

Mapping the stories
Journey toward GenAI
enablement in telcos

I can create a positive impact in the world with my work in AI

Áesha Témuri

AI150 professional of world 2024-25

20+ years of experience in rewinding telcos & consulting -
Last 3 roles in

- ★ Enterprise Data Advisor in Telenor
 - ★ CDO - Data Essenziale Espana
 - ★ Data Scientist - Capgemini Italy
- Lives and work in Spain - Accenture

MDS from University of Bologna Italy.



AGENDA

- 01 Dot connecting
- 02 GenAI transformation enabling
- 03 **From model prediction to delivering value**
- 04 Telco GenAI User Cases
- 05 AI/GENAI real world stories
Accenture / Telstra
Capgemini / Telenor AI factory
- 06 Final words
Dot connecting to AI enablement

Dotsconnecting AI native telco

Story -1
Algorithmism

Story 2
AI Rethinking

Story 3
Goal Setting

Story 4
Role of CDO

Story 6
AI Adoption
mechanism

Story 7
Intercepting with technology AI,
GenAI, AgenticAI, Agents,
RAGS, COTS

Story 8
LLMS in
Telcos

Story 9
Building your
first LLM

Story 10
Why Build
AI?

Story 9
Open Innovation
in telcos

Story 14
AI /GENAI
Use cases Elicitations
& prioritisation

Story 10
Challenges in building
your own
foundation models

Story 11
AI native telco
realisation

Story 12
Models and prompting
telco customers

Story 13
Logical
Architecture
Design

Story 15
Adoption
operating
model

STORY 16
AI native telco

Consolidation

01

Introduction and
Approach

02

Marriage of AI & Telco-
How strong the
relationship is

03

AI Stories, From model
prediction to delivering
values

04

Connecting the dots

05

Stories to Conclusions:
Towards Value driven AI

06

Final words

Story 1 - Telecommunication

Context

Rapid transformation, paradigm shift, IOT, Convergence, Triple play, cloud native, Edge computing, Open RAN, Sustainability,

- **AI driven Transformation**
- **Nextgen connectivity**
- **New business models**

AI & GenAI
Everywhere

FWA Fixed wireless
access

Cloud native
networks

Self Service
Automation

Customer

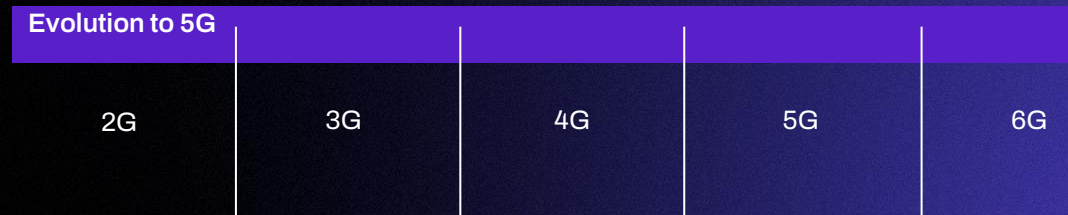
AI driven

NexGen
Connectivity

Autonomous
network

New Business
Models

Pricing strategy _DROPPING



Market	Price point		
	High	Medium	Low
	Premium		
	Mid-level		
	Economy		

Story 2 - (Re)Thinking AI

Gen AI adoption in telcos

Needs and motivations - AI factory , AI native telcos etc.

Artificial Intelligence and Machine Learning (AI/ML) Integration in Telcos: AI/ ML Capabilities in Telcom context. automation of data tasks, and the development of intelligent applications that can transform various aspects of business operations.

Data Democratization: Businesses are working to make data more accessible to non-technical users across the organization. Self-service analytics tools and user-friendly dashboards are becoming more common to empower employees to make data-driven decisions.

Real-Time Analytics: Businesses are leveraging technologies like stream processing and in-memory databases to gain insights instantly and respond to changing conditions promptly



New Way of Working

Using AI for AI is not useful - It should be in DNA of the telco

New business models : AI/ ML Capabilities in CSPs context. automation of data tasks, and the development of intelligent applications that can transform various aspects of business operations.

Story 3: AI Accelerators

An AI accelerator also known as AI chip, deep learning processor or neural processor or neural processing unit (NPU) is a hardware accelerator that is built to speed AI neural networks, deep learning and machine learning. (IBM definition)

As AI accelerators can fine tune and learn large amount of data.

Examples are in telcos

- Edge computing
- IOT
- Autonomous SON

Telco Specific AI GenAI Use Cases

Commercial



Customer AI-clustering in churn archetypes



Gen-AI enabled chatbots/voicebots
Churn prediction & propensity
Personalized product offering



- Next best action/offer
- Private ChatGPT: RAG-solution

Network Automation



Optimized incident management



LLM autonomous wireless



CA normaly detection



Speech-to-text analytics
Customer Service: Contact Center AI



- (365 Copilot)
- NPS survey analysis



GenAI enabled automated code creation



GitHub Co pilot Copilot



Customer Life cycle value prediction.



Invoice generation
Interviews for new talent

Contact Center AI

Finance HR,Product teams

STORY -4 GOAL & VISION IN TELCOS ROADMAP

GENAI Transformation

- Determine company's posture for deployment of GEN AI

Step 01

Reimagine the technology function ,Focus on quickly building generative AI capabilities in software development, dramatically reducing manual effort in IT operations.

