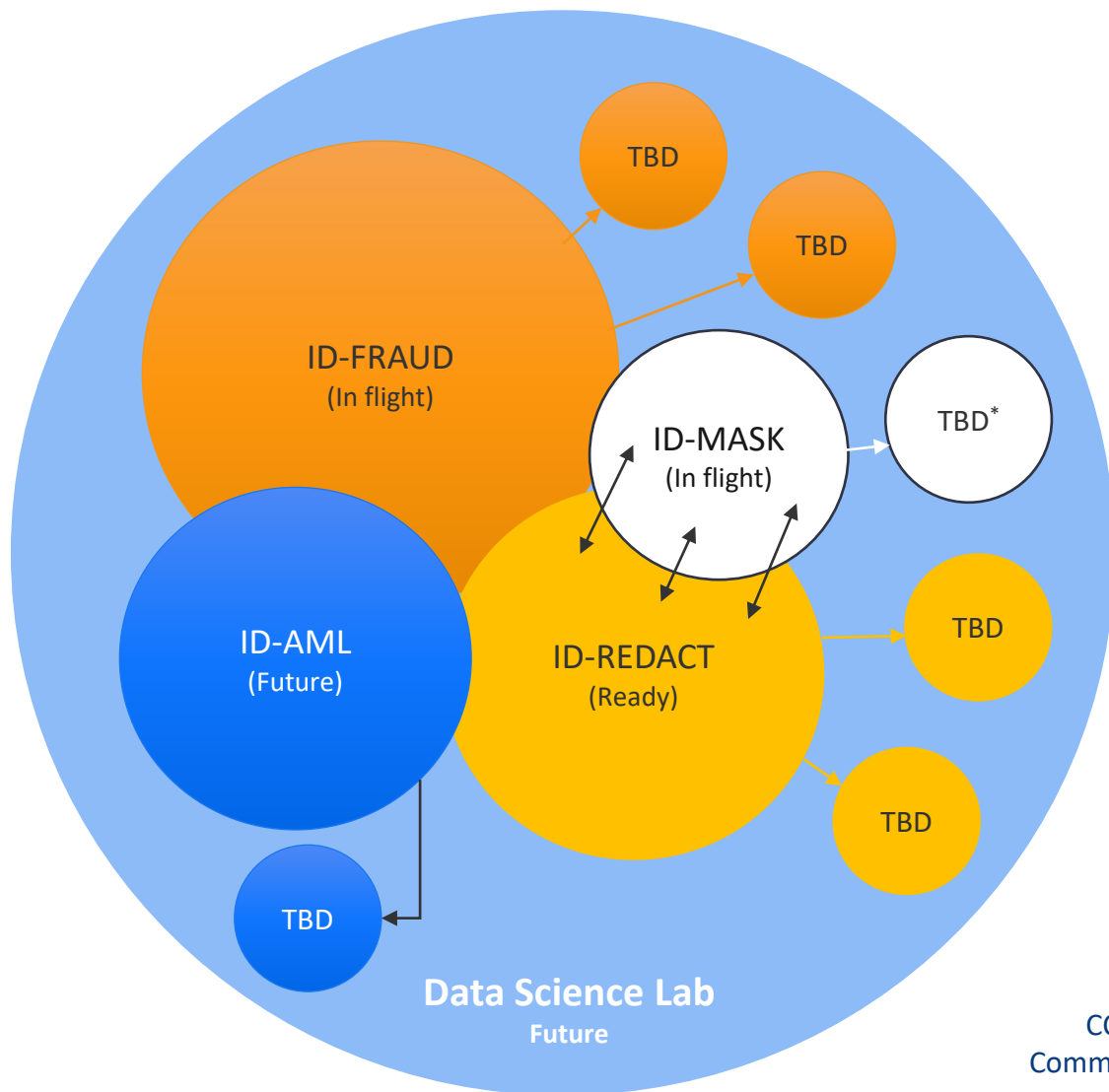# datasafeguard

intelligently protecting data

PRODUCT MARKET RESEARCH FINDINGS

PRODUCT FEATURES – AI/ML APPLICATION SPACE

ID-MASK market value:
- Valued at USD $483.90 million in 2019
- Expected to reach USD 1044.93 million by 2025
- CAGR of 13.69% over 2020 - 2025 – Mordor Intelligence

ID-REDACT market value:
- Valued at USD $1.8 billion in 2019
- Expected to reach USD 3.4 billion by 2025
- CAGR of 18.9% over 2020 – 2025 – Mordor Intelligence

ID-FRAUD market value:
- Global Synthetic Fraud losses expected reach $50.5B in 2021 – Juniper Research
- SOM – $1640M 2021 thru 2025
- CAGR of 42% over 2021 - 2025

DATA SCIENCE LAB market value:
- No public data available yet on current market size and future growth.

ANTI MONEY LAUNDERING market value:
- The global AML software market size was valued at $879.0 million in 2017
- Projected to reach $2,717.0 million by 2025
- CAGR of 15.2% over 2018 – 2025 – Mordor Intelligence

CCE features will be reused for all products including ID-REDACT, ID-MASK, ID-FRAUD and ID-AML.
Common microservices components of CCE will reduce timeline to meet customer need and keep cost low.

MVP PRODUCT FEATURE COMPARISON

ID-REDACT

Key Features	MVP Feature Set
Data Discovery & Classification	• Allows multiple types of file formats (XLSX, PDF, DOC, CSV, TXT)
Data characteristics	• Prebuilt redact rules derived from GDPR and Customer Preference
Compliance	• Ability to check and uncheck "GDPR – Policies" • Ability to check and uncheck "Customer – Preference"
Data Connectivity	• Auto generate referential integrity from Multi-source Data
Role/Location Based Redaction	• Initial stage of RBAC support
Partial/Full Redaction	• Ability to redact data attributes
Integration	• Structured, Semi-structured and Un-structured data support

ID-MASK

Key Features	MVP Feature Set	Future Enhancements*
Data Discovery & Classification	• Multi-source data profiling and cataloging • Metadata repository	
Data characteristics	• Retention of data types and characteristics • Prebuilt masking functions derived from GDPR	
Compliance	• GDPR Certification • HTML Audit	
Data Connectivity	• Auto generate referential integrity from Multi-source Data	
Role/Location Based Masking	• RBAC support	
Partial/Full Masking	• Ability to partially Mask data attributes	
Integration	• Structured, Semi-structured and Un-structured data support • API support for integrating data masking to real-time/streaming data processing pipeline	

Capabilities*	Informatica DDM	Delphix DDM	iMask	InfoSphere Optim	ID-MASK
	6B USD	1B USD	0.7B USD	115B USD	1B USD
	Informatica	DELPHIX	MENTIS	IBM	
Dynamic Data Masking	✔	✔	✔	✔	✔
AI/ML Driven PII Data Discovery					✔
Data Sub-setting	✔			✔	✔
Compliance Certifications			✔		✔
Data Redaction	✔	✔	✔		✔
Data Cataloging	✔	✔			✔
Data Connectivity			✔		✔
Access Control Integration				✔	✔
Unstructured Data Support					✔

