Digital Economy Trends

Value of Digital Economy

2016

15.5%
($11.5 trillion)
Digital Economy contribution to global economy

2.5x
Digital Economy Growth vs Global Economy Growth

6.7x
Digital Investment ROI vs Non-Digital Investment ROI

Data & Technologies

AI

5G Connectivity

Blockchain

Big Data & Data Analytics

Cloud Computing

Immersive Tech (Metaverse)

Automation & Robotics

3D/4D/5D printing

Internet of Things (IoT)

Nanotechnology
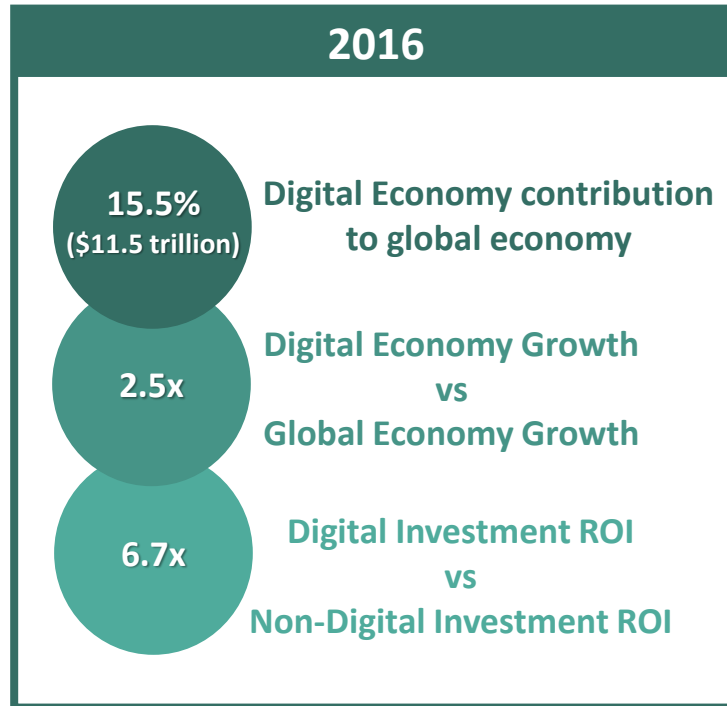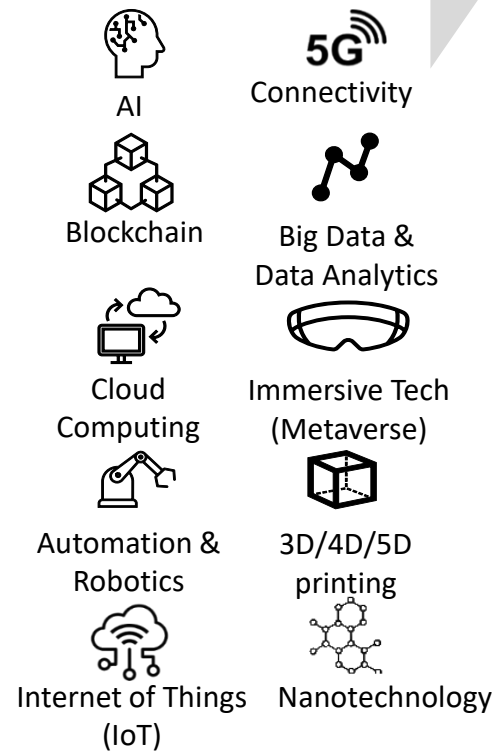
2025