Step 02

Identify Value driven use cases in business alignment for productivity and growth

Step 03

Take advantage of existing services or adapt open-source generative AI models

Step 04

Upgrade your technology architecture to build and integrate AI models

- Orchestrate how they operate with existing ML, Application and data sources

Step 05

Resource alignment
Develop teams to deliver prompt engineering use cases

Step 07

Secure Investment for building foundation models or Use pre-trained models and fine tune them

Step 06

Story - 5 Choosing the Right AI model

Language AI

- Name entity recognition
- NLP powered search
- Sentiment Analysis
- Language detection
- Text classification
- Theme analysis
- Chat LLM

Predictive modeling

Marketing & Sales AI

- Predictive lead scoring
- Personalised promotions
- Customer churn
- Sales and revenue forecast

Vision AI

- OCD
- image classification

Personalisation AI

- Personalised Recommendation system
- Personalisation search
- Personalised reasoning of recommenders

Forecasting and Planning

- Demand forecasting
- Real time forecasting
- Financial Metrics forecasting
- Cumulative forecasting

Anomaly detection

- Event anomaly detection
- Time Series anomaly detection

Clustering

K-mean
DBSCAN

Optimisation and operation research

- Optimisation

AI Agents

Software utilities designed to perform specific tasks
e.g

- Autonomous vehicles
- Workflow automation system
- Copilots
- Virtual assistants
- Customer AI

Agentic AI

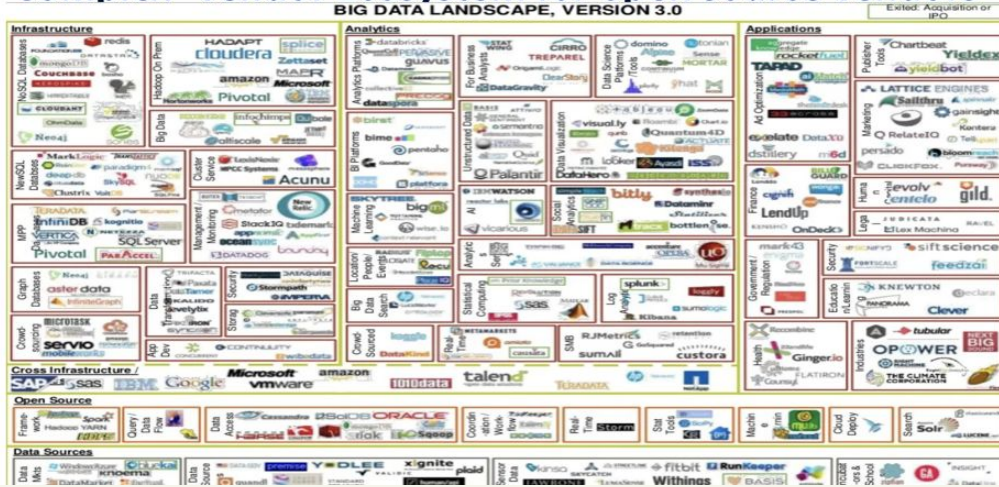
Refers to more advanced system that can autonomously plan, reason, adapt and coordinate multiple agents or actions to achieve broader and often multistep goal.

These are capable of learning from experience, adjusting strategies and operating with minimal human oversight

- More autonomous
- More action oriented

Story 6 - Operating Model/s

AI Tools Complex- Vendor Ecosystem for open source vendors



Data & AI – Pillars of Transformation

1- Data Architecture and Design

Platform Engineering
Architecture redesign
Expert Pool development
Engagement with Partners
Managing present Big data streams
New data models
MDM
Experts for health checks
Operationalize new platforms

2- Data Management & Analytics

Data Lake Transform
ETL Review & Performance Optimization
Data Observability
Data Governance SL
Data Ready for Analysis
BI Reports
Analysis in Excel format
Performance management
Data Catalog
Data Models and pipeline

3- Innovation- AI

New data Sources
MLOPS
Data- Business alignments
Software Product development, AI
Identification of UCs
Business case
Open source Vs benefits

4-Governance and Data Privacy

Data Stewardship
Data Governance model
Data Governance Assessment framework
Data Privacy and policies
Organization wide privacy implemented

SI

BI Team

DS Lab

DPC Team

Horizontal WOW

Alignment areas IT

Application layer - IT Teams looking after third party apps
API cluster, Kubernetes, Dockers