*Gartner Data Masking Technologies Reviews and Ratings
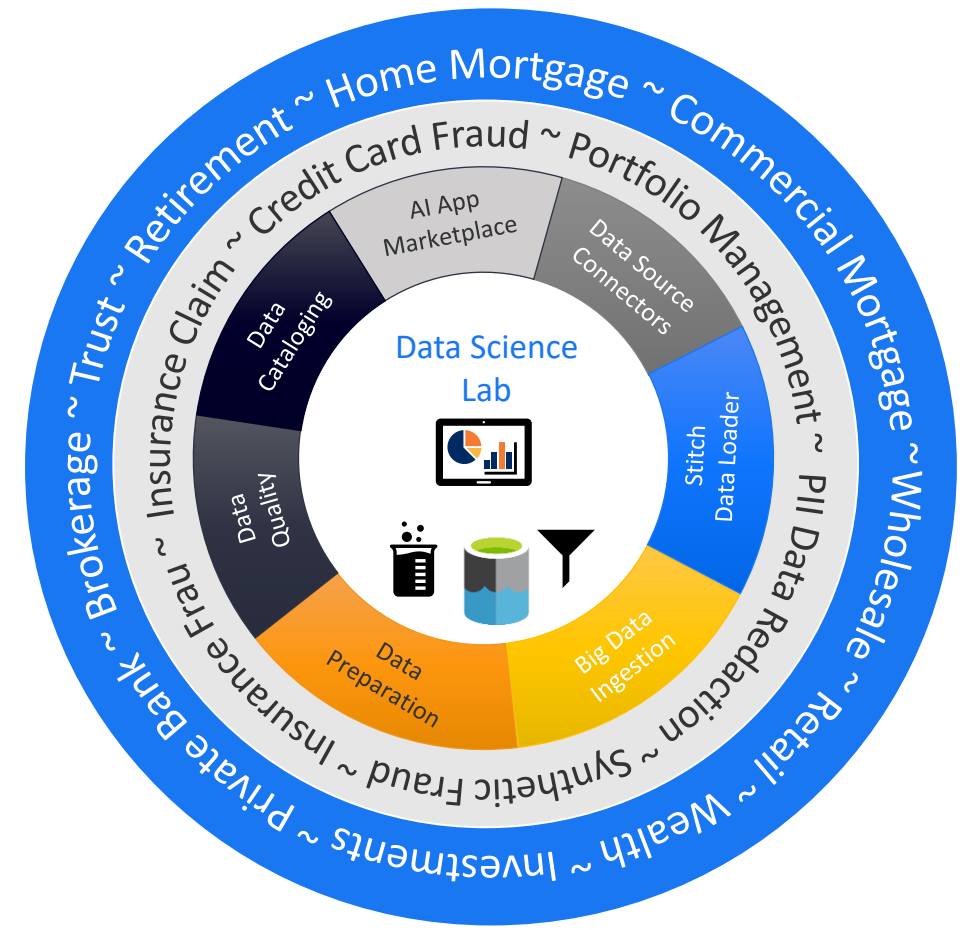
Two primary motivators for using AI/ML towards increase social value

Wealth creation

Wealth preservation

Social value leakage

Addressable Market

*Some bad actors

Motivators for government regulations and oversight

Needs a solution like Our AI Platform
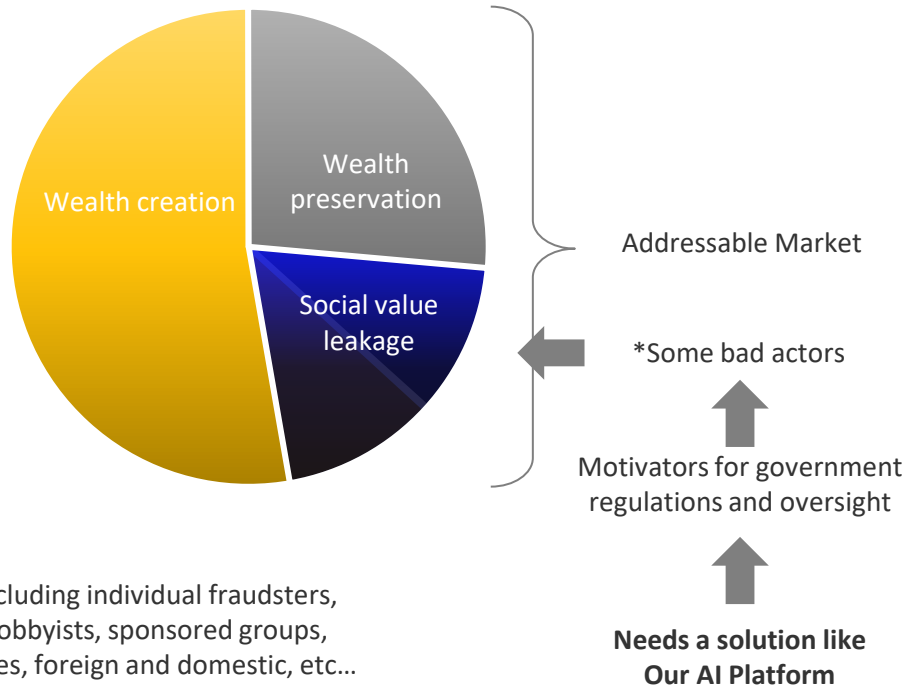
*Bad actors, including individual fraudsters, small groups/hobbyists, sponsored groups, identity factories, foreign and domestic, etc…

- Wealth creation includes
  - KYC, Chatbots, product recommendation
  - Operational efficiencies
  - E-wallet payments
  - Equity pricing & trading models
  - Asset management
  - Gain market-share (FinTech, on-line banking, open banking)
  - Profitability prediction

Wealth preservation includes

- Data privacy
- Anti-Money Laundering
- Fraud
- Risk management
- Operational compliance
- Enforceable laws

Our solution entry point

- C-SPAN forum 12.3.2020 ("Aspen Institute Discussion on COVID-19 Vaccine Distribution")
  - Theft of network credentials for top executives at high value enterprises are on the rise
  - "Cybercrime reports quadrupled during COVID-19 pandemic"
    - Tonya Ugoretz, Deputy Assistant Director, FBI, Cyber Division
  - Hacking attempts on Eli Lilly and Johnson & Johnson networks have increased by 30%
    - Meredith Harper, CISO, Eli Lilly & Marene Allison, CISO, Johnson & Johnson

- Ticketmaster, 11.26.2020 – fined $1.7M
  - Information Commissioner's Office (ICO) issued fine for failing to comply with GDPR rules