24.3% Digital Economy contribution to world economy

$23T Digital Economy

$500 Equivalent Extra Income for an Average Worker

Digital Readiness Policies

- Technology adoption
- Bridging digital divide
- Digital infrastructure
- Secure cyber environment
- Investment & partnership
- Ease of doing business
- Workforce readiness
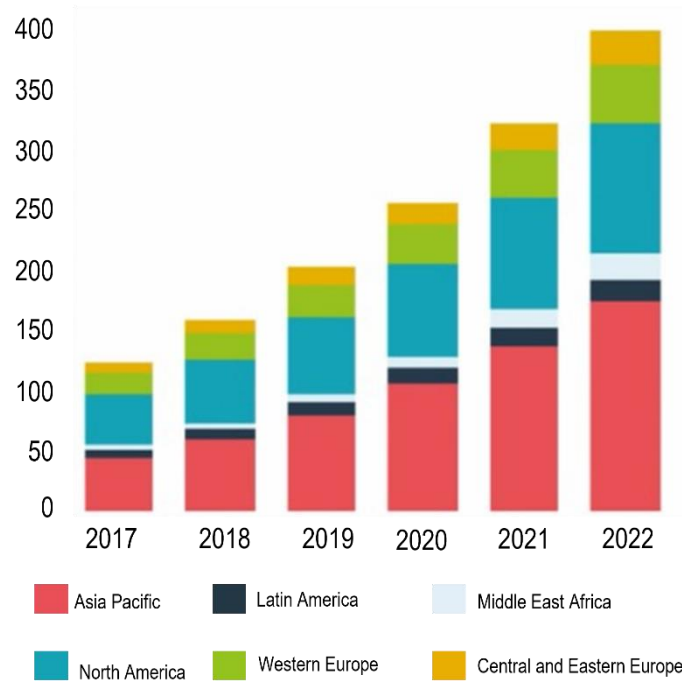- Innovation & start-up ecosystem
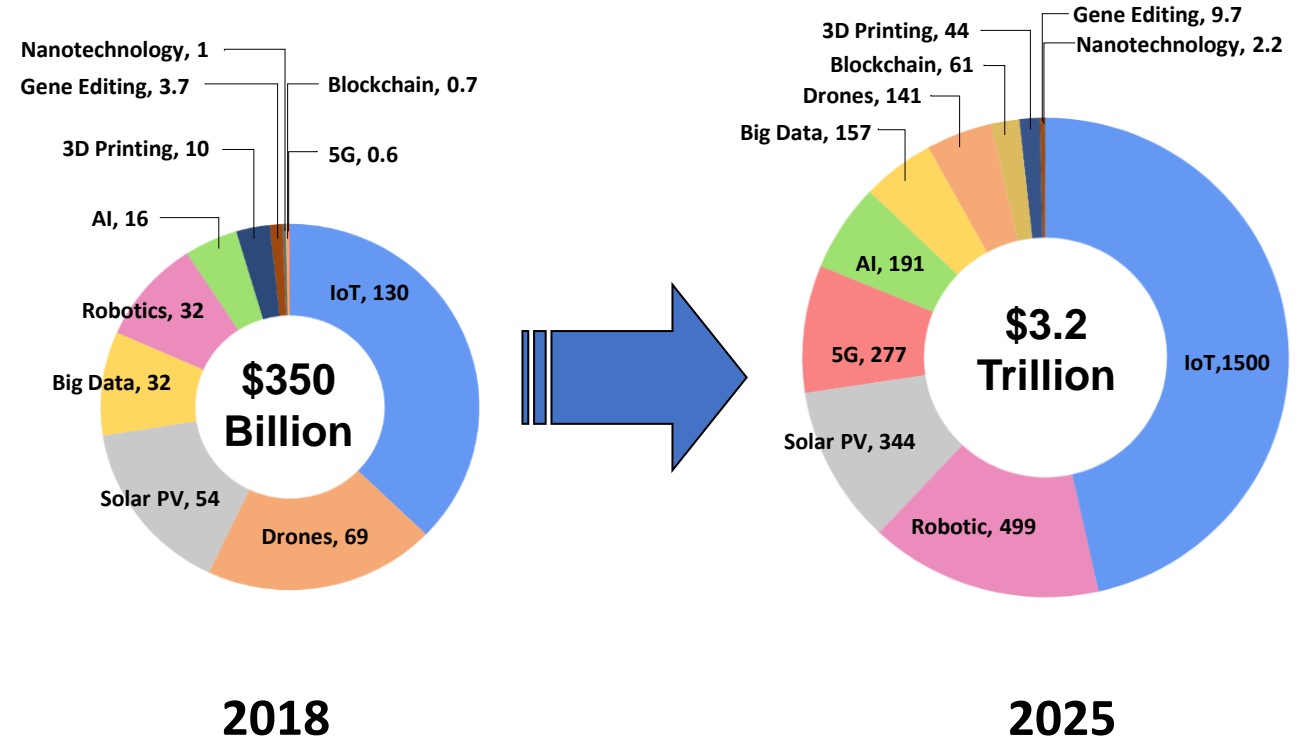
Maximising Digital Value
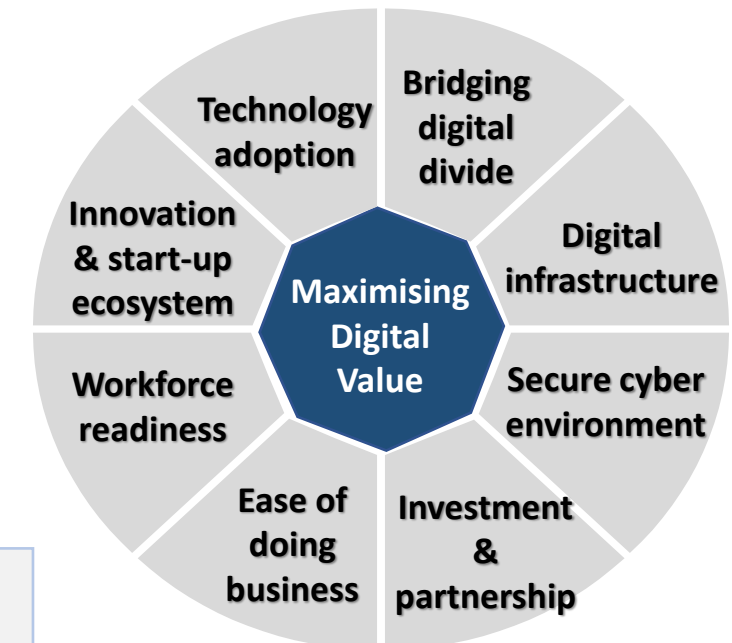
- **Policies, Regulations and Digital Readiness to maximise digital value**

Digital Economy Trends

- **Internet Protocol traffic reached 400 Exabyte per month**

Legend: Asia Pacific, Latin America, Middle East Africa, North America, Western Europe, Central and Eastern Europe

- **Frontier Technologies**

2018 — $350 Billion
- IoT, 130
- Drones, 69
- Solar PV, 54
- Big Data, 32
- Robotics, 32
- AI, 16
- 3D Printing, 10
- Gene Editing, 3.7
- Nanotechnology, 1
- Blockchain, 0.7
- 5G, 0.6

2025 — $3.2 Trillion
- IoT, 1500
- Robotic, 499
- Solar PV, 344
- 5G, 277
- AI, 191
- Big Data, 157
- Drones, 141
- Blockchain, 61
- 3D Printing, 44
- Gene Editing, 9.7
- Nanotechnology, 2.2

- **Cross-border data flows are a new international economic flow**

- **WEF estimates 85 million jobs will be displaced and 97 million new jobs will be created by 2025**

Sarawak Digital Economy Blueprint 2030

- **Overview**
  - Foundation for the PCDS 2030
  - Aligned with the Global and Malaysia Digital Economy Blueprints
  - Blueprint recognises that Government plays an enabling role
  - Focuses on growing the private sector economy
  - Targets on growing whole-of-society digital transformation