Modeling layer - Analytics and AI

Data Governance

Architecture - planning and tools

MDM and Bigdata platform Eng

Ethical AI & privacy

Innovation - AI & Adv analytics models

Existing BI Stack

>>>> ML OPS Pipeline
ML Pipeline

Infra Layer - Core IT system and VM, Cloud Infrastructure

Core IT systems

VM nodes

Private eCloud

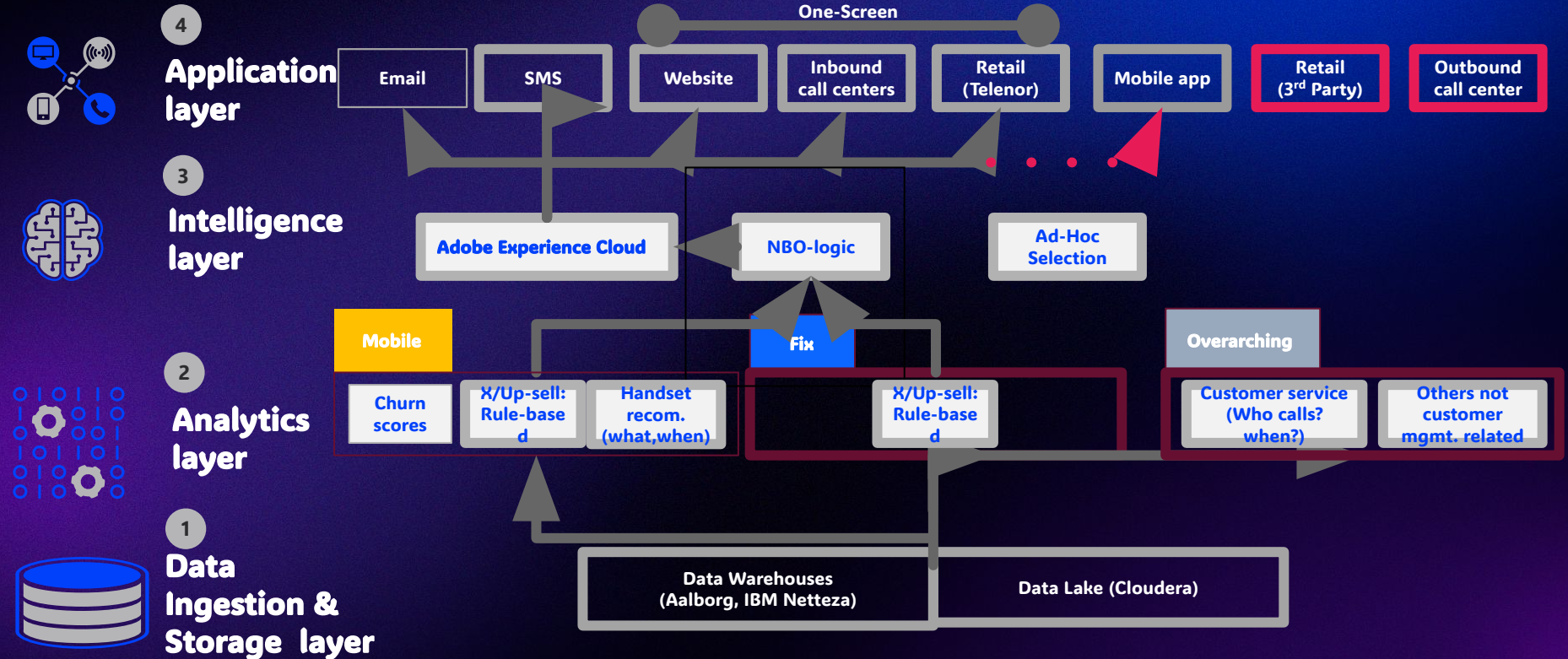
Sources of data

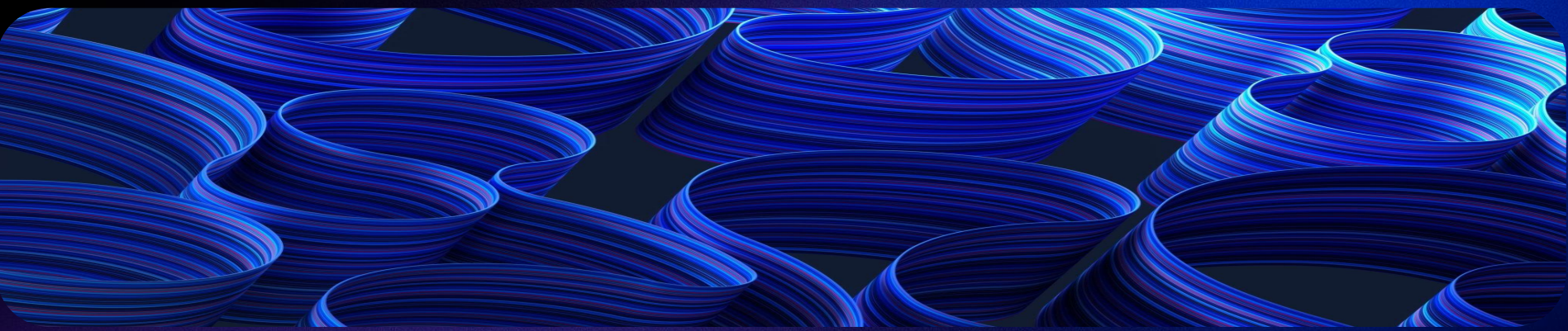
Product Management

Customers of CDO organization

CHRO
CMO – Reports, CDP, Segments etc
CTO – Network Issues and data
CIO – Not a customer but producer of data sources
CFO – Internal 360 UC on finance