- British Airways, 10.16.2020 – fined $26.5M
  - Information Commissioner's Office (ICO) issued fine for data breach affecting more than 400,000 customers

- Marriott International, 10.30.2020 – fined $23.9M
  - ICO issued fine for GDPR violations; 339 million guest records stolen

DATA PROTECTION AUTORITHY ACTIVITY
Number of GDPR fines by country

Country	Fines	Country	Fines
SPAIN	158	FRANCE	7
ROMANIA	43	THE NETHERLANDS	6
HUNGARY	33	SLOVAKIA	6
ITALY	36	FINLAND	5
GERMANY	27	PORTUGAL	4
BULGARIA	20	UNITED KINGDOM	3
BELGIUM	17	IRELAND	3
POLAND	12	ICELAND	2
CYPRUS	11	ESTONIA	2
CZECH REPUBLIC	11	LATVIA	2
GREECE	11	LITHUANIA	2
NORWAY	11	CROATIA	1
AUSTRIA	10	ISLE OF MAN	1
DENMARK	8	MALTA	1
SWEDEN	8		

- Data movement from production to non-production exposes the Bank/Healthcare/Govt organizations to risks, compliance audits and significant fines.

- Volume of data movement is on the order of hundreds of millions of records several times a year.

- Current data masking solutions meet around 60% of compliance certification requirement.

- ID-MASK solution offers up to 99.99% data masking compliance certification at a fraction of the time and cost.

Total Available Market: Artificial Intelligence segment revenues

- Global, valued at $21.5B in 2018
- CAGR 36.6% through 2025, valued at $190.6B

AI MARTKET TAM BY REVENUE ($B)

■ Hardware ■ Software ■ Services

https://www.datasafeguard.ai
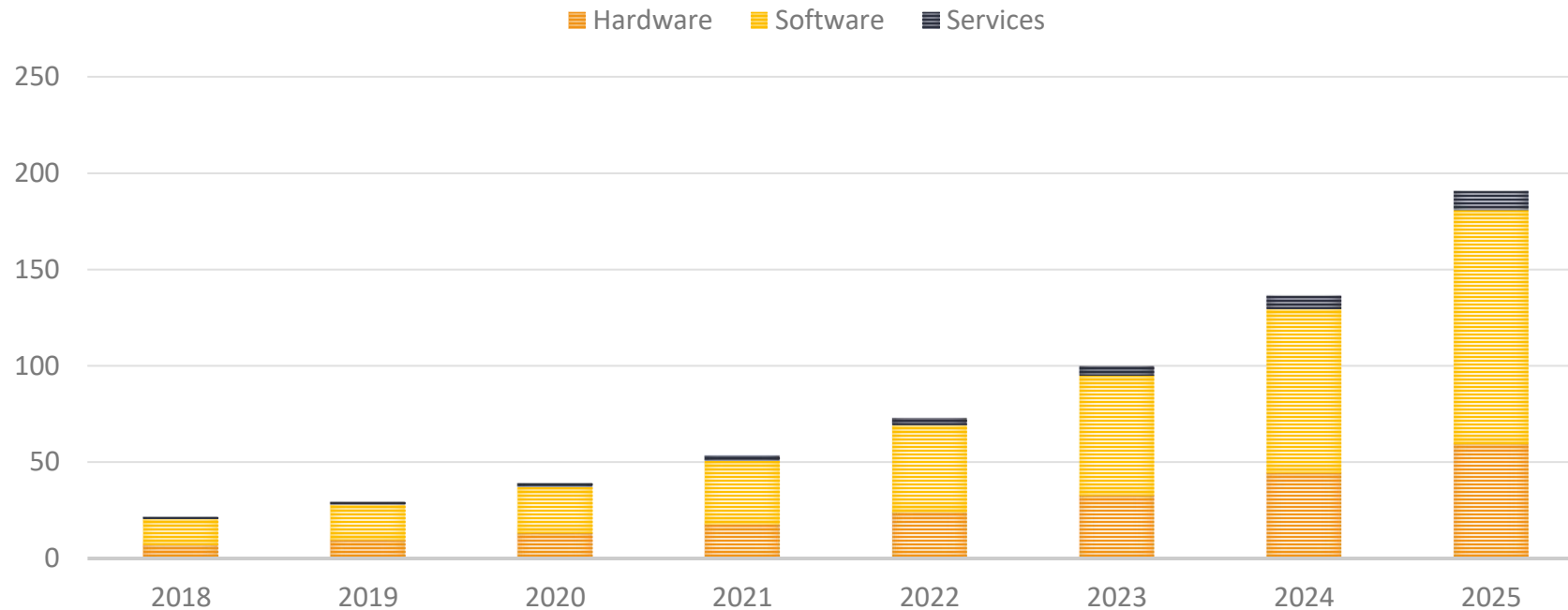
Total ML (<u>H/W and S/W</u>) market size forecast (analyst report sample)
$ Million
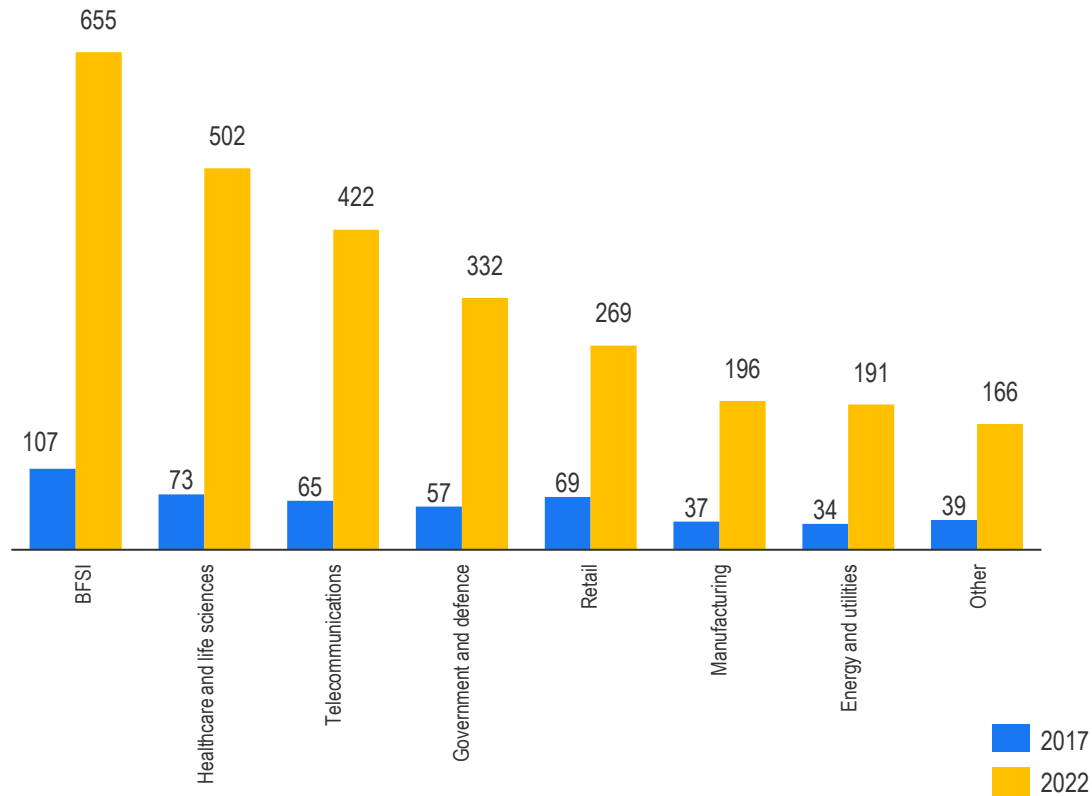
Source: Markets and markets. Total ML (H/W and S/W) market size forecast, all end user types and deployment types.

