



Artificial Intelligence – Use, Patterns and Trends

STATE OF CALIFORNIA DMV

+ AJAY GUPTA

DMV Services and Operations

Our Core Functions

Issue Driver Licenses & Identification Cards

Issue Vehicle Titles and Registrations

Promote safety via the Driver Safety Program

Regulate the Motor Vehicle Industry

Our Support Functions

Administrative Services

Budgets, contracts, procurement, HR, facilities, mail, printing

Revenue Collection

\$14B

Information Technology Services

Program, installation, and maintenance

Enforcement Services

Conducts auditing, monitoring, inspecting, and investigating

Enterprise Risk Management

Independent assessment of risk management, enterprise planning, auditing, and privacy.

DMV at a Glance



227

Locations



9600+

Employees



173

Auto Clubs



6,646

Business Partners



36M

Registration
Transactions



34M

Licenses & ID Cards



74M

Total Transactions



\$14B

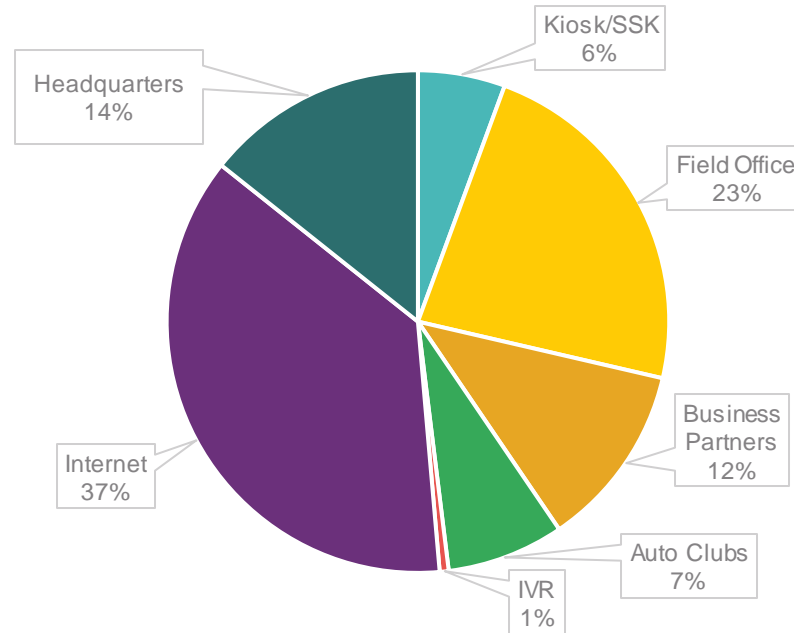
Revenue Collection

DMV at a Glance

 Driver Safety: 61K DUI APS Cases	 Driver Safety: 102K Impairment Cases	 Driver Safety: 6.9K Negligent Operator Cases	 7.8M Motor-Voters Served
 Employer Pull Notice 1.9M Notices Provided	 Occupational Licensing 39K Entities	 Occupational Licensing 77K Individuals	 Occupational Licensing 17K Dealers

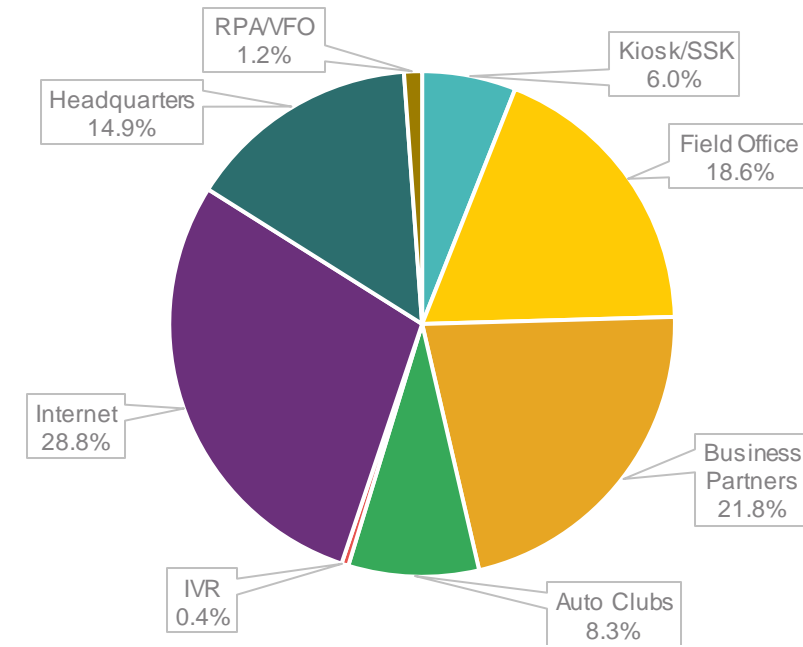
Our Delivery Channels

Transactions by Channel



74M Transactions

Revenue by Channel



\$14B in Revenue

Transformation vision driven by

Obsessing over our customers

Creating best experience for our employees

Building partnerships

Challenging the status quo

Focusing on the social good

"A good plan today is better than a perfect plan tomorrow"

The SOEL of Our Business and Tech Transformation

Championing transition “for now” and “for the future”