- **Vision**
  - Sarawak to be a *"**leading Digital Economy and Society by 2030**"*
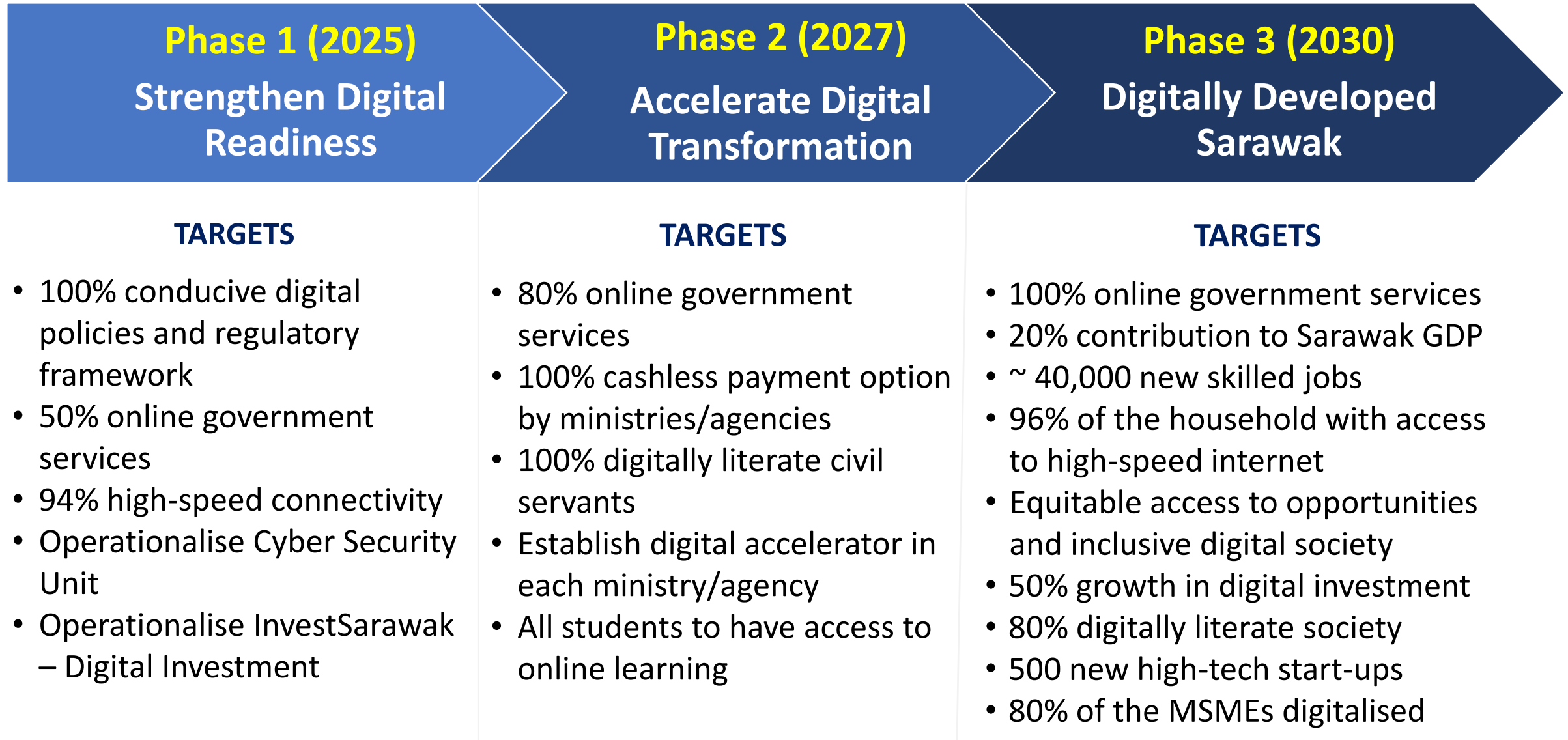
- **Mission**
  - Nurture integrated ecosystem to foster inclusive digital society
  - Build the right foundations to grow Digital Economy
  - Foster business growth and vibrant technology sector
  - Capitalise on digital technologies to maximise digital value
  - Deliver simple, secure and trusted government services

Sarawak Digital Economy Blueprint 2030

Built on five strategic pillars

- **Focusing on Economic Growth Priorities**
  - Accelerate digitalisation of economic sectors and data monetisation
  - Boosting economic competitiveness through digitalisation

- **Growing Digital Businesses**
  - Support and grow globally competitive and vibrant technology sector, investments, trade and start-ups & spin-ins

- **Transforming Public Sector & Services**
  - Deliver efficient, secure and trusted online services and improve ease of doing business

- **Adoption of Frontier Technologies**
  - Enable economy wide transformation to maximise digital value

- **Building the Foundation**
  - Accelerate **Digital Readiness** in infrastructure & connectivity, data governance & cyber security, digital talent & skills, research, innovation & entrepreneurship and inclusivity

Roadmap to Targeted Outcomes

Phase 1 (2025) Strengthen Digital Readiness	Phase 2 (2027) Accelerate Digital Transformation	Phase 3 (2030) Digitally Developed Sarawak
TARGETS	**TARGETS**	**TARGETS**
• 100% conducive digital policies and regulatory framework • 50% online government services • 94% high-speed connectivity • Operationalise Cyber Security Unit • Operationalise InvestSarawak – Digital Investment	• 80% online government services • 100% cashless payment option by ministries/agencies • 100% digitally literate civil servants • Establish digital accelerator in each ministry/agency • All students to have access to online learning	• 100% online government services • 20% contribution to Sarawak GDP • ~ 40,000 new skilled jobs • 96% of the household with access to high-speed internet • Equitable access to opportunities and inclusive digital society • 50% growth in digital investment • 80% digitally literate society • 500 new high-tech start-ups • 80% of the MSMEs digitalised

Digital Readiness

Digital Infrastructure

- High-speed Connectivity
- Int. Cable links
- Data Centre & IoT Infra
- HPC – Super Computing

Technology Adoption

- Cloud Services
- 5G, AI, IoT, Blockchain, etc
- Mobile Device Penetration

Human Capital & Inclusivity

- Digital Talent & Skills
- Upskilling & Reskilling
- Access, Affordability & Digital Literacy

Ease of Doing Business

- Policies and Regulations
- Citizen & Data Driven Services
- Taxation

Investment

- Policies & Regulations
- Govt, FDI & DDI
- InvestSarawak

Innovation & Start-up Ecosystem

- Patent and Trademark
- Research, innovation, commecialisation and start-up/spin-in ecosystem.