- Based on technical match and TAM our focus as been on:
  - BFSI
  - Healthcare management (separating healthcare from Pharmaceuticals and biosciences)
  - Retail
  - Telecommunications
  - Government, defence and security
- Additional candidates to consider should these have proven unsuitable would have included:
  - Travel
  - Hospitality
  - Media and entertainment
  - Legal

| AI & ANALYTICS IN BFSI | AI & ANALYTICS IN HEALTHCARE | AI & ANALYTICS IN RETAIL |

Beachhead	AI APPLICATION		MODE OF IMPLEMENTATION ON-PREMISE/CLOUD	MARKET SIZE (USD MILLION)	OVERALL GROWTH OPPORTUNITIES CAGR %
Regulatory and compliance	AI is mainly used for anti money laundering, trade monitoring and KYC areas. JP Morgan chase launched an AI tool COIN, it reviews loan agreements and saves 3,60,000 human hours		25 / 75	274.1	40.2 %
Fraud detection and prevention	AI and machine-learning solutions can combine supervised and unsupervised machine learning to calculate a weighted score for any digital business activity in milliseconds. E.g. - JP Morgan uses AI based technique to detect fraud detection		20 / 80	653.4	40.9
Personal assistants/chatbots	Royal bank of Scotland uses IBM Watson conversational chatbot, to generate customer insights that is used for personalized communication, advice, offers and services.		30 / 70	688.2	41.1%
Insurance premium	AI-powered claims can help insurance firms fight against fraudulent claims. Fukoko mutual life insurance is using IBM Watson explorer		40 / 60	312.4	41.5 %
Debt collection	True accord, a debt collection firm, is using AI based automation software to plan and send messages to customers on behalf of company's staff.		30 / 70	190.1	39.3%
Customer relationship management	AI helps financial institutions to identify constantly changing customer behavior by performing dynamic segmentation and analysis. E.g.- American express utilized the tool to predict 24% of accounts that were going to close in 4 months.		15 / 85	435.6	40.9 %
Credit scoring	AI-assisted underwriting provides a 360-degree view of an applicant. Zest finance has developed a machine learning-enabled credit scoring platform for better credit scoring, repayment rates for lenders and increased credit availability for borrowers.		35 / 65	296.2	41.4 %
Asset and portfolio management	The AI risk model can be used to challenge traditional risk-factor regression analysis and so demonstrate the pros and cons of each type of decision-support tools.		30 / 70	235.6	41.4 %

Note: Mode of implementation of AI applications provide only a directional view on the basis of secondary research
Source: MarketsAndMarkets analysis

On-Premise ▮ On-Cloud ▮

MARKET BREAKDOWN

AI & ANALYTICS IN BFSI	AI & ANALYTICS IN HEALTHCARE	AI & ANALYTICS IN RETAIL

Carryover	AI APPLICATION	MODE OF IMPLEMENTATION ON-PREMISE/CLOUD	MARKET SIZE (USD MILLION)	OVERALL GROWTH OPPORTUNITIES CAGR %
Patient data and risk analysis	Firms use patient's health data (medical history, demographics) to identify at risk patients. With that knowledge, they can advise necessary preventive measures to avoid risk	35 / 65	1,053.1	48.8 %
In patient care and hospital management	To reduce operational cost and in hospitals to generate demand for AI based in patient care and hospital management. Clinical decision support system (CDSS) is the most successful application of AI.	35 / 65	567.1	44.9 %
Medical imaging and Diagnostics	Phillips healthcare uses AI as a component of its illumeo software with adaptive intelligence, which automatically pulls in related prior exams for radiology that can significantly reduce the time involved with tumor tracking assessment	15 / 85	587.5	57.8%
Lifestyle management and monitoring	AI creates a customized experience for each individual patient and proactive alerts can be sent to the individual. Welltok, IBM, VITL are involved in developing tools for lifestyle management and monitoring	10 / 90	444.6	53.5 %
Virtual Assistant	Nuance communication developed an AI-virtual solution to deliver conversational dialogues and automation in high value clinical workflows.	10 / 90	465.5	57.3%
Drug discovery	AI algorithms ingest and analyze a vast amount of information and can identify potential drug candidate in a short time. Pfizer collaborated with IBM to accelerate drug discovery in immunology using IBM Watson AI system	30 / 70	407.4	50.8 %
Healthcare assistance robot	AI based robots are bring used for patient assistance and medical dispensing.	20 / 80	243.2	29.6 %
Precision Medicine	AI, especially deep learning can create customized treatment plan by capturing patient's data from electronic health records, prescriptions, genome profiles and wearable devices	20 / 80	179.0	55.1 %

On-Premise ■ On-Cloud ■

Note: Mode of implementation of AI applications provide only a directional view on the basis of secondary research
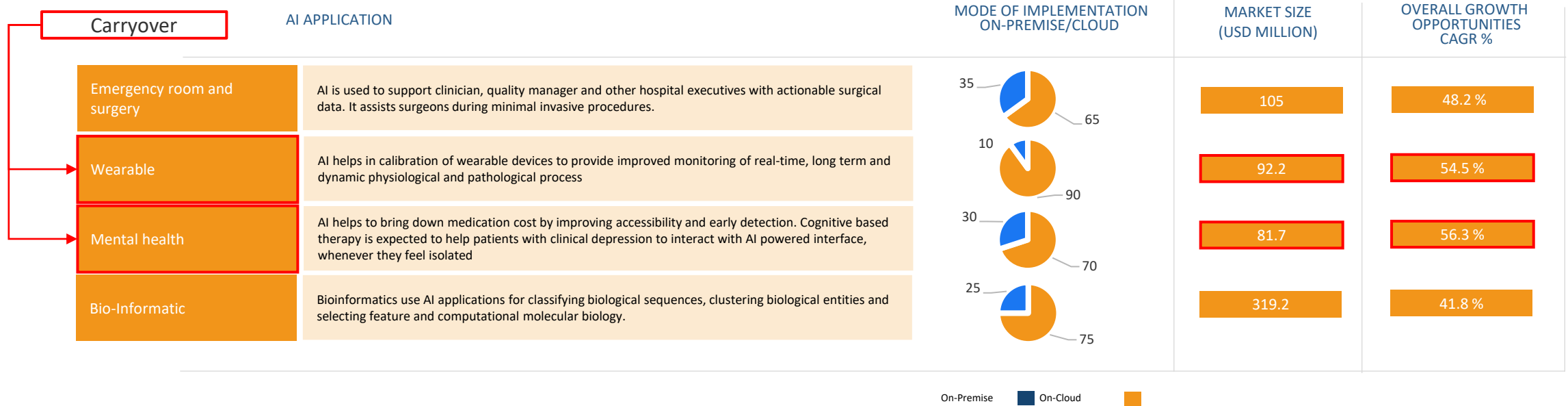**Source**: MarketsAndMarkets analysis

