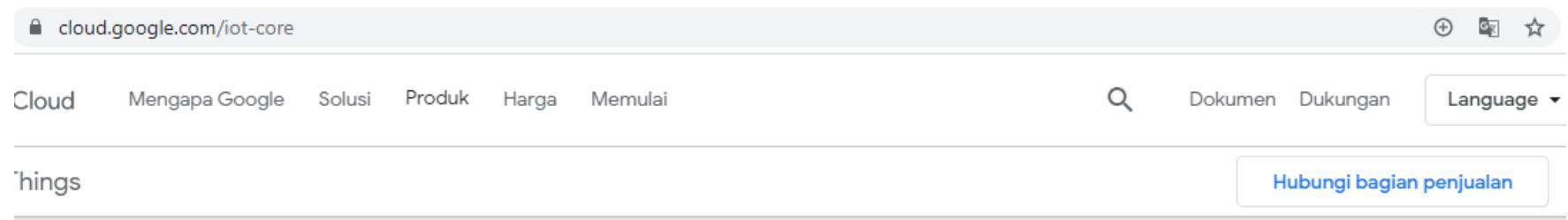
The continued application of IoT will greatly improve public utility operations, with smart metering and environmental monitoring seeing rapid maturation.

- Industrial manufacturing

IoT has become a necessity for industrial manufacturing enterprises transforming from producers to service providers. As a result, IoT is the focus of many pilot projects, many of which target remote O&M, as well as improved O&M efficiency and onsite labor costs.

## Business Challenges

# Google IoT



A screenshot of the Google Cloud IoT Core website. The URL in the address bar is `cloud.google.com/iot-core`. The page title is "Cloud IoT Core". The main heading is "Cloud IoT Core". Below it is a sub-headline: "Layanan terkelola sepenuhnya untuk menghubungkan, mengelola, dan menyerap data secara mudah dan aman dari perangkat yang tersebar secara global." There are two buttons: a blue "Coba gratis" button and a white "Lihat panduan memulai" button. Below these buttons is a link: "Lihat dokumentasi untuk produk ini." At the bottom right of the page, there is a red banner with the text "UNTAR untuk INDONESIA".

## Cloud IoT Core

Layanan terkelola sepenuhnya untuk menghubungkan, mengelola, dan menyerap data secara mudah dan aman dari perangkat yang tersebar secara global.

Coba gratis

Lihat panduan memulai

[Lihat dokumentasi untuk produk ini.](#)

Amankan koneksi dan  
pengelolaan perangkat



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# Telkomsel IoT

 telkomseliot.com/en



WHY TELKOMSEL IoT?

## Advanced Technology Made Easy

Get personalized insights from our IoT expert as you adopt the perfect IoT solution for your company.

[FIND OUT MORE](#)



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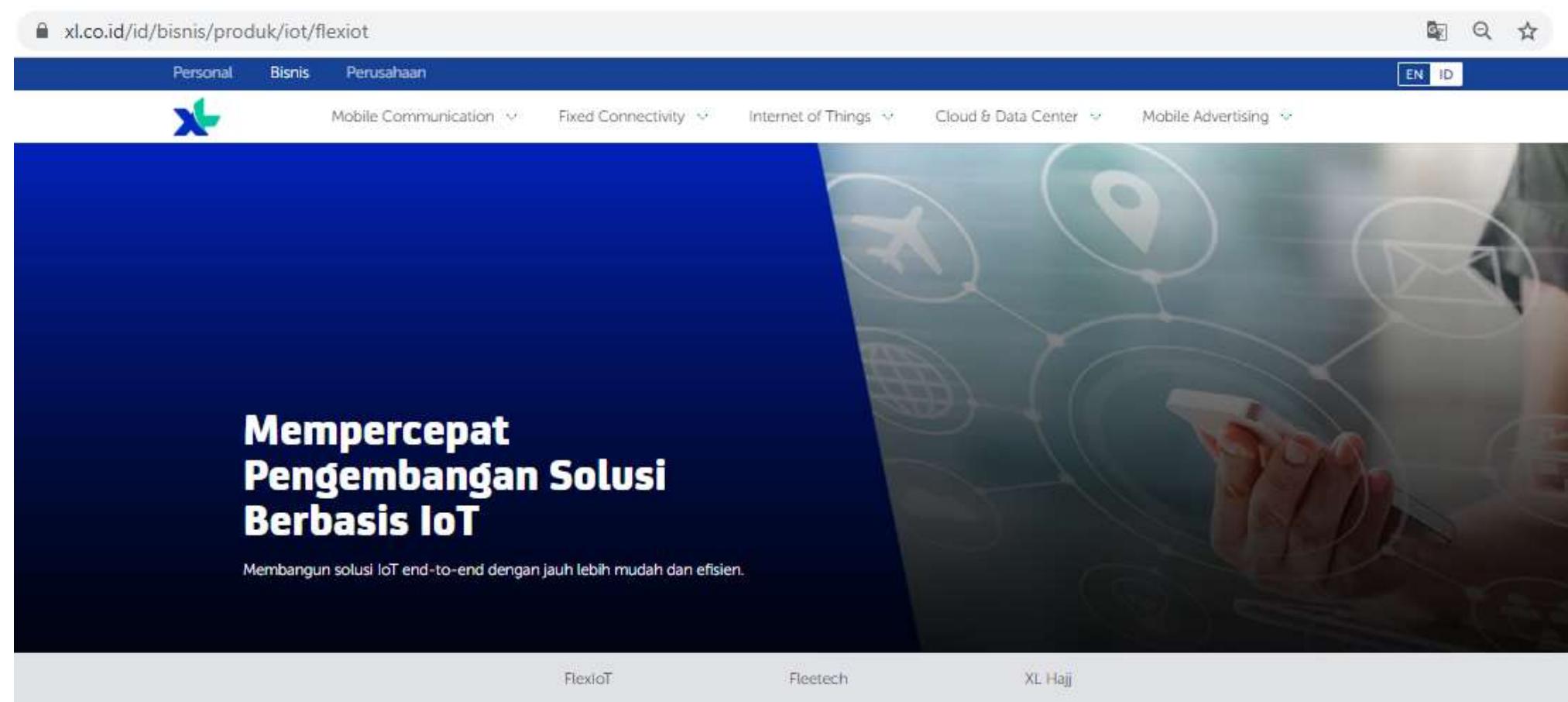
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The image shows the homepage of the XL IoT website. At the top, there is a navigation bar with links for Personal, Bisnis, Perusahaan, EN, and ID. Below the navigation bar is a main menu with categories: Mobile Communication, Fixed Connectivity, Internet of Things, Cloud & Data Center, and Mobile Advertising. The central feature is a large banner with a dark blue gradient background on the left and a blurred background image of a hand holding a smartphone on the right. The banner contains the text "Mempercepat Pengembangan Solusi Berbasis IoT" in white, bold, sans-serif font. Below the banner, a subtitle reads "Membangun solusi IoT end-to-end dengan jauh lebih mudah dan efisien." At the bottom of the page, there are three buttons labeled Flexiot, Fleetech, and XL Hajj.