Data

- Data Governance & Management Framework
- Data Policies, procedures for data access, sharing, etc

Cyber Security

- Governance, Policy, Compliance, Enforcement, etc
- R&D, Talent

Basic Needs

Access to
- Electricity
- Transportation
- Road
- Clean Water

Benefits of Data Democratisation

- **Empowers Decision-Making Across All Levels**
  - Faster Decision-Making
  - Reduced Dependency
  - Holistic Understanding
- **Increases Agility and Innovation**
  - Rapid Adaptation
  - Cross-Disciplinary Insights
- **Improves Business Performance and Growth**
  - Customer-Centricity
  - Operational Efficiency
  - Identifying New Opportunities
- **Enhances Data-Driven Culture**
  - Data-Focused Mindset
  - Learning and Growth
  - Collaboration
  - Adaptation to Change

Maximising Digital Value from Data

- **Enablers**
  - Data Governance and Management
  - Policies and Regulations
  - Technology Adoption
  - Cyber Security
  - Talent and skills
  - Innovation Ecosystem
- **Technology** and **Data** go hand in hand

Data Governance and Management

- **Objectives**
  - Enhance decision making, policy development and service delivery
  - Facilitate innovation through improved management of Data
  - Create a standard approach to data management
- **Issues**
  - Not appropriately **prioritised** or resourced
  - Practices are usually **inconsistent** and **siloed** within Departments/Agencies
  - Information sharing hindered by concerns around **information quality, privacy compliance, lack of standardisation, old technology**, etc.
  - **Capability** and **capacity** are seen as significant hurdles
  - The volume of **data** is **growing exponentially**

[handwritten annotations in red: "impact on o/come & monetisation", "Tech changes very fast - training not in place", "if 7400 Example", "month"]

Data Governance and Management

People Process & Technology

To ensures that data is consistent and trustworthy and does not get misused

- **Data Sources and Standardisation**: Catalog datasets and establish data standards.

- **Access, Dissemination and Infrastructure**: Establish secure access and data integration with appropriate controls and encryption.

- **Transparency and Risk Assessment**: Maintain data register for transparency and risk assessment.

- **Data Linkage, Integration & Insight**

- **Compliance, Auditing:** Ensure compliance, security protocols, etc.

- **Governance Framework**: Clear policies, procedures for data access, use and sharing in compliance with the privacy laws and regulations

Open Data

Releasing datasets for public access, stimulate innovation and empower citizens to develop solutions

- **Encourages innovation and entrepreneurship**
  - Analysis and new applications development
  - Create value-added products and services benefiting citizens and the economy

  Growth in startup & MSMEs

- **Economic growth**
  - Businesses can leverage data to gain insights into market trends, customers and develop innovative products & services

- **Improved efficiency**
  - Streamline operations, optimise resource allocation and enhance service delivery

- **Example: Smart City Applications**
  - Public transport, smart mobility and parking
  - Environmental monitoring and energy management
  - Housing , real estate and urban planning
  - Municipal services, public safety and emergency services
  - Healthcare , social services and education

 *time savis, congestion fuel, emerson, etc*

Use Cases

Personalised Content Recommendations

- **Objective**: Boost user engagement with personalised content recommendations.

- **Data Sources**: User viewing history, ratings, interactions and activity times.

- **Integration**: Machine learning for personalised recommendations. *→ Generative AI*

- **Outcome**: More engagement, better user experience, retention and growth.

- **Benefit/Impact**: Better recommendations, improved experience and increased revenue.

Global platform demand share for all digital originals

- Netflix - 50.2%
- Prime video - 12.2%
- Hulu - 6.1%
- Disney+ - 6%
- Apple TV+ - 4.7%
- HBO Max - 4.1%
- Paramount+ - 3.2%
- Others 13.5%

Source: Bloomberg | Graphic: Aryxe
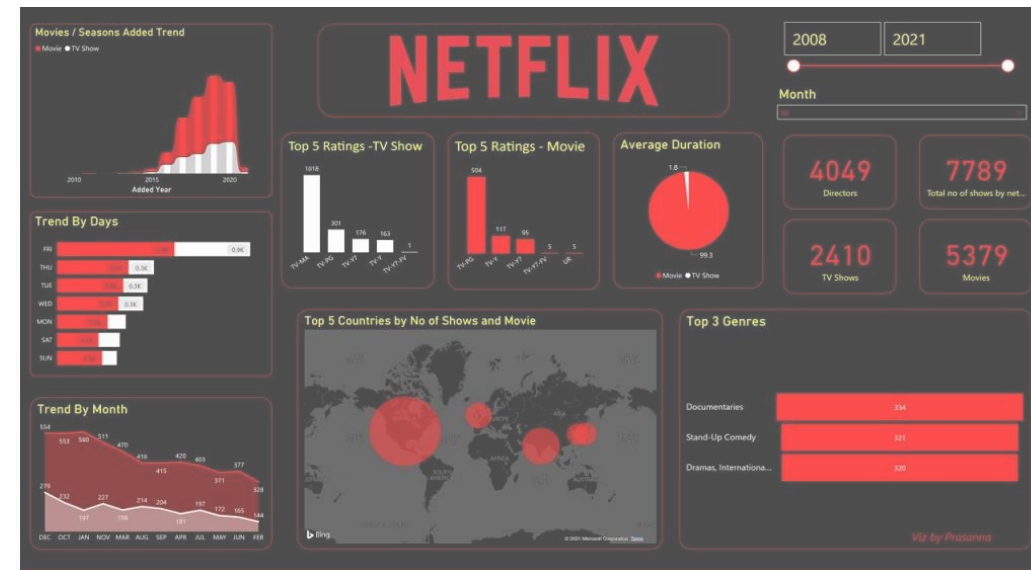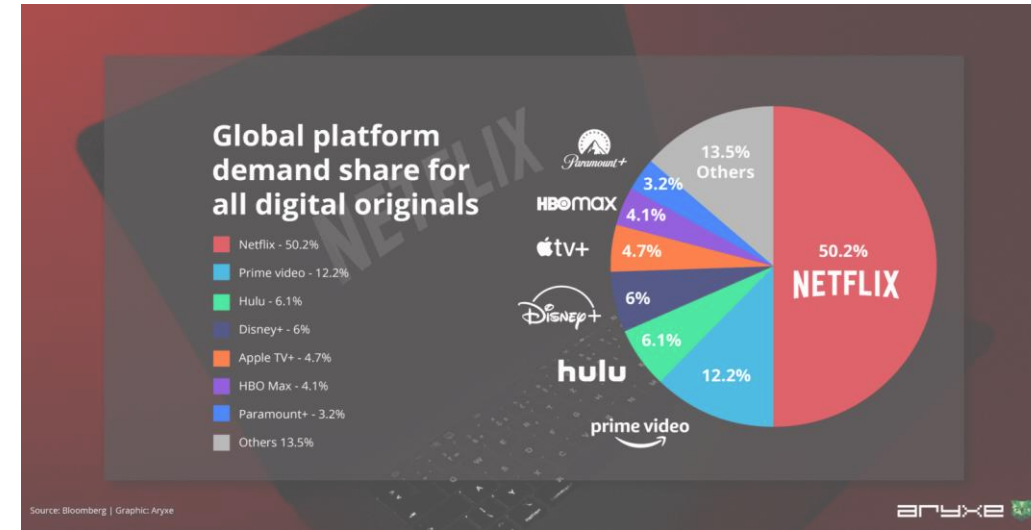
Water Pipe Failure Prediction

- **Objective**: Predict the failure of water pipes to facilitate timely maintenance and replacement.