MARKET BREAKDOWN

AI & ANALYTICS IN BFSI	AI & ANALYTICS IN HEALTHCARE	AI & ANALYTICS IN RETAIL

Carryover	AI APPLICATION	MODE OF IMPLEMENTATION ON-PREMISE/CLOUD	MARKET SIZE (USD MILLION)	OVERALL GROWTH OPPORTUNITIES CAGR %
Emergency room and surgery	AI is used to support clinician, quality manager and other hospital executives with actionable surgical data. It assists surgeons during minimal invasive procedures.	35 / 65	105	48.2 %
Wearable	AI helps in calibration of wearable devices to provide improved monitoring of real-time, long term and dynamic physiological and pathological process	10 / 90	92.2	54.5 %
Mental health	AI helps to bring down medication cost by improving accessibility and early detection. Cognitive based therapy is expected to help patients with clinical depression to interact with AI powered interface, whenever they feel isolated	30 / 70	81.7	56.3 %
Bio-Informatic	Bioinformatics use AI applications for classifying biological sequences, clustering biological entities and selecting feature and computational molecular biology.	25 / 75	319.2	41.8 %

On-Premise ■ On-Cloud ■

Note: Mode of implementation of AI applications provide only a directional view on the basis of secondary research
Source: MarketsAndMarkets analysis

MARKET BREAKDOWN

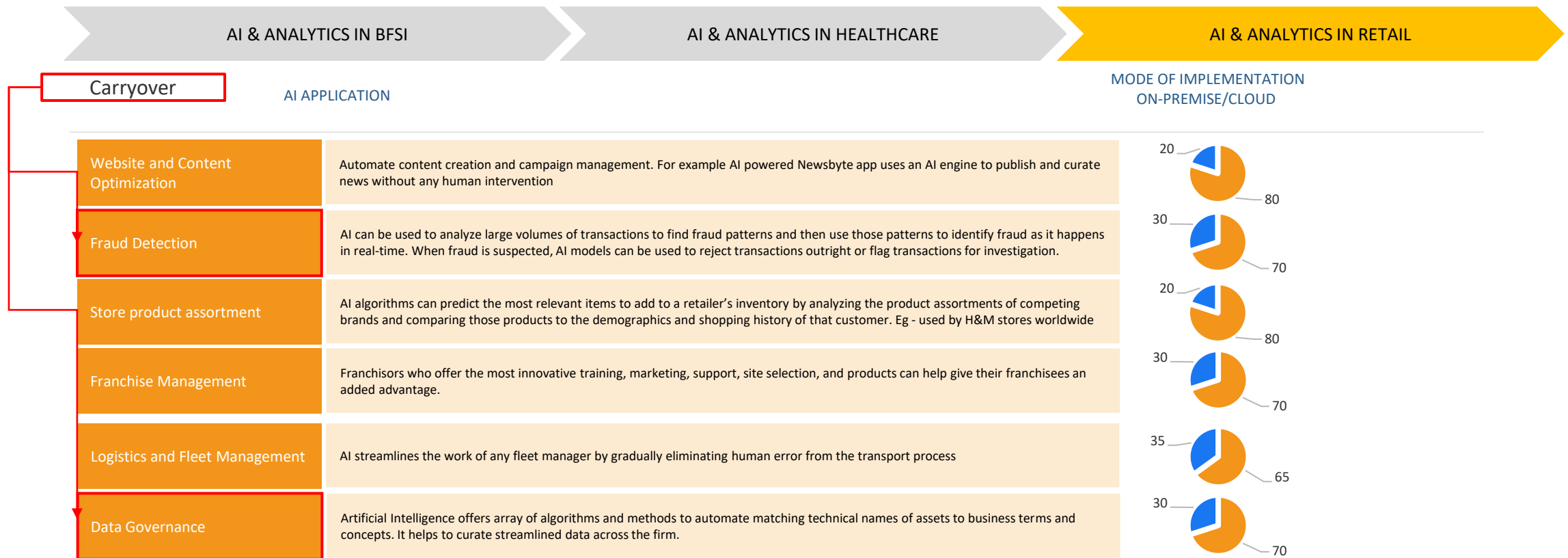| AI & ANALYTICS IN BFSI	AI & ANALYTICS IN HEALTHCARE	AI & ANALYTICS IN RETAIL

Carryover

	AI APPLICATION	MODE OF IMPLEMENTATION ON-PREMISE/CLOUD	MARKET SIZE (USD MILLION)	OVERALL GROWTH OPPORTUNITIES CAGR %
Product recommendation	Amazon is using machine learning to offer a personalized experience to shoppers by giving product recommendation to them	35 / 65	1,052.6	37.7 %
Customer relationship management	AI helps retails in effectively managing available resources and assigning leads to appropriate personals. It provide appropriate solution to customer queries	30 / 70	458.0	34.9 %
Visual search	AI algorithm identifies the image and suggests selected similar items to the customers	30 / 70	481.4	48.1 %
Virtual assistant	To help locate the products and providing information about the products, retailers offer virtual assistance to the customers	20 / 80	297.7	47.0 %
Price optimization	AI uses parameters such as supply price, demand price and competitors product pricing to build pricing structure and predict prices	35 / 65	417.2	36.1 %
Payment services management	AI offers converging of services together into CRM so that payment at different stores can be managed from single user account, it also helps to safeguard retail payment system from fraudulent activities	35 / 65	600.4	34.6 %
SCM and demand planning	AI capabilities in tracking disruptions and predicts interruptions in supply chain by analyzing the associated data	30 / 70	603.7	37.3 %
Others	The other solution covers website and content management, space planning, location intelligence and franchise management	25 / 75	187.4	35.2 %

On-Premise ■ On-Cloud ■

Note: Mode of implementation of AI applications provide only a directional view on the basis of secondary research
Source: MarketsAndMarkets analysis