Data architecture layers – Customer AI



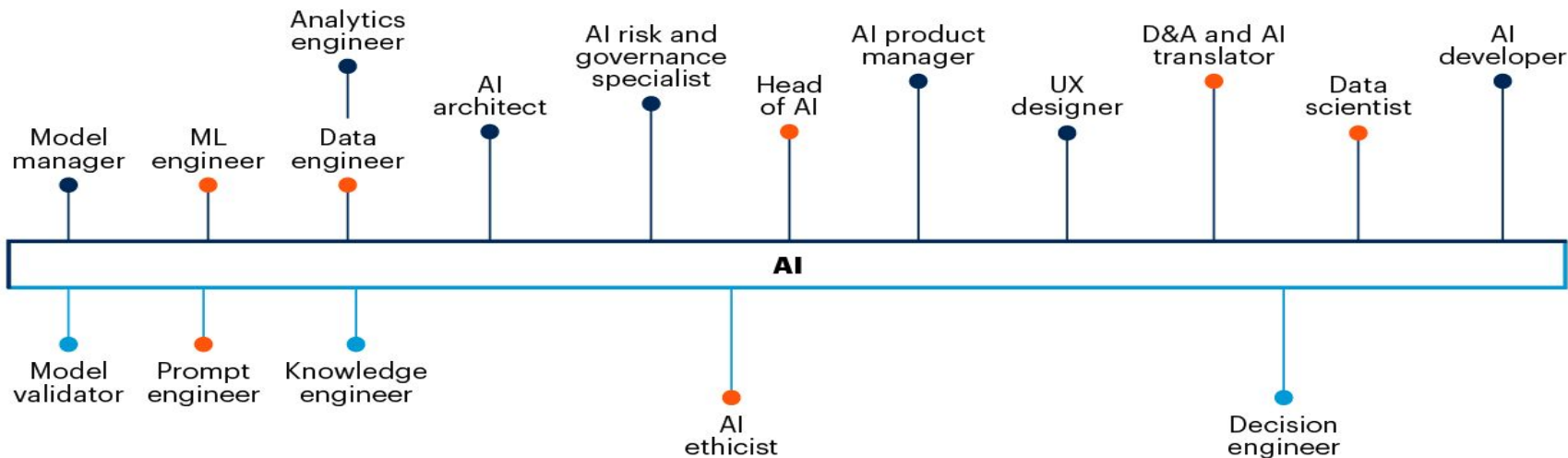


Mapping the stories Roles in AI/GenAI

With the rising adoption of AI and GenAI in the enterprise, what new roles do you see emerging in the data and analytics industry, and why?

Roles for AI

● AI roles ● Emerging AI roles ● Must-have AI roles



Source: Gartner
806919_C

Role of CDO
Some reflection !!

Do we need CDAIO or Chief GenAI officer

**Thought leaders
meet every year to
revive their GenAI
leadership
promise?**

9 - 10 July, 2024

Marriott Heathrow, London

CHIEF AI OFFICER EXCHANGE

EUROPE

Navigate through your agenda by
clicking directly to the relevant pages

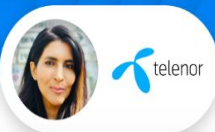
PEOPLE & AI

Discovery – Ownership – Harmony

Join the discussion with insights from top-tier industry leaders and experts including:



Sanjeevan Bala



Avesha Temuri



Daniel Hulme

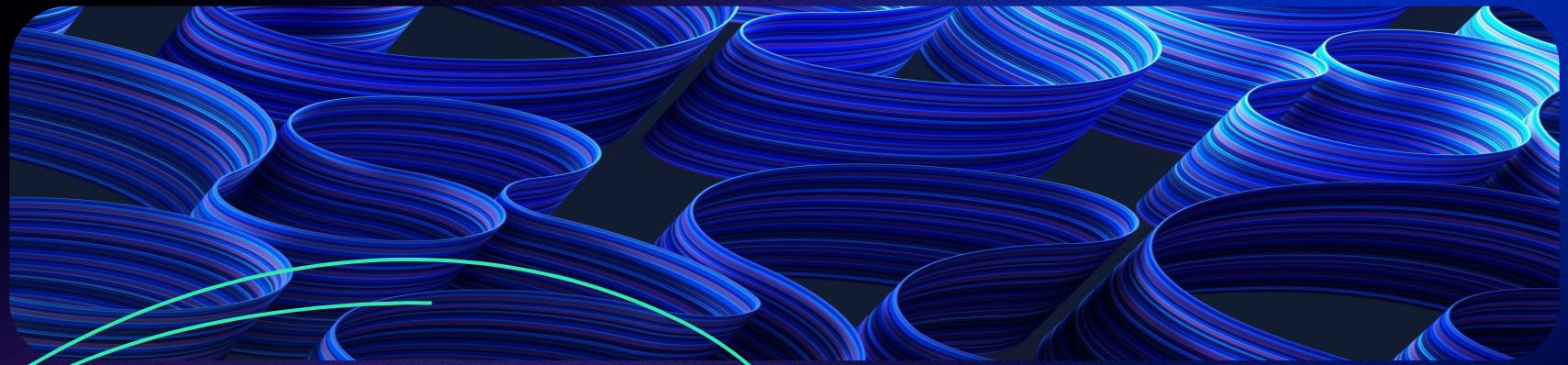


Perry Phillip



Livia Oh

**How many leaders are needed to
realize AI potential?**



Mapping the stories More Telco Specific Use cases examples

- 1- Customer Use Case - Personalisation
- 2- Network Use case - Autonomous networks

7 Areas in Telco for GenAI use cases

1 Servicing	<ul style="list-style-type: none"> Inbound Call Centers Digital channels CX In-Store service management Claims and NPS tracking Back-office operations 	<ul style="list-style-type: none"> -70% reduction in total cost-to-serve 70% reduction in human contacts +5 p.p increase in FCR Rate 20% reduction in Call Handling Time 	Traditional AI Generative AI Tech Automation	
2 Customer Satisfaction	<ul style="list-style-type: none"> Measurement model and analysis Improvement CX actions 	<ul style="list-style-type: none"> 50% reduced claims/service contacts +20 p.p increase in NPS 	Traditional AI Generative AI Tech Automation	
3 Customer Lifetime Value Management thru personalization	<ul style="list-style-type: none"> Telemarketing Inbound sales B2B Sales reps/ KAMs In-store sales Digital channels <div> Acquisition Churn X-Sell / Upsell Renewals Bad Debt Mgt </div>	<ul style="list-style-type: none"> >35% increase in LTV 50% increase in acquisition 20% increase in up/x-sell penetration 10% increase in price realization 20% reduction in churn rate 2x faster value proposition testing 3x faster complex solutioning 2-3% higher price realization 	Traditional AI Generative AI Tech Automation	
4 Product / Pricing/ Value Proposition	<ul style="list-style-type: none"> Product and value proposition design Pricing for impact Complex and customized solutions 	<ul style="list-style-type: none"> 2x faster value proposition testing 3x faster complex solutioning 2-3% higher price realization 	Traditional AI Generative AI Tech Automation	
5 Advertising	<ul style="list-style-type: none"> Advertising (digital and traditional) Branding 	<ul style="list-style-type: none"> 30% digital paid media cost reduction 15% ROI uplift 	Traditional AI Generative AI Tech Automation	
6 Network	<ul style="list-style-type: none"> Network design & technical support Network roll out Network Operation 	<ul style="list-style-type: none"> -25% CapEx efficiency -4% revenue uplift 10-20% RAN energy savings 	Traditional AI Generative AI Tech Automation	
7 Rest of functions	<ul style="list-style-type: none"> Human Resources Finance Legal 	<ul style="list-style-type: none"> 10% reduction in cost 2x increase in productivity 	Traditional AI Generative AI Tech Automation	