- **Data Sources**: Historical failure data, pipe attributes (material, diameter, age), environmental factors (soil type, temperature, pressure, etc.), operational data (pressure, flow rate), etc.

Water Authorities using the model

- **Integration**: Combine historical failure data with current pipe attributes and environmental and operational data to develop a predictive model.

- **Outcome**: Accurate prediction of pipe failures, enabling proactive maintenance and replacement strategies.

- **Benefit/Impact**: Reduced operational costs, decreased water loss, improved service reliability and extended lifespan of the water distribution network.
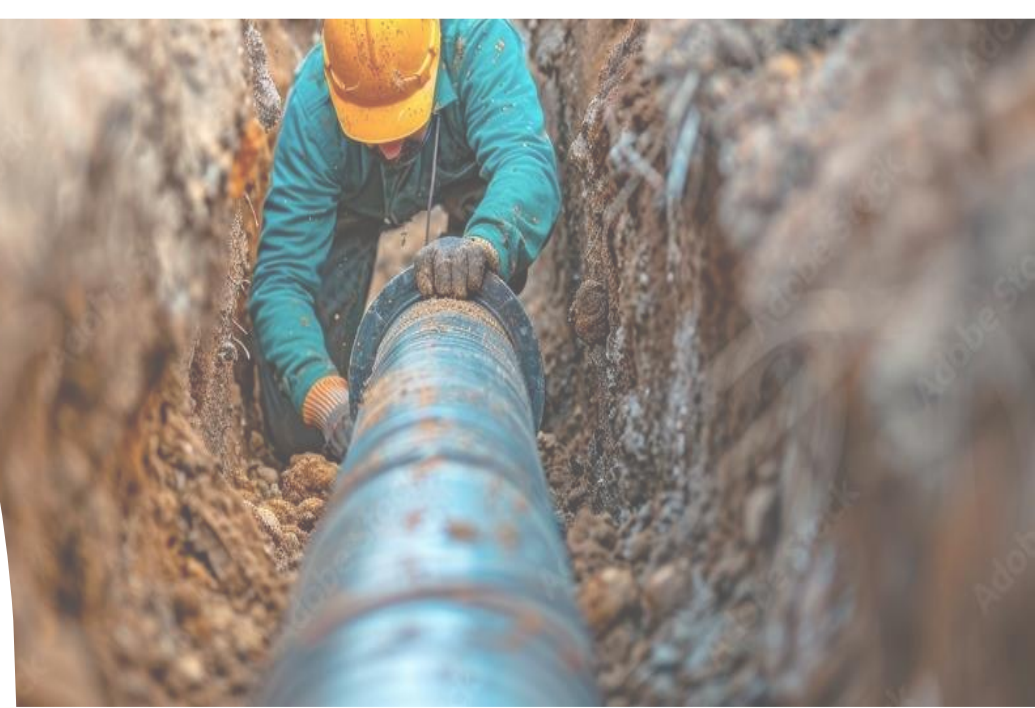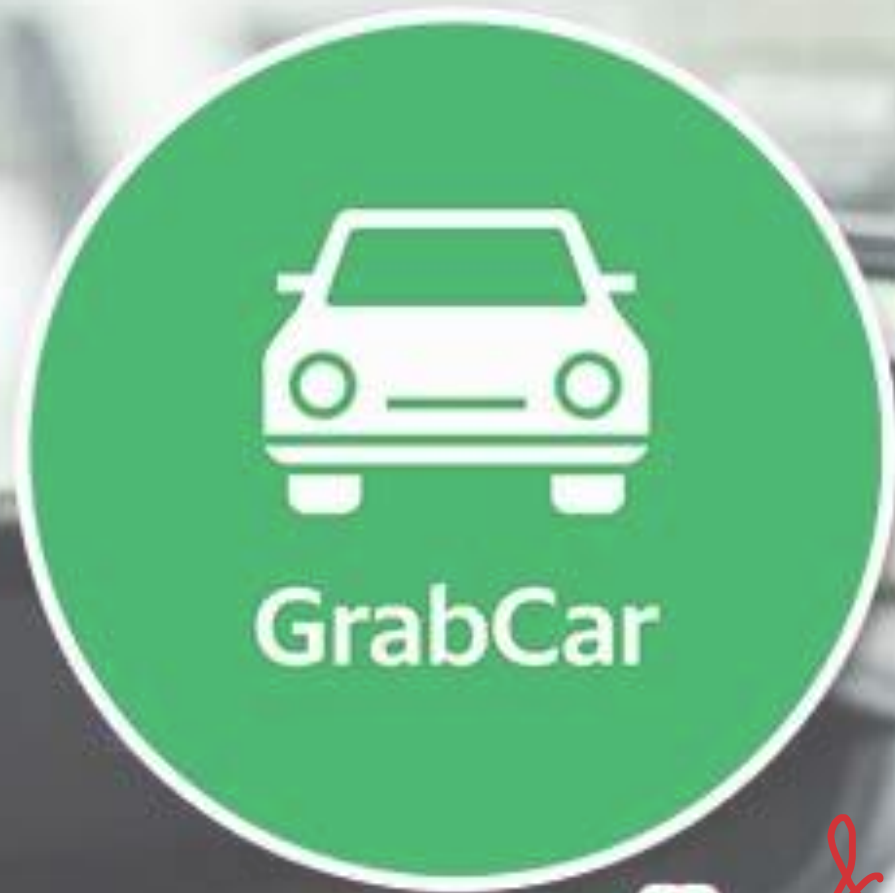
Optimising Ride Services

- **Objective**: Optimise routes to reduce wait & travel times and fuel use.