MARKET BREAKDOWN

AI & ANALYTICS IN BFSI	AI & ANALYTICS IN HEALTHCARE	AI & ANALYTICS IN RETAIL

Carryover

AI APPLICATION

MODE OF IMPLEMENTATION
ON-PREMISE/CLOUD

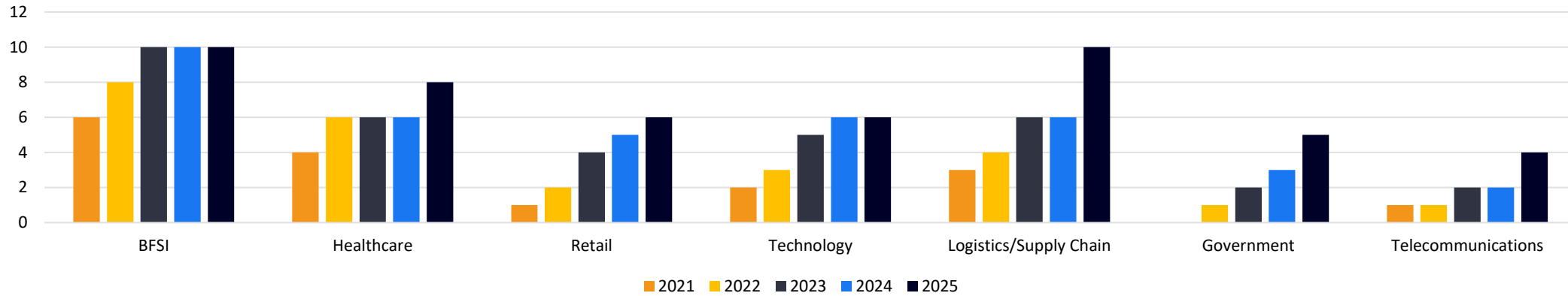|		
Website and Content Optimization	Automate content creation and campaign management. For example AI powered Newsbyte app uses an AI engine to publish and curate news without any human intervention	20 / 80
Fraud Detection	AI can be used to analyze large volumes of transactions to find fraud patterns and then use those patterns to identify fraud as it happens in real-time. When fraud is suspected, AI models can be used to reject transactions outright or flag transactions for investigation.	30 / 70
Store product assortment	AI algorithms can predict the most relevant items to add to a retailer's inventory by analyzing the product assortments of competing brands and comparing those products to the demographics and shopping history of that customer. Eg - used by H&M stores worldwide	20 / 80
Franchise Management	Franchisors who offer the most innovative training, marketing, support, site selection, and products can help give their franchisees an added advantage.	30 / 70
Logistics and Fleet Management	AI streamlines the work of any fleet manager by gradually eliminating human error from the transport process	35 / 65
Data Governance	Artificial Intelligence offers array of algorithms and methods to automate matching technical names of assets to business terms and concepts. It helps to curate streamlined data across the firm.	30 / 70

Note: Others has been bifurcated into 4 AI Applications. Further, AI in retail use cases suggested by NEC have been mentioned but their market size couldn't be calculated. Mode of implementation provides only a directional view based on secondary research
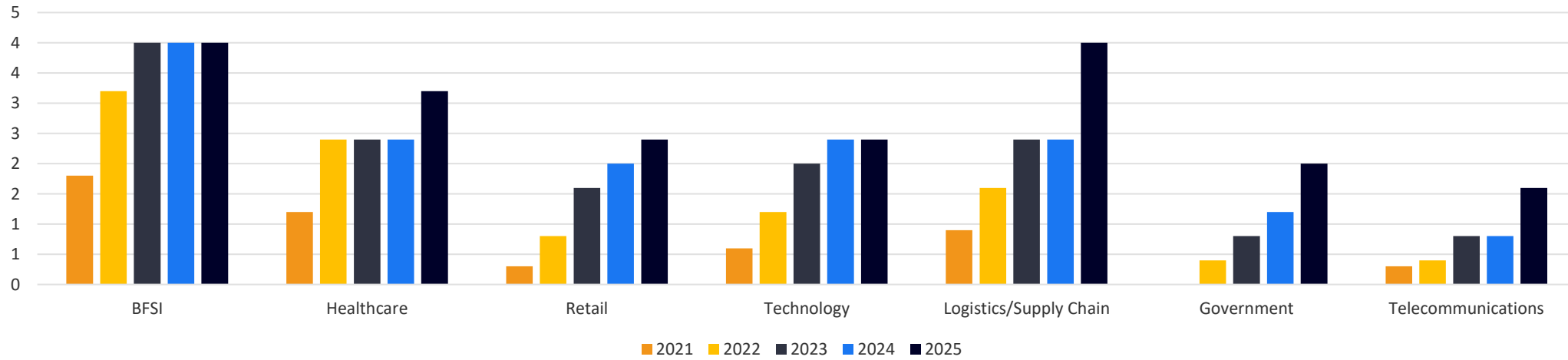
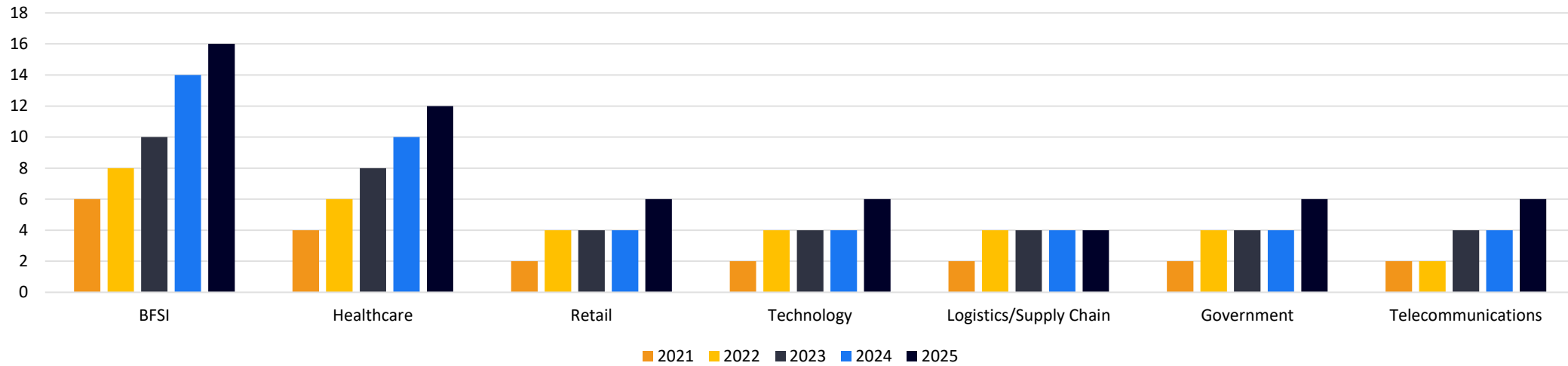**Source**: MarketsAndMarkets analysis