UC1

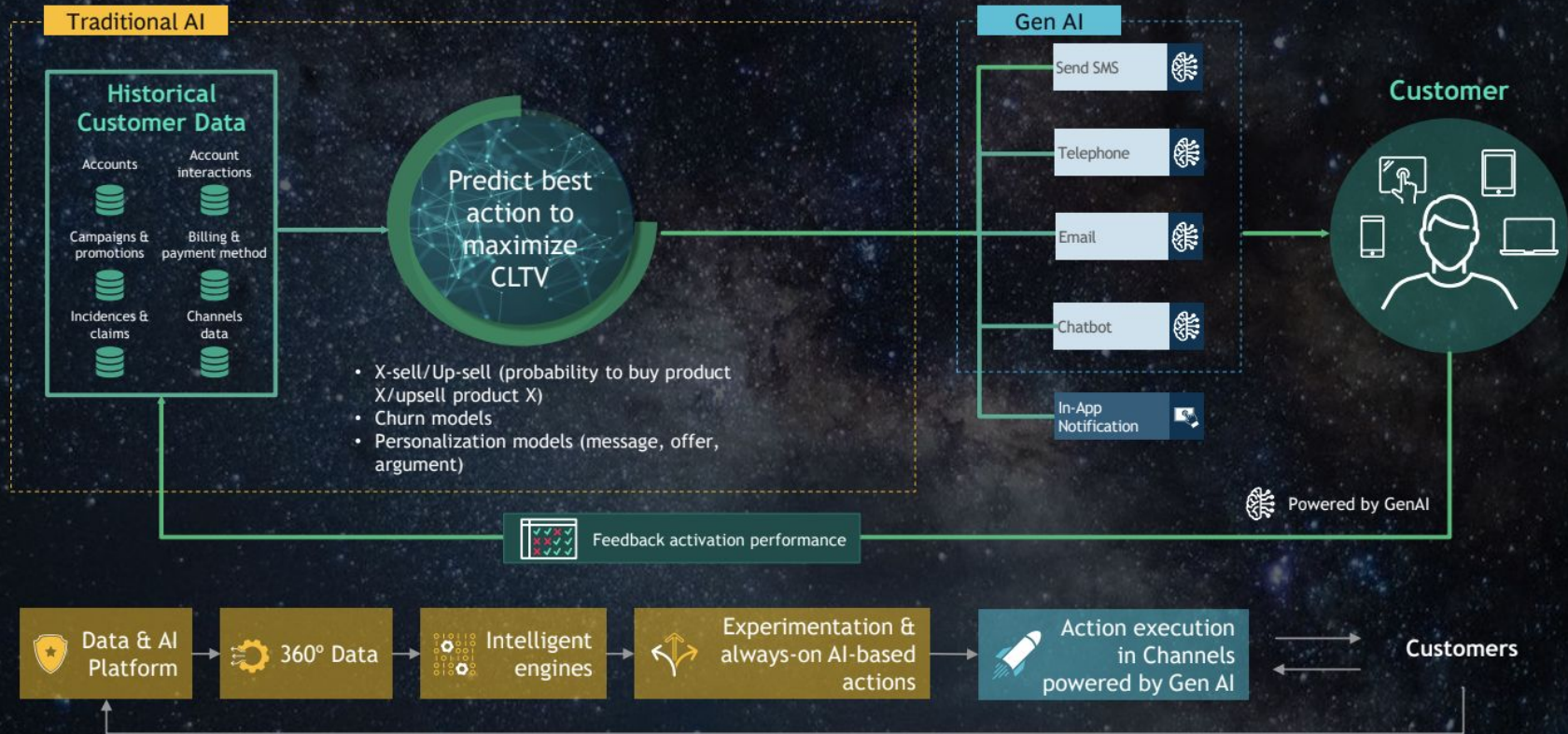
Customer usecase

PAIN POINTS:

Lack of Comprehensive Customer Data: Telenor faces challenges in accessing a centralized system that provides teleservice agents with a comprehensive view of customer interactions across various channels (WebChat, E-Care, Social Media, Digital Apps (MTA & Apollo), and Call Center).