- **Data Sources**: Traffic data, GPS, customer preferences and weather.

- **Integration**: Analyse real-time data to predict traffic and optimise routes.

- **Outcome**: Reduced wait & travel times, optimised fuel use and improved service efficiency.

- **Benefit/Impact**: More satisfaction, lower impact and higher profits through efficiency.

& Uber and others

low carbon emission, etc

Emergency Response Optimisation

- **Objective**: Improve the efficiency and effectiveness of emergency services.

- **Data Sources**: Emergency calls, traffic data, hospital capacity, weather forecasts, etc.

- **Integration**: Real-time fusion of emergency calls with current traffic conditions and hospital status.

- **Outcome**: Optimised routing and resource allocation for emergency services.

- **Benefit/Impact**: Faster emergency response times, better resource utilisation and improved outcomes for emergency incidents.

Supply Chain Optimisation

- **Objective**: Improve efficiency, reduce waste and increase sales.

- **Data Sources**: Customer data, weather patterns, inventory levels, supplier information.

- **Integration**: Combine trends, weather, and supply data to optimise inventory.

- **Outcome**: Better inventory management, reduced waste and higher profits.

- **Benefit/Impact**: Improved efficiency, reduced overstock and boosted profitability.

Personalised Education Plans

- **Objective**: Provide tailored learning experiences and support for students.

- **Data Sources**: Student performance records, attendance data, extracurricular activities, socioeconomic indicators.

- **Integration**: Create comprehensive student profiles by combining various educational and contextual data.

- **Outcome**: Tailored learning experiences and early intervention for at-risk students.

- **Benefit/Impact**: Improved academic performance, reduced dropout rates and enhanced student engagement.

# Modernising Energy Sector and Regulatory Framework

- **Objective**: Digitalise the energy sector for low-carbon sources like solar, hydro and hydrogen.

- **Data Sources**: Energy patterns, generation data (solar, hydro, hydrogen, biomass), grid metrics and usage.

- **Integration**: Data fusion in energy generation, transmission and consumption to aid the low-carbon transition.

- **Outcome**: Optimised grid management, reduced costs and faster decarbonisation.

- **Benefit/Impact**: Improved energy efficiency, reduced emissions and enhanced grid reliability.
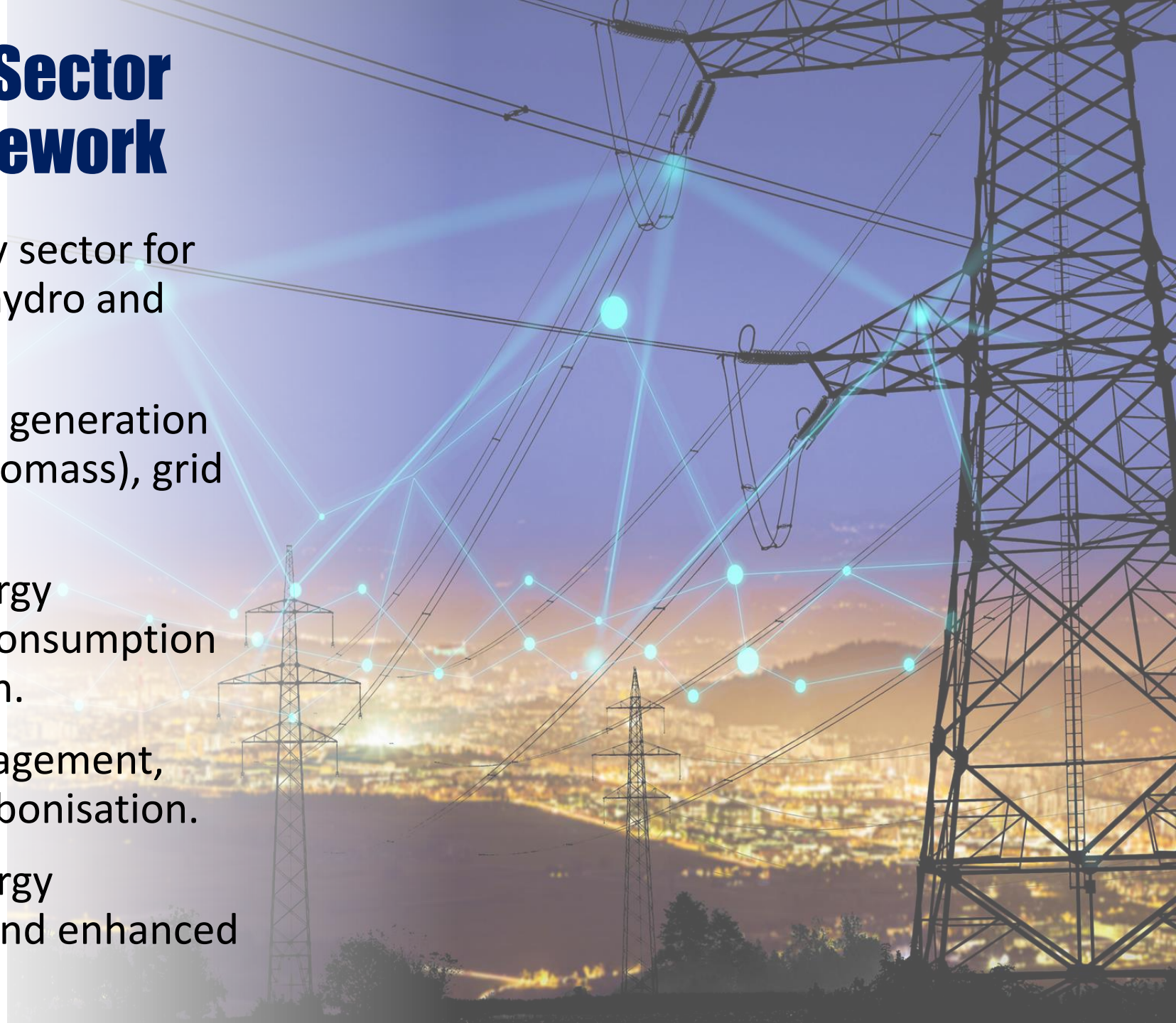
Harnessing Data for Personalised Music Experiences

X hide

- **Objective**: Provide artists with demographic insights and playlist data for music engagement.