On-Premise ■ On-Cloud ■

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ID-REDACT SOM

5 Years Revenue Projection ($M)

Legend: 2021, 2022, 2023, 2024, 2025

Categories: BFSI, Healthcare, Retail, Technology, Logistics/Supply Chain, Government, Telecommunications

5 Years Projected Gross Margin ($M)

Legend: 2021, 2022, 2023, 2024, 2025

Categories: BFSI, Healthcare, Retail, Technology, Logistics/Supply Chain, Government, Telecommunications

5 Years Revenue Projection ($M)

Legend: ■ 2021 ■ 2022 ■ 2023 ■ 2024 ■ 2025

5 Years Projected Gross Margin ($M)

Legend: ■ 2021 ■ 2022 ■ 2023 ■ 2024 ■ 2025

9-15% Credit Card losses due to Synthetic Fraud

Average 15K charge off from each Synthetic Fraud attack

Year by Year increase in credit card losses due to Synthetic Fraud – 18%

Global Synthetic Fraud losses expected in 2021 – $50.5B

experian

auriemma group

accenture

JUNIPER RESEARCH

Forecasted Revenue in Millions - $1,640M (SOM)

Legend: BFSI, Government, Retail, Healthcare, Credit Bureau, Human Resources
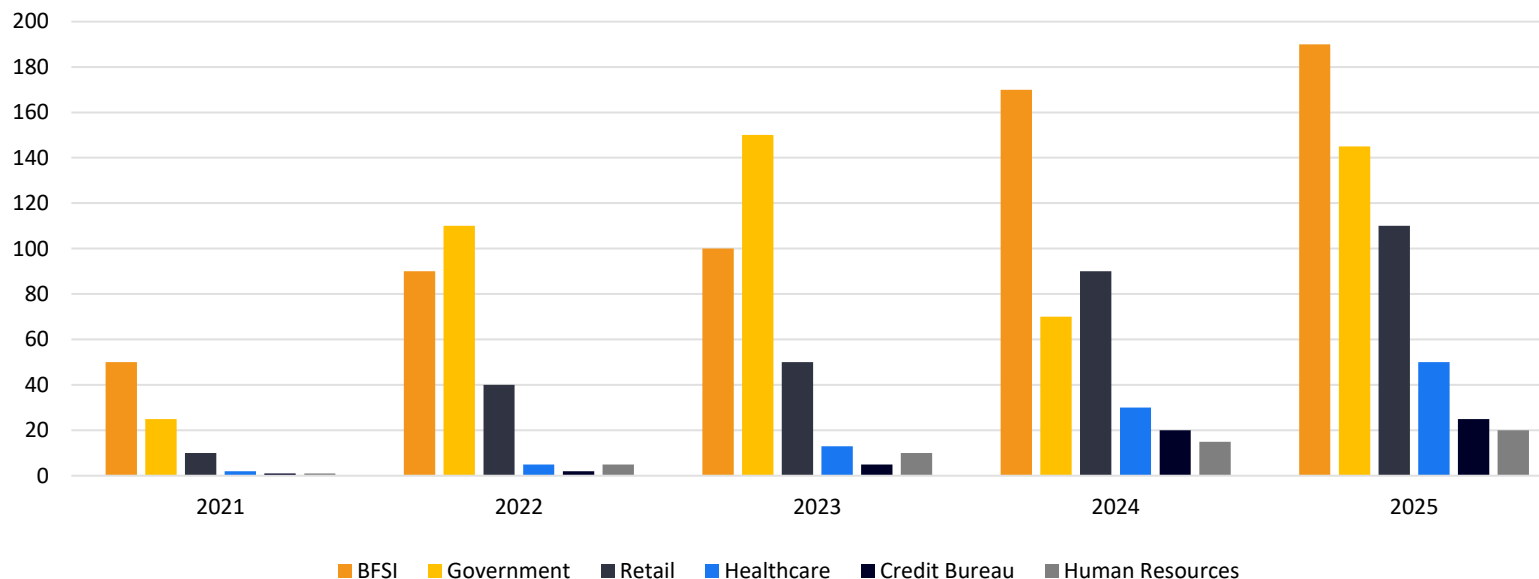
PRODUCT SWOT

Strengths

- First AI/ML Enabled Data Masking Solution
- Applicable Across All Industries And Segments Dealing With Sensitive Data
- Unmatched Accuracy And Security
- Platform Agnostic → Higher Adoption Rate
- Modular Architecture → Highly Flexible, Scalable

Weaknesses

- Stand-alone Solution, Not Part Of A Larger Data Privacy Suit
- Requires Specialized Development Team
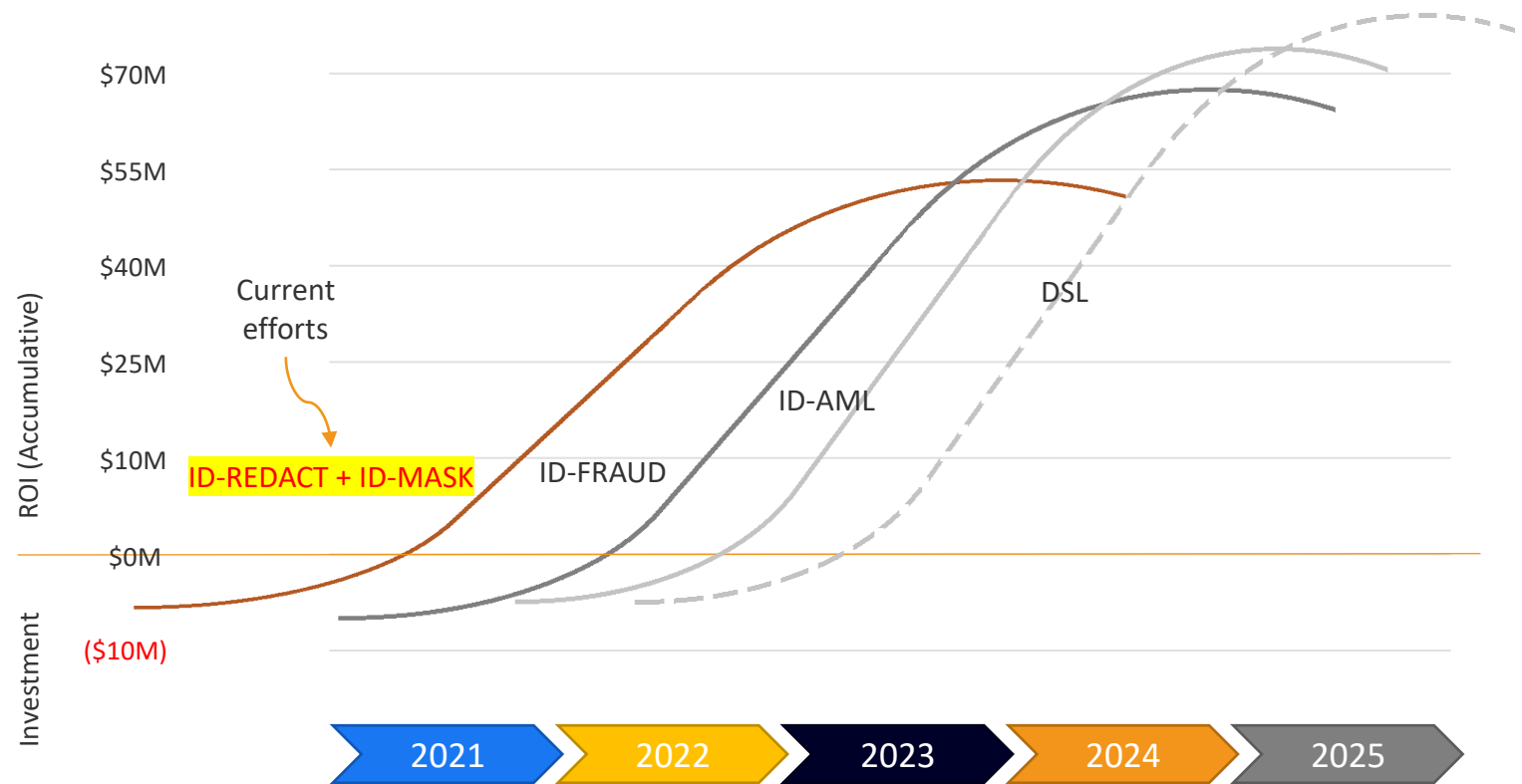- Complex Rules Module