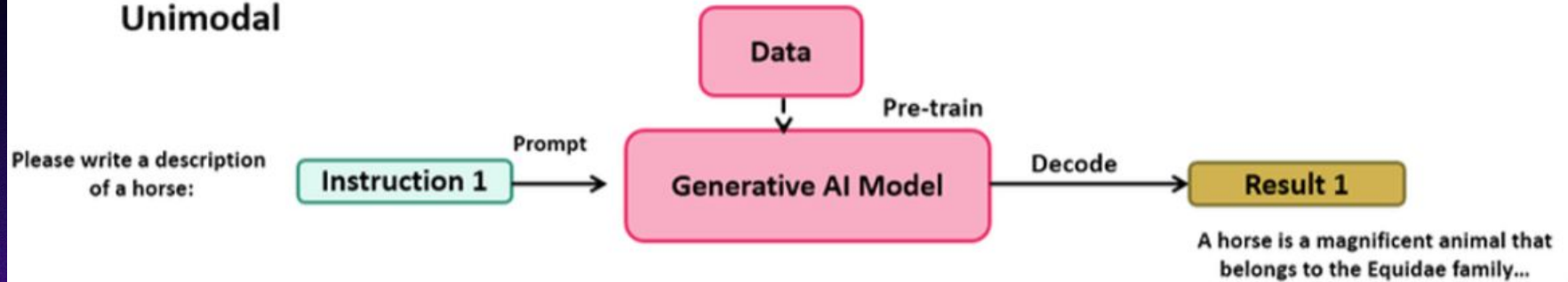
Inefficient Service Delivery: Without access to integrated customer data, teleservice agents may struggle to provide personalized and efficient service to customers, leading to potential dissatisfaction and churn.

Personalization is a good showcase for how to use GenAI and augment traditional AI

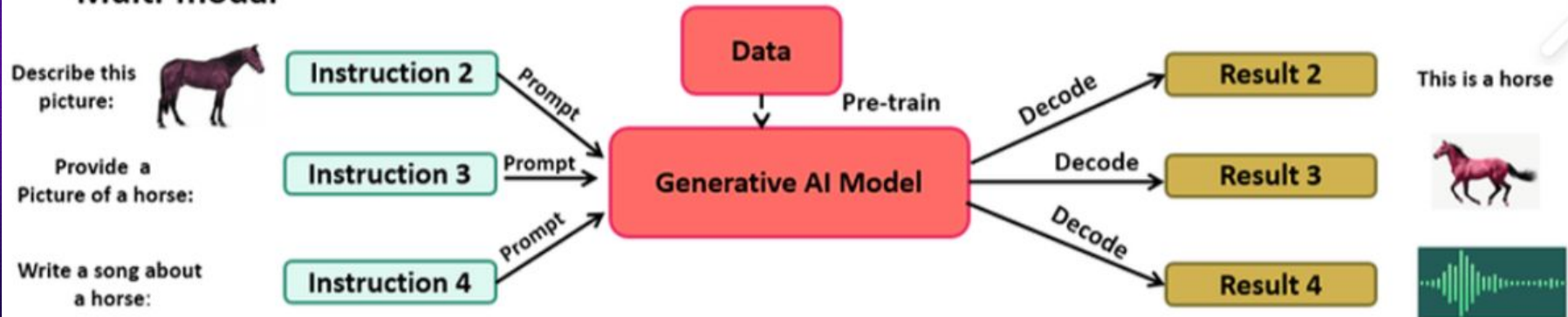


Unimodal Vs Multimodal GenAI

Unimodal



Multi-modal



Autonomous wireless network

To be specific, large language models (LLMs), a subfield of GenAI, are envisioned to open up a new era of autonomous wireless networks, in which a multimodal large model trained over various Telecom data, can be fine-tuned to perform several downstream tasks, eliminating the need for dedicated AI models for each task and paving the way for the realization of artificial general intelligence (AGI)- empowered wireless networks.

SOURCE DATA – Telecom data from Multiple sources

AMBITION:

This can be achieved through exploiting the generative capabilities of LLMs in addition to the multimodality nature of the data acquired in wireless networks, including radio frequency (RF) signals, and 2D and 3D visual representations of wireless environments, to attain improved contextual, situational, and temporal awareness, and therefore, enhanced wireless communication.

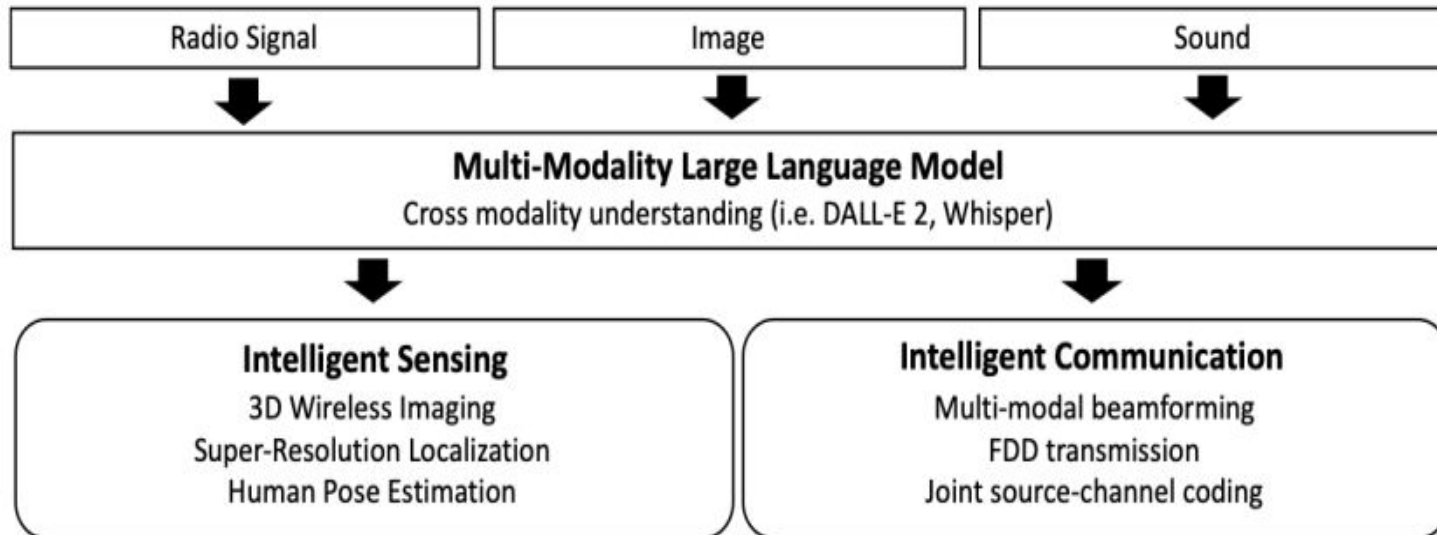
LLMs can enable wireless networks to enjoy predictability features, and hence, realize improved and proactive localization, beamforming, power allocation, handover, as well as, spectrum management, even for unseen network scenarios