S

Stabilize



Monitor and maintain
legacy alternatives

O

Optimize



Process, people, tech,
policy optimizations,
quicker alternatives

E

Evolve



Temporary relief,
long term solutions,
ideas carried forward

L

Lead/Innovate



New products, services,
channels, approaches



Safety



Economic
Development

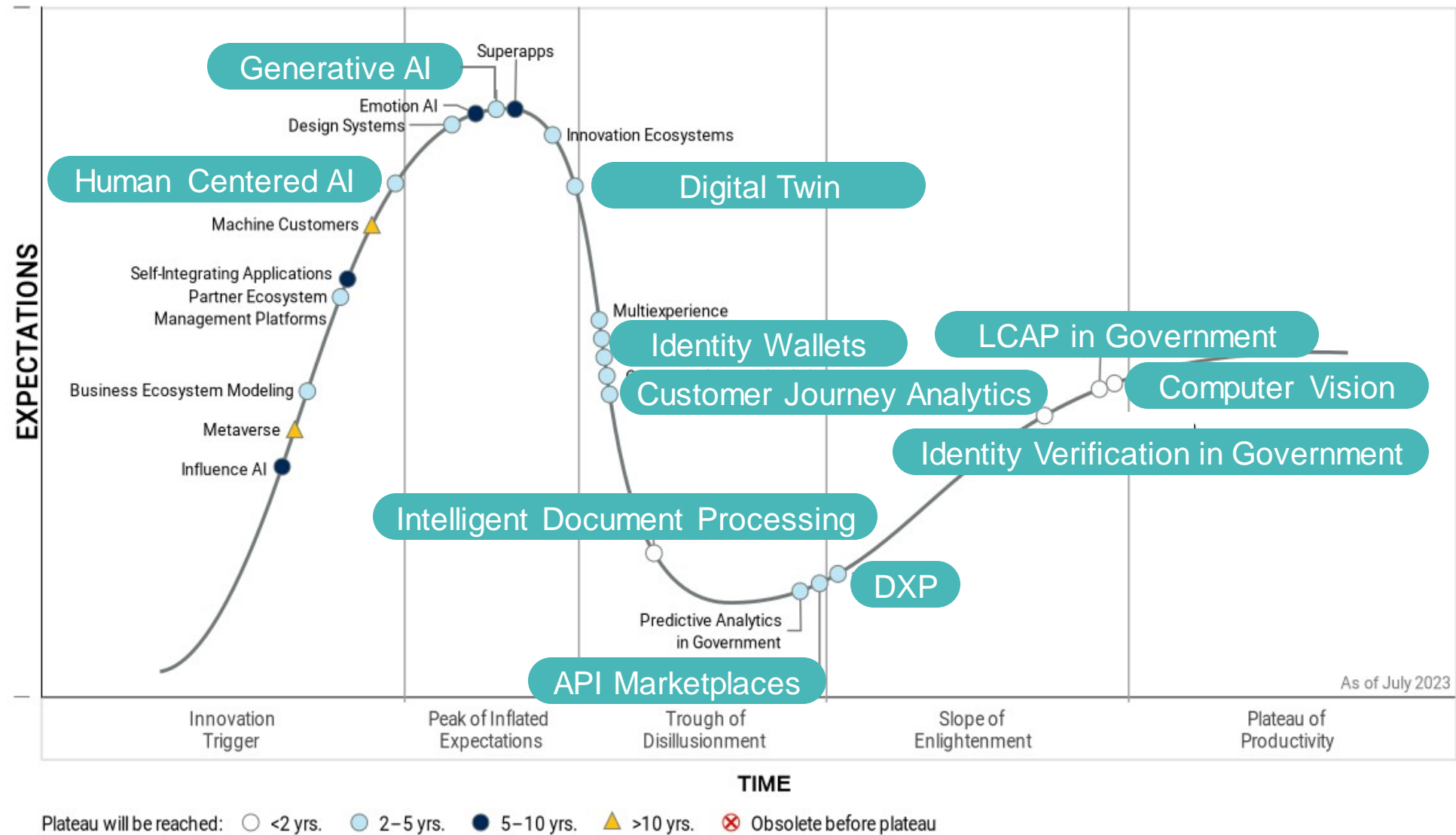


Equity



















Climate Action






Digital gov services cycle and the DMV roadmap



Transforming our business with AI

	Customers	Employees/Partners
Front Office	<div>  <p>Service Advisor</p> </div> <div>  <p>Multilingual In-person Interpreter</p> </div> <div>  <p>Mobile Drivers License</p> </div> <div>  <p>Remote Identity Proofing</p> </div>	<div>  <p>Spatial Intelligence for traffic analytics</p> </div> <div>  <p>Virtual Field Office</p> </div> <div>  <p>Mobile Technician</p> </div> <div>  <p>Commercial Drive Test Assist</p> </div>
Back Office	<div>  <p>Omnichannel Smart Assistant</p> </div> <div>  <p>AI Proctored Tests</p> </div> <div>  <p>Digital Mailroom</p> </div> <div>  <p>Human Centered AI (ELP)</p> </div>	<div>  <p>Intelligent Document Processing</p> </div> <div>  <p>Intelligent Automation</p> </div> <div>  <p>Scheduling Optimization</p> </div> <div>  <p>Electronic Notices</p> </div>

Piloting more transformative ideas..

	Customers	Employees/Partners
Front Office	<div>  <p>Title claims on Blockchain</p> </div> <div>  <p>DMV Wallet</p> </div> <div>  <p>Disabled Placard with Verifiable Credentials</p> </div>	<div>  <p>Hyperautomation for Contact Center Workloads</p> </div>
Back Office	<div>  <p>AI for Customer Contact Analytics</p> </div>	