Opportunities

- Rapidly Expanding Market
- Foundational To Data Privacy
- Reusable Modules That Can Be Leveraged In Other Data Privacy Solutions

Threats

- Critical To Launch Before Competition
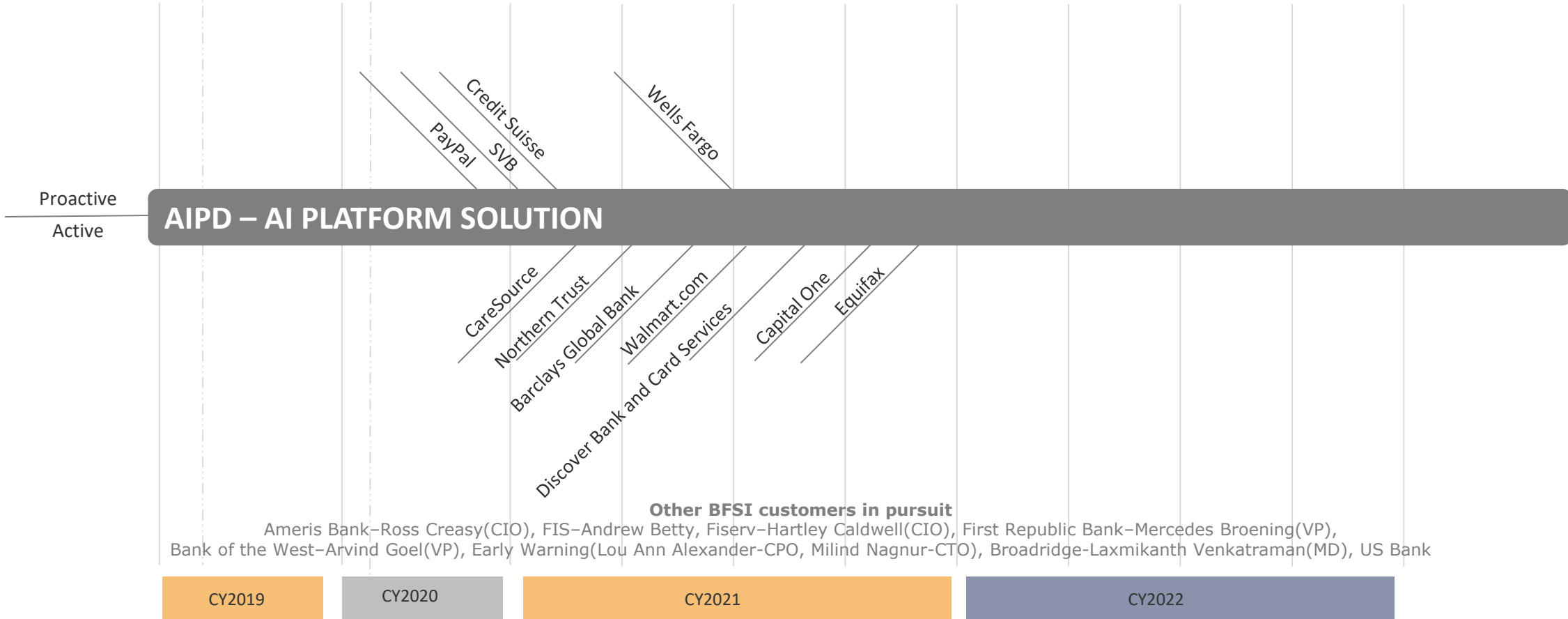- Rapidly Changing Compliance Standards

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(segment priority as of Jan 2021: ① BFSI, ② Healthcare)

★ Intelligent Data Masking

★ PII Data Redaction

Proactive

Active

AIPD – AI PLATFORM SOLUTION

Credit Suisse
PayPal
SVB
Wells Fargo

CareSource
Northern Trust
Barclays Global Bank
Walmart.com
Discover Bank and Card Services
Capital One
Equifax

Other BFSI customers in pursuit
Ameris Bank–Ross Creasy(CIO), FIS–Andrew Betty, Fiserv–Hartley Caldwell(CIO), First Republic Bank–Mercedes Broening(VP), Bank of the West–Arvind Goel(VP), Early Warning(Lou Ann Alexander-CPO, Milind Nagnur-CTO), Broadridge-Laxmikanth Venkatraman(MD), US Bank

| CY2019 | CY2020 | CY2021 | CY2022 |

There is a growing demand for integrated AI solutions in BFSI/Healthcare/Govt. and other on-premises uses for GDPR, CCPA, etc… compliance, CAGR between 30% to 45%.

- Policy and law makers must consider the dynamics of fraudulent cyberactivity to keep personal data secure from bad actors. Consequently, Governments and ICT companies around the world are heavily investing in AI solutions to solve this complex social problem.

AI/ML Data Engineers, Data Scientists and Software Developers gravitate towards the top data companies around the world, making it cost prohibitive for mainstream services companies in BFSI, Healthcare, Retail, Entertainment, Hospitality, etc… to keep AI/ML staff.

- Mainstream services companies are challenged with attaining ROI when organically developing and deploying AI in their operations. Consequently, they are seeking highly integrated solutions that can be implemented quickly.

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THANK YOU

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