Large Language Models for Telecom:

The Next Big Thing?

Lina Bariah, Qiyang Zhao, Hang Zou, Yu Tian, Faouzi Bader, and Merouane Debbah

LLM for wireless sensing and beamforming



Multi modal LLM in beamforming

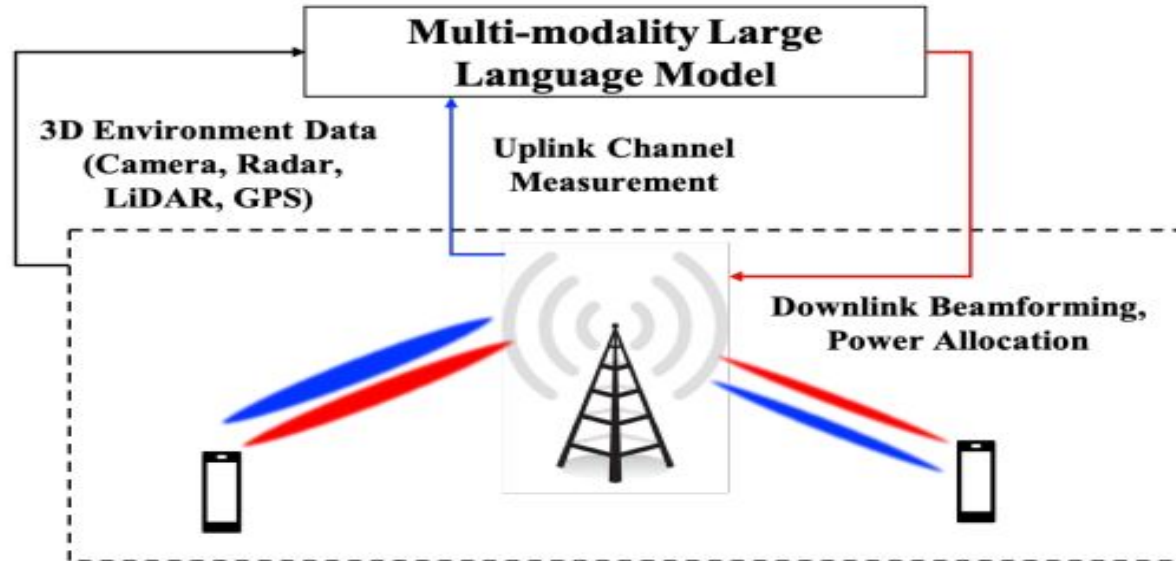


Fig. 2: LLM for Beamforming in FDD Systems



LLM empowered AGI

Multi-modal Wireless Data

LLM
knowledge

Machine
Prompts

Human
Intents

Sensor
Perception

Radio
Signals

Light
Signals

Images

Sound
signals

Textual-based data (Telecom –oriented)CC

LLM Training

Network
Protocols

Network
Configuratio
n

SW/HW
codes

Navigation

Remote
Query

Motion
Controls

Network Design

Self evolving Networks

Localizatio
n

Channel
Estimation

Beam
forming

Waveform
Design

Coding

Modulation

Power
Allocation

Spectrum
Mgt

Training

Task-Agnostic
Model

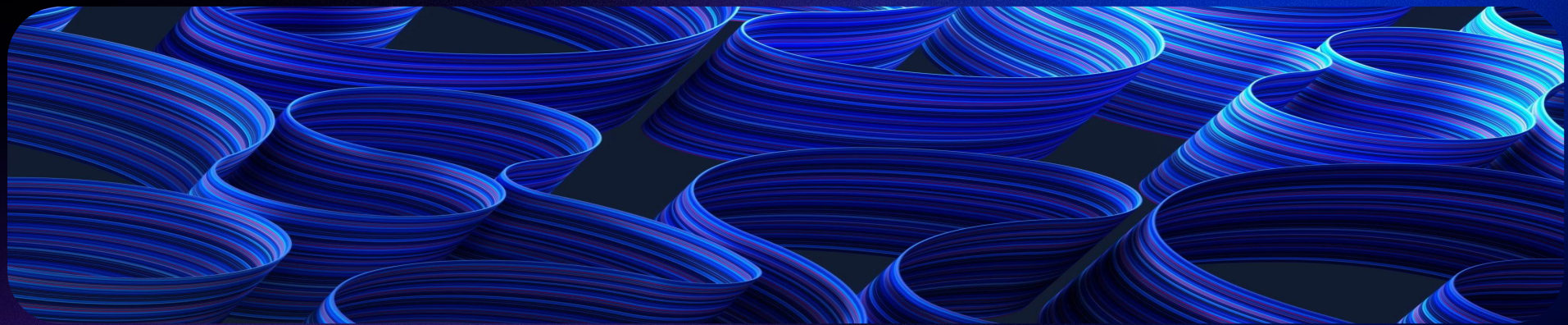
Fine- Tuning
Task Specific
LLM

Network Operation

Moving towards Adoption of Gen AI

- Horizontal WOW
- 5 Pillars of GenAI transformation
- 3 Artifacts
- 107 Usecases
- Infra, management ,fine tuning, LLMs,open innovation