Intelligent Automation in Action



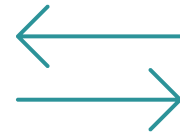
54*

Use Cases Deployed



> 364k

Tech Hours Saved



> 12.8M

Transactions Processed



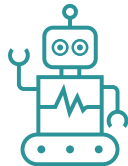
> 5.7M

Sheets of Paper Saved



19

Workflow based Use Cases



32

Bot Based Use Cases



4

AI / ML Use Cases

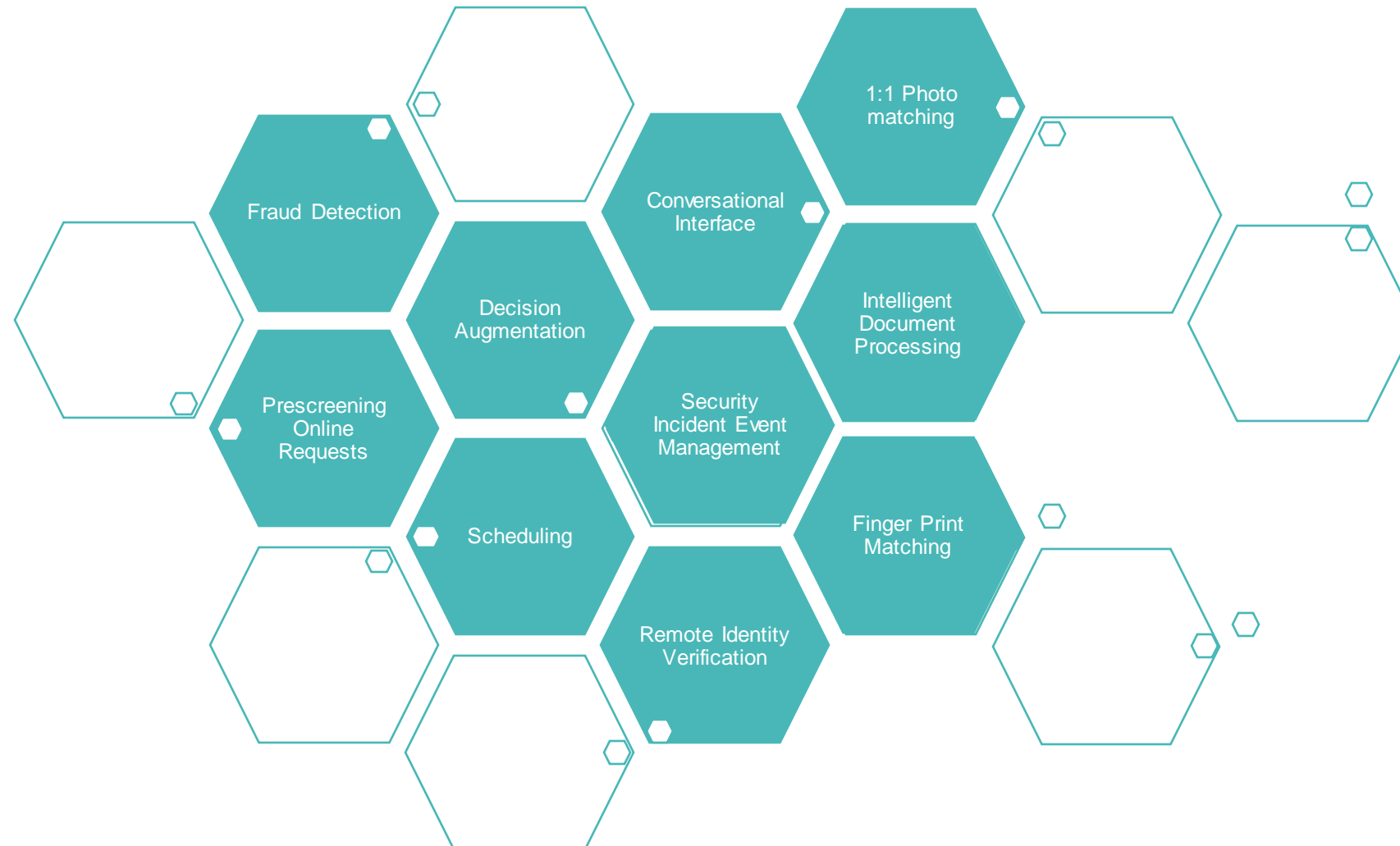


> \$17.0M

Cost Avoidance

* 10 use cases end of life/fully realized | Data current as of 2/2/2024

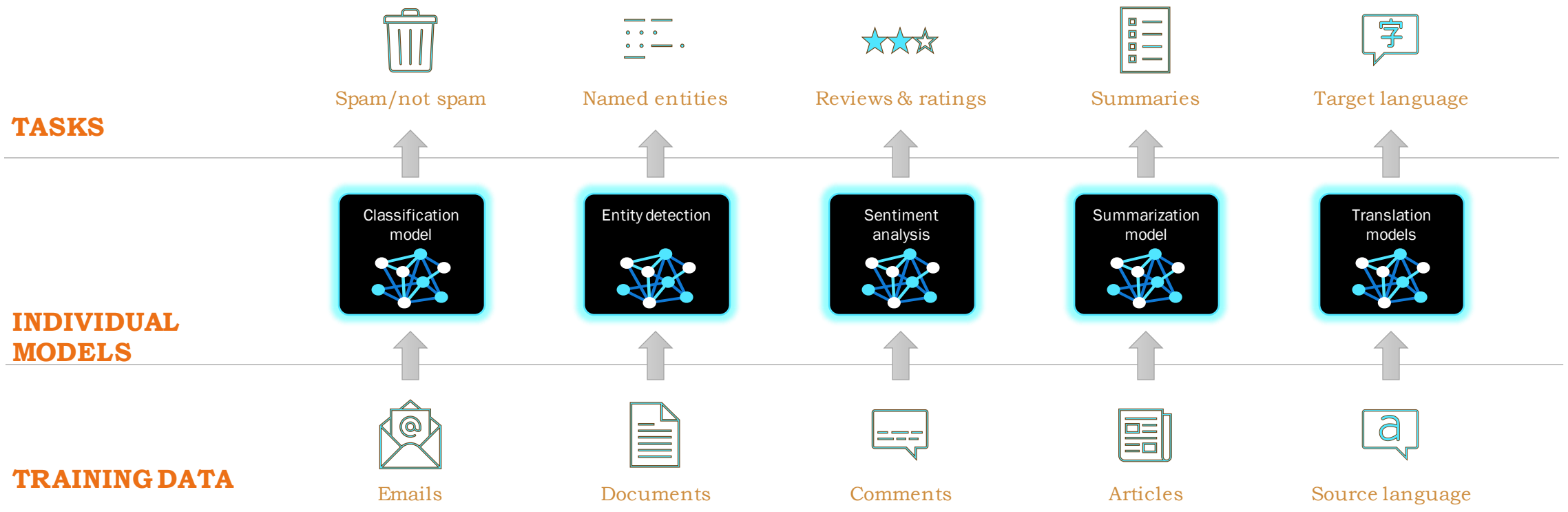
Traditional AI Patterns in play



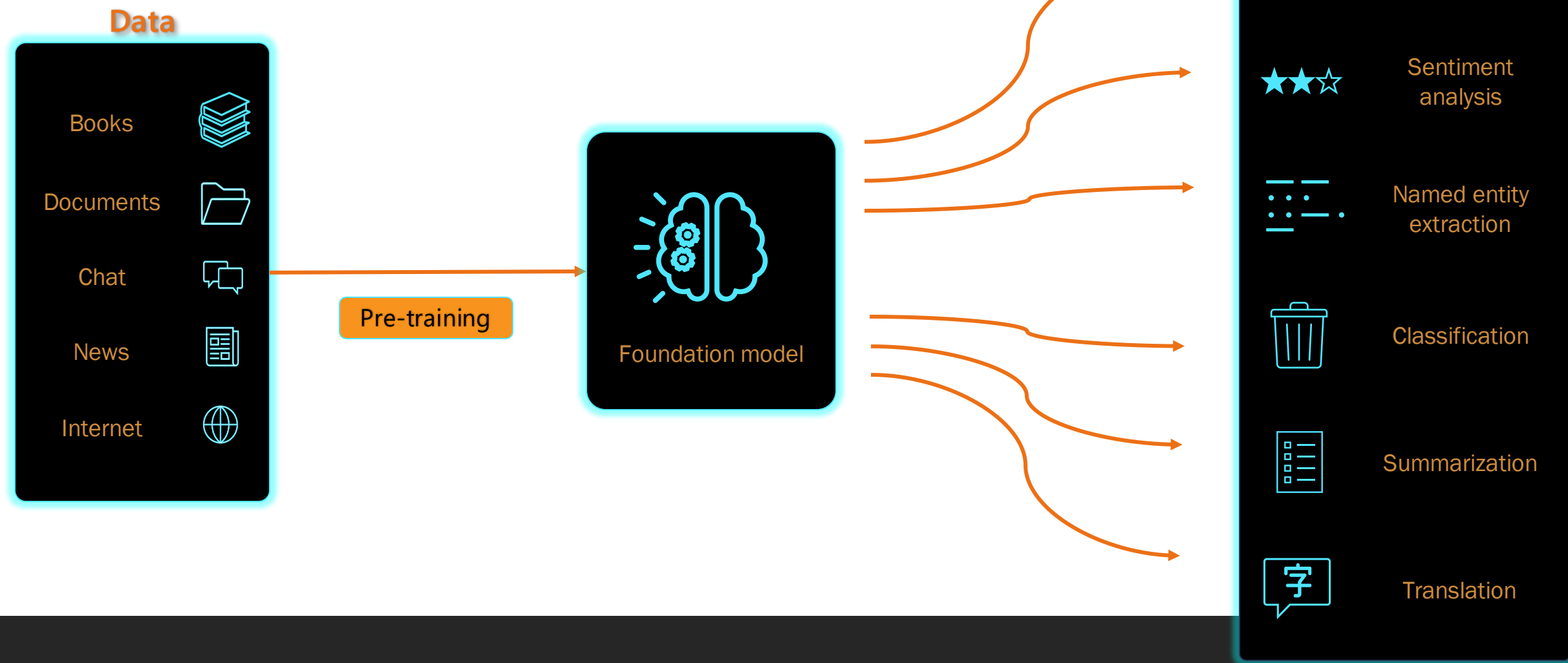
Capabilities and Use Case Trends

(Courtesy: Gartner and Microsoft)

Traditional AI models are trained extensively and deliberately to optimize them for a particular task



Generative AI uses a foundation model to flexibly tackle a variety of tasks



Generative AI
offers powerful
capabilities to
help
government
agencies
accomplish
their missions



Content generation

Creating a human-like output, including textual, visual, or multimedia content, based on input data or natural language prompts



Summarization

Extracting key themes and insights from a longer piece of text, including answering natural language queries