xl.co.id/id/bisnis/produk/iot/flexiot

Personal Bisnis Perusahaan EN ID

Mobile Communication Fixed Connectivity Internet of Things Cloud & Data Center Mobile Advertising

XL IoT

Mempercepat Pengembangan Solusi Berbasis IoT

Membangun solusi IoT end-to-end dengan jauh lebih mudah dan efisien.

Flexiot Fleetech XL Hajj



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## INDUSTRI 4.0 DAN SEKTOR PRIORITAS

Indonesia bersiap menghadapi era Revolusi Industri ke-4 atau Industri 4.0, dalam upaya meningkatkan daya saing dan produktivitas industri manufaktur nasional



Industri 1.0  
(mulai 1784)

Industri 2.0  
(mulai 1870)

Industri 3.0  
(mulai 1968)

Industri 4.0  
(diperkenalkan 2011)

Penggunaan mesin uap dalam industri

Penggunaan mesin produksi massal tenaga listrik/BBM

Penggunaan teknologi informasi dan mesin otomasi

Mesin terintegrasi jaringan internet (internet of things)

### 5 Sektor Industri Prioritas menuju Industri 4.0



9,23%  
6,14%

Industri Makanan dan Minuman



4,53%  
1,74%

Industri Kimia



3,76%  
1,11%

Industri Tekstil dan Pakaiian Jadi



3,68%  
1,82%

Industri Otomotif



2,79%  
1,86%

Industri Elektronika

Kelima sektor industri tersebut memberi kontribusi **12,67%** terhadap total PDB atau **70,86%** terhadap PDB industri pengolahan nonmigas tahun 2017.

Keterangan : ■ Pertumbuhan 2017 ■ Kontribusi terhadap PDB

[www.kemenperin.go.id](http://www.kemenperin.go.id)

Kementerian  
Perindustrian RI

@Kemenperin\_RI

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# Sektor Prioritas



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# KESIAPAN INDONESIA HADAPI ERA INDUSTRI 4.0

Kementerian Perindustrian menilai Indonesia sudah cukup siap menerapkan industri 4.0. Ini terlihat dari rata-rata indeks kesiapan industri (INDI 4.0) yang ada di **level 2,14**.

D katadata.co.id  
Ekonografik

## INDEKS KESIAPAN INDUSTRI (INDI 4.0)



**1,95**  
Teknologi

**2,06**  
Operasi pabrik

**2,12**  
Manajemen dan organisasi

**2,16**  
Orang dan budaya

**2,41**  
Produk dan layanan



**2 PERUSAHAAN SUDAH TERAPKAN INDUSTRI 4.0**  
(PER JULI 2019)

**Schneider Electric**  
Schneider Electric  
Batam, Kep. Riau

**PETROSEA**  
PETROSEA  
Tebing, Kalimantan Timur

## KEUNTUNGAN BAGI INDONESIA (2018-2030)

**1-2%** potensi kenaikan pertumbuhan ekonomi

**25%** kontribusi manufaktur terhadap PDB

**2x** lipat kenaikan rasio produktivitas & biaya

**10-15 JUTA** lapangan kerja baru

Sumber: WORLD ECONOMIC FORUM, MAKING INDONESIA 4.0. KEMENTERIAN PERINDUSTRIAN | Penulis: ANDREA LIWINA | Ilustrasi: DZSRP

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# *Future*

- According to the Pew Research Center, By 2025, there will be a global, immersive, invisible, ambient networked computing environment built through the continued proliferation of smart sensors, cameras, software, databases, and massive data centers in a world-spanning information fabric known as the Internet of Things."
- Pew Research Center released this statement after the detailed overview which was based on the thoughts of the almost 1600 technology experts and IoT experts. So, by 2025 Internet of Things and wearable tech will start to play a major impact globally. Obviously our daily life will also be affected by this revolution of Internet of Things. It means the world will become a smart world to live with high level technology.

# Terima Kasih



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