Mapping the stories

Some Telco AI global news

Telenor / Capgemini AI Factory

HOME • NEWS • THE TELECOMS & CONNECTIVITY CHANNEL

Telenor launches Norway's first 'AI factory', announces plans for data center

Data center will offer a district heating system

March 31, 2025 By Charlotte Tustman [Have your say](#)

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Norwegian telco Telenor has built the country's first 'AI factory', powered by Nvidia GPUs.

Opened in November, the company said the facility enables organizations to process sensitive data securely in Norway whilst also advancing Telenor's sustainability goals.

AI factory is a broad term for a HPC system. Further details weren't shared.

Telenor announced a partnership with Nvidia last year, the telco was set to "become a sovereign AI cloud partner" of Nvidia, develop a green AI center for the Nordics, and offer AI solutions based on Nvidia hardware.

Speaking on [Nvidia's AI podcast](#), Telenor's CIO



Accenture / Telstra AI Partnership

FINANCIAL REVIEW

'It's like a marriage': Inside Telstra and Accenture's AI reinvention

The telco's \$700 million partnership with the consulting group to develop artificial intelligence is no ordinary joint venture.



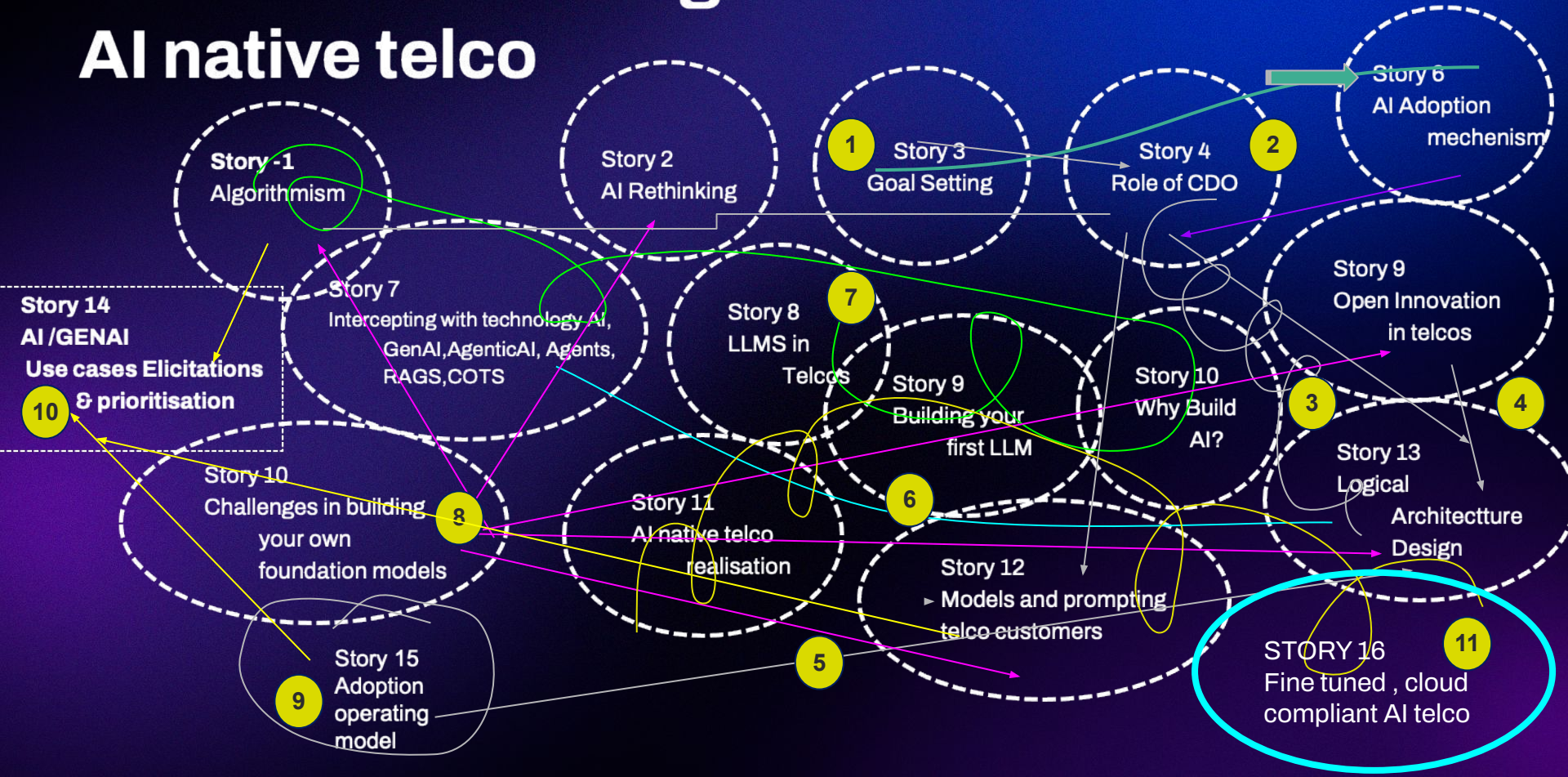
700M \$ JV on