Semantic search

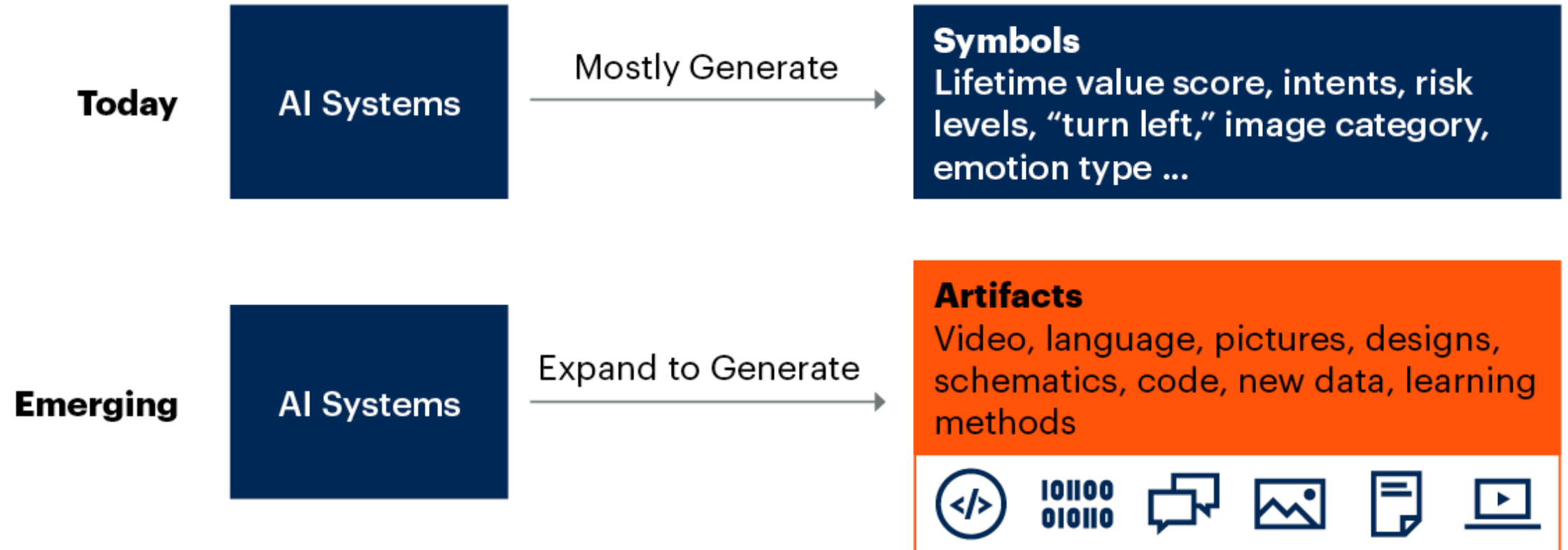
Going beyond traditional keyword matching by understanding the meaning behind a query and retrieving relevant search results that are semantically related to the user's intent



Code generation

Generating code based on a prompt, translating code from one language to another, or reviewing and improving existing code