- **Data Sources**: Demographic information, playlist trends, listening habits and user interactions.

- **Integration**: Real-time analytics and filtering for personalised playlists.

- **Outcome**: Artists use real-time analytics to boost fan engagement and expand their reach.
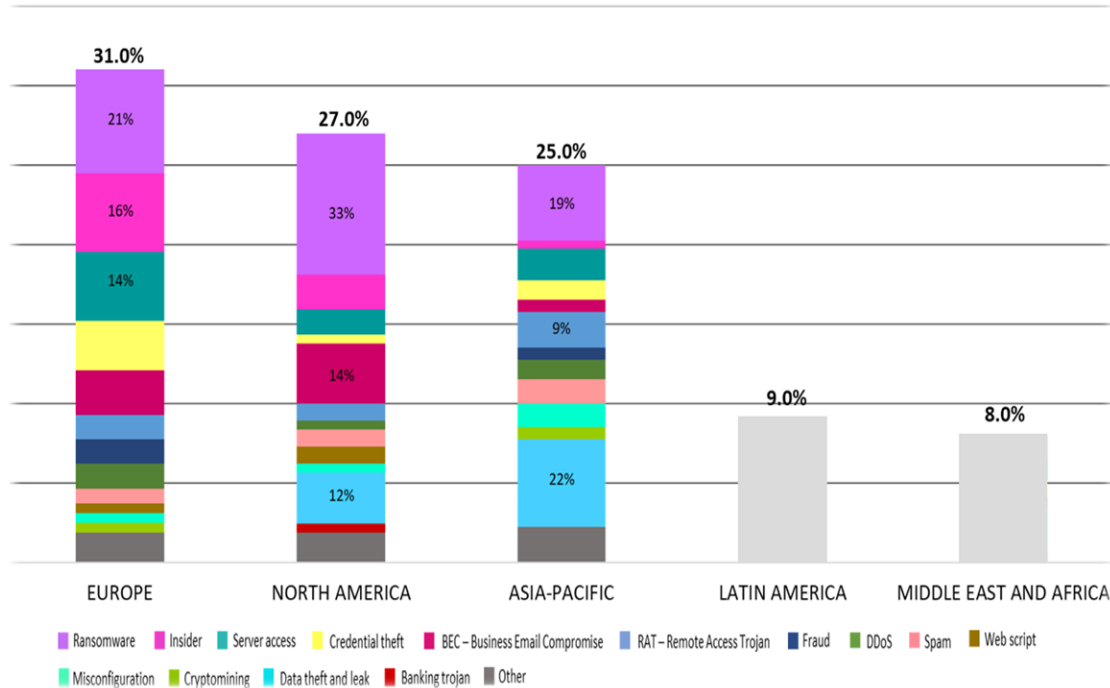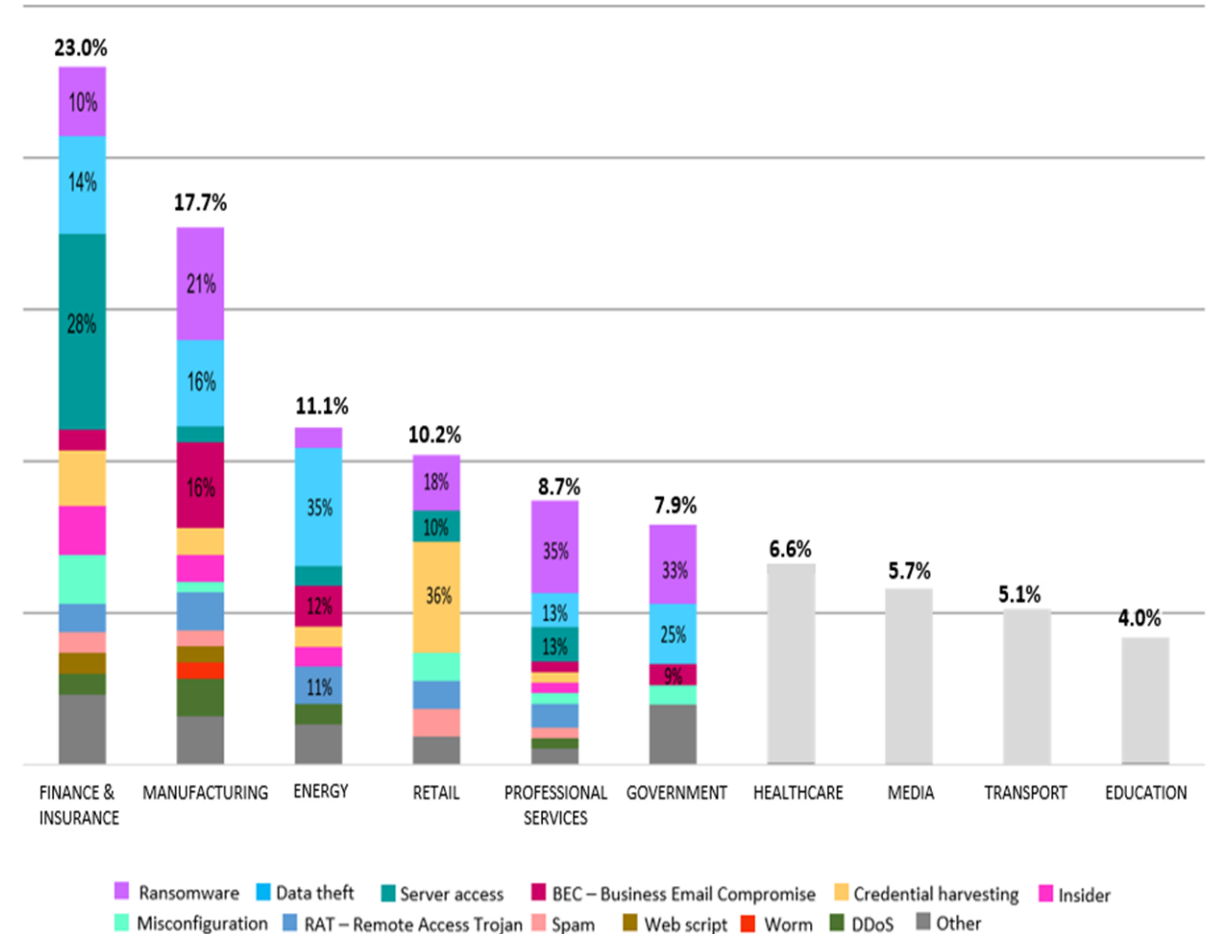
Cyber Crime Trends