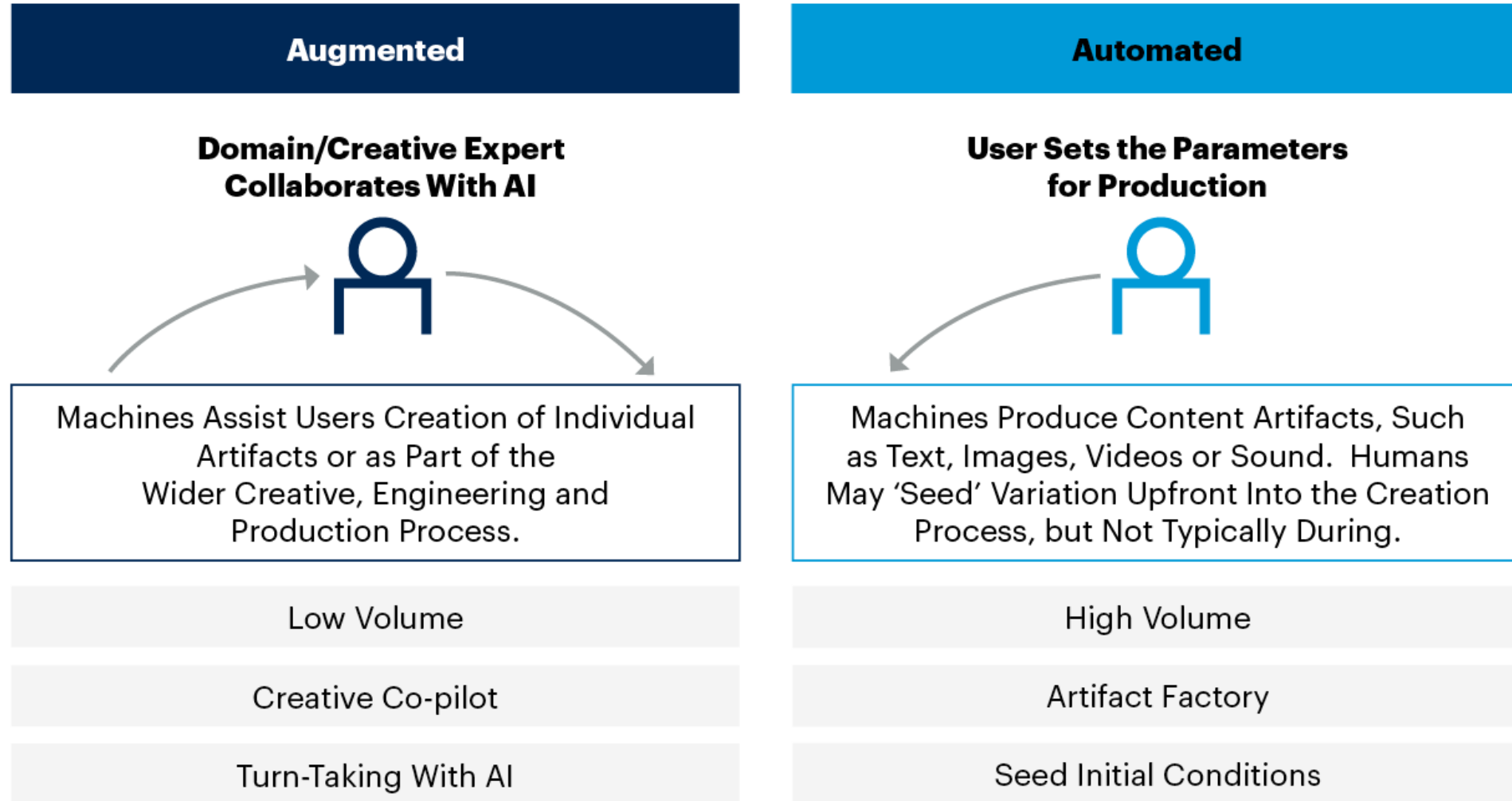
Expanding the output of AI Systems



Source: Gartner

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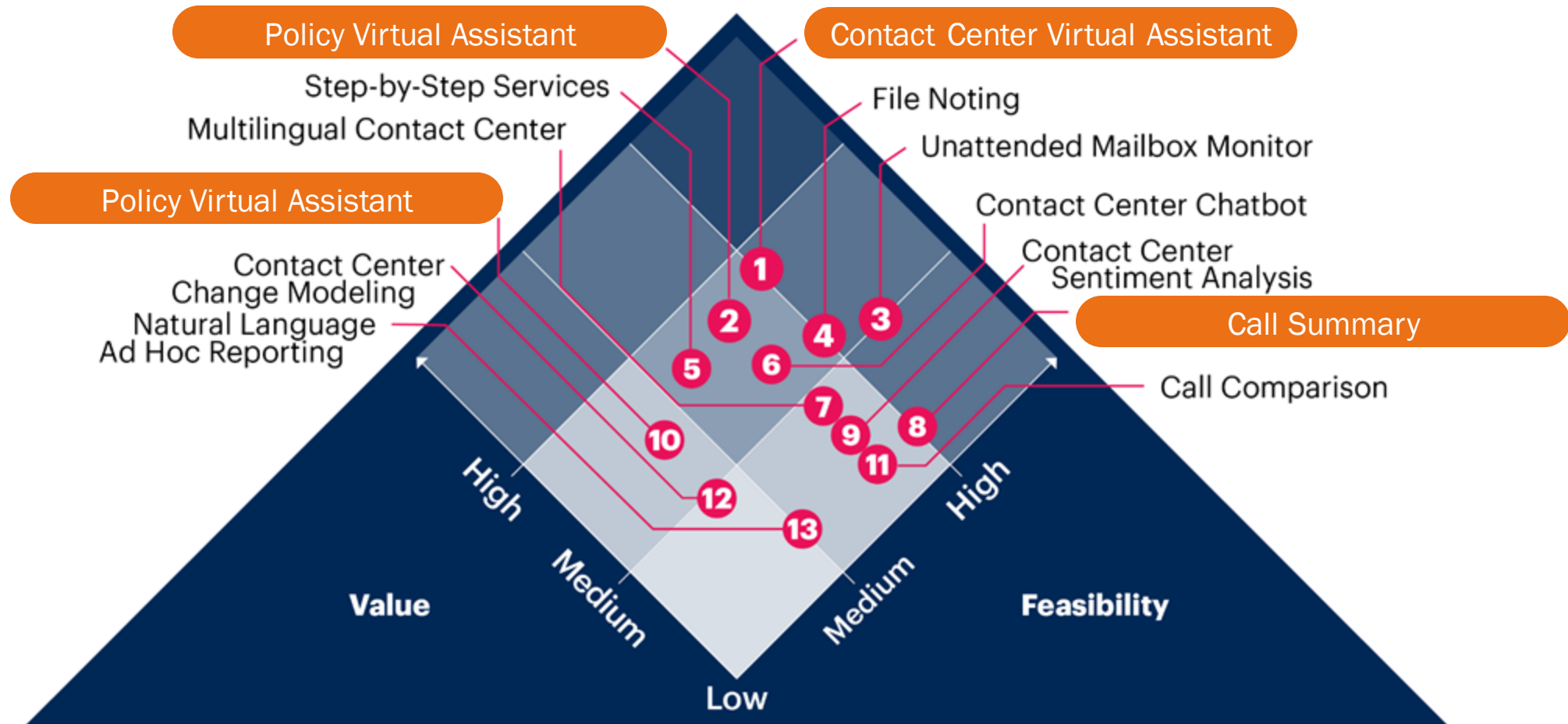
Human Involvement with Gen AI



Source: Gartner

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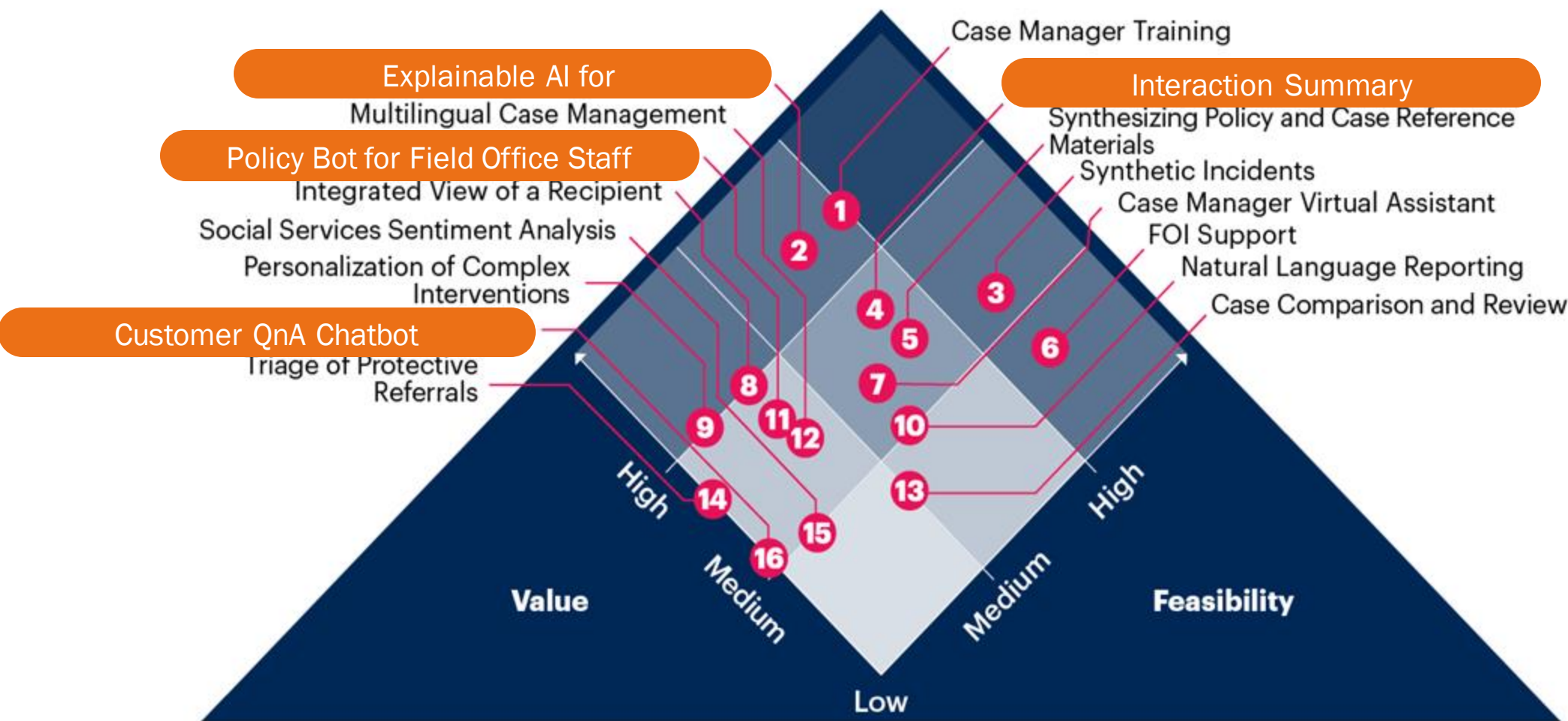
GenAI Use-Case Prism for Government Contact Centers



Source: Gartner

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GenAI Use-Case Prism for Human Service



Source: Gartner
797823_C

And now.. AI at the DMV

(Courtesy: all innovative minds at the DMV)

LLM Use Cases Contemplated

#	Solution	Use Case	Objective	Metrics
1.	Contact Center Agent Assist	CSD SMVT Queues: -Micro call centers -MVR helpline	Simplify customer call center job functions, improve customer service, and reduce response times.	<ol style="list-style-type: none"> 1. Reduction in non-talk time (P) 2. Reduction in AHT (P) 3. Improved CSAT (L) 4. Reduction in Repeat callers (L)
2	Low Maintenance Conversational Q&A Bot	<p>Customer interactions with Miles</p> <p>Personalized deep data search and response. Lookup status for DL, VR, COA, etc.</p>	<p>Expand automated customer service capabilities to deflect calls and improve C-SAT with Miles</p> <p>Significantly improve self-serve capability by providing highly personalized contextual responses</p>	<ol style="list-style-type: none"> 1. Improved call deflection rate (70% today) 2. Increase C-SAT 3. Improve operational efficiency – measure? 1. Time/effort to build/update Q&A pairs 2. Expanded self-service capabilities (complex queries)
3.	Policy Guru	FOD and CSD Employee Search (Memos/Manuals) & support docs	Reduce search time and improve accuracy of response	<ol style="list-style-type: none"> 1. Employee rating before and after 2. Ease of adoption on a 1-10 scale 3. Adoption rate 4. Escalations to supervisors
4	Service Desk Co-Pilot	Provide self-service assistance to employees who currently call the IT service desk	Improve employee self-service by opening a chat channel integrated with an Automated remediation workflow in SNOW	<ol style="list-style-type: none"> 1. Call deflection rate 2. C-Sat
5	Code documentation	Legacy (Assembler and COBOL code understanding and documentation)	Reduce code documentation effort for the modernization effort	<ol style="list-style-type: none"> 1. Catchup on a delayed project 2. Reduce risk of missed requirements and business rules
6	Call-center Notes summarization	Call transcription summarization	QA, rating and training of the agents	<ol style="list-style-type: none"> 1. Reduction in periodic QA time 2. Employee engagement survey around feedback and training

“The State” of affairs

California AI Exec Order Summary (generated by Copilot)

The California AI Executive Order is a directive issued by Governor Gavin Newsom on September 6, 2023, to prepare the state for the development, use, and risks of generative artificial intelligence (GenAI) technology¹. GenAI is a type of AI that can create novel content, such as text, images, audio, or video, based on a given input or goal².

The main objectives of the executive order are:

- To perform a joint **risk-analysis of potential threats** to and vulnerabilities of California's critical energy infrastructure by the use of GenAI¹.
- To issue general **guidelines for public sector procurement**, uses, and required training for application of GenAI, based on the White House's Blueprint for an AI Bill of Rights and the National Institute for Science and Technology's AI Risk Management Framework².
- To provide **AI training** for state government workers and develop a framework to analyze GenAI's impact on vulnerable communities².
- To leverage the state's procurement power to **promote trustworthy AI principles**, such as fairness, equity, transparency, accountability, and human dignity³.
- To **collaborate** with world-leading GenAI research institutions, such as the University of California, Berkeley and Stanford University, to advance the state's innovation and leadership in GenAI⁴.
- The executive order is a proactive and responsible approach to **harness the benefits and mitigate the risks** of GenAI, which is considered a potentially transformative technology for society and the economy⁵. The executive order also recognizes California's role as the global hub for GenAI innovation and aims to maintain its **competitive edge** while ensuring ethical and trustworthy AI practices⁶.

[1 gov.ca.gov](#) [2 cdt.ca.gov](#) [3 bing.com](#) [4 brookings.edu](#) [5 news.bloomberglaw.com](#) [6 politico.com](#)

Resources

Federal

- [Blueprint for an AI Bill of Rights \(The White House\)](#)
- [Algorithmic Discrimination Protections \(The White House\)](#)
- [Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence \(The White House\)](#)

Advocacy and Industry

- [AI Risks \(Center for AI Safety\)](#)
- [Work Trend Index | Will AI Fix Work? \(microsoft.com\)](#)

California

- [GenAI Executive Order - CDT \(ca.gov\)](#)



Some men see things as they are
and ask why. Others dream things
that never were and ask why not.

George Bernard Shaw

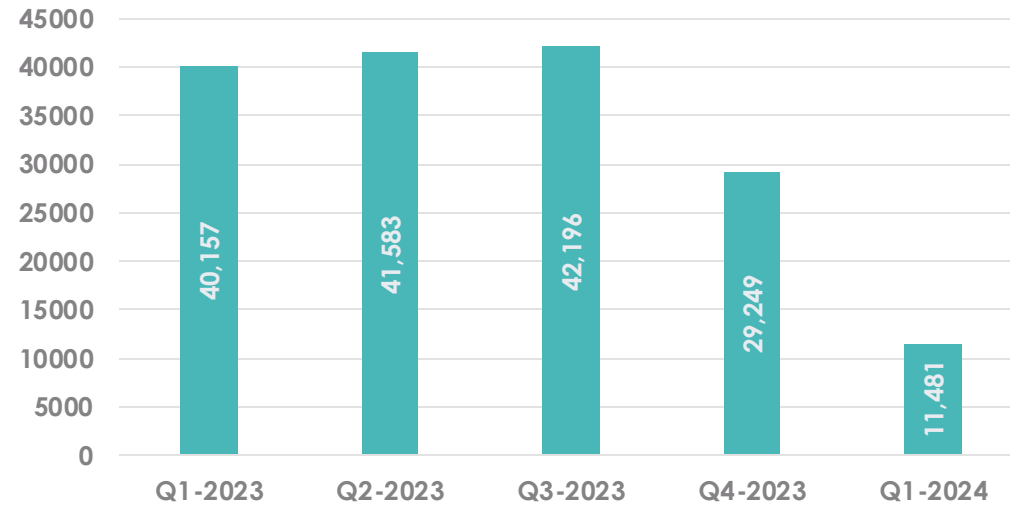
Value Proposition - ML for decision augmentation

Use of ML (BERT, LLM) to reduce analysis time for specialized license plates

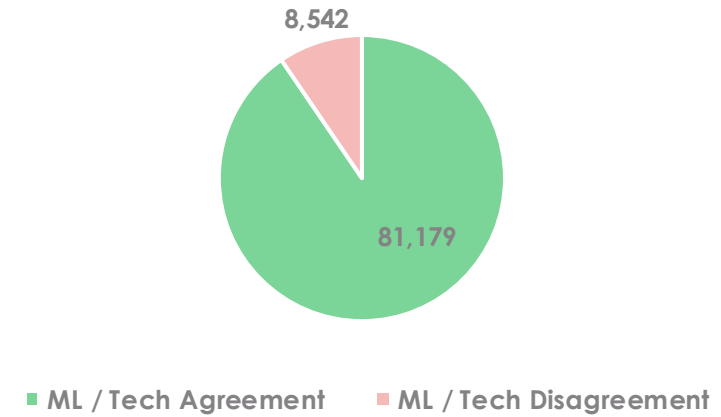
<ul style="list-style-type: none"> Model Versioning and Policies 	<ul style="list-style-type: none"> Training Model Based on DMV Policies: Machine learning models are trained based on CA DMV's policies, and the system allows to re-train of the model when policy changes or a new policy is added. Also, the system enables tracing back to a model version based on a policy at any time. GPT 4.0 provides explainable rejection reasons spanning multiple language profanities
<ul style="list-style-type: none"> Human and Machine Disagreement 	<ul style="list-style-type: none"> Feedback Loop: The machine will be re-trained when there is a disagreement between the human and machine on order approval and denial.
<ul style="list-style-type: none"> Restarting the Process at the Same Failure Point 	<ul style="list-style-type: none"> No Human Intervention or Manual Work: When a failure occurs (e.g.: system up normal termination), the system will automatically restart (based on the scheduler) and start the processing at the same failure point.
<ul style="list-style-type: none"> Partial Processing 	<ul style="list-style-type: none"> The system has built-in capabilities to identify the partially processed order file and re-process them if there is any.
<ul style="list-style-type: none"> Audit Log 	<ul style="list-style-type: none"> Complete Traceability for Business: Businesses can get a consolidated view of personalized license plate orders and MLOps recommendations by a given date range.

ELP Automation

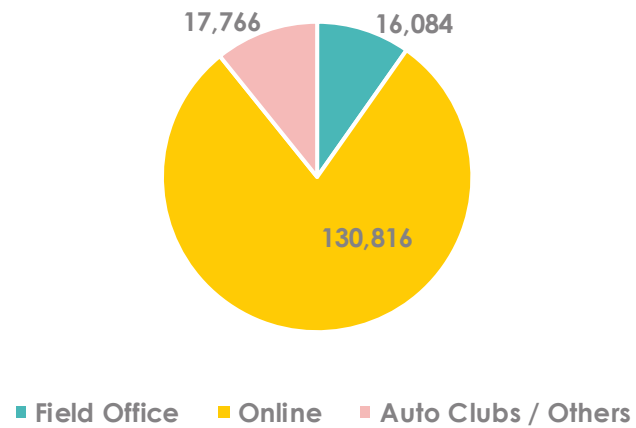
ML Processed by Quarter



ML & Human
Agreements vs. Disagreements



Request by source



Tech Denied
Disagreements vs. Agreements