- **Cyber crime[1]**

  2021 US$6T
  2023 US$8T
  2025 US$10.5T
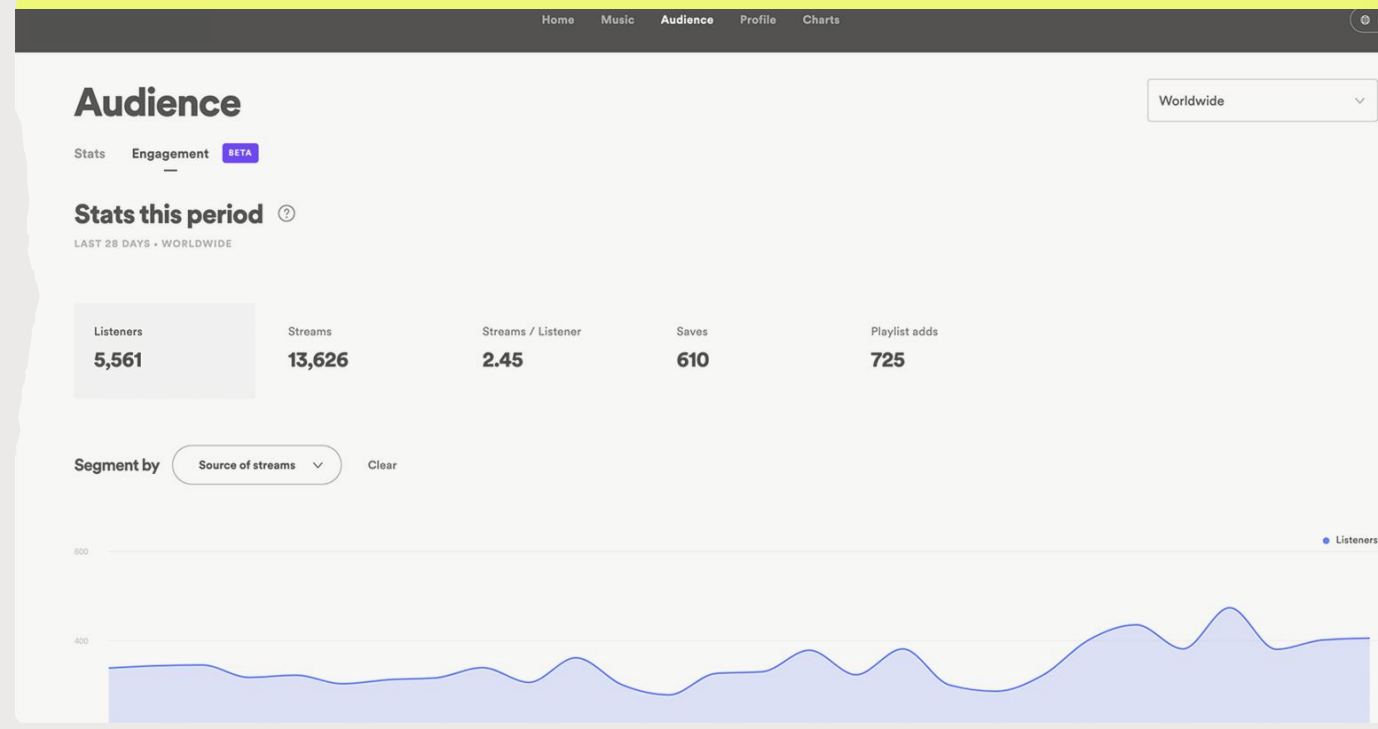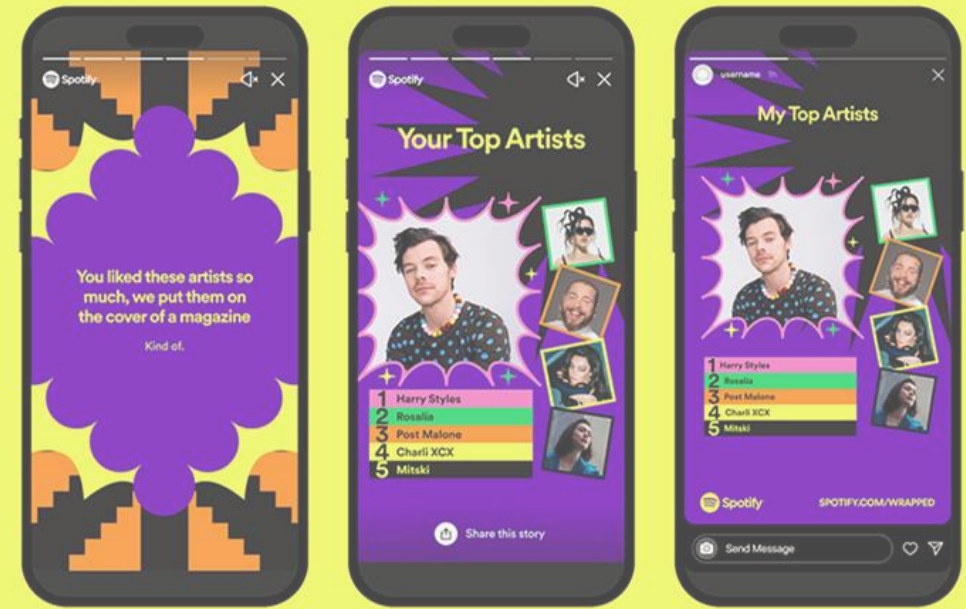
- **Cyber attacks by region in 2020[2]**

- **Cyber attacks by sector in 2020[2]**

Cyber Crime Trends

- **Cyber Crime in Malaysia 2023**

SARAWAK
DIGITAL ECONOMY
BLUEPRINT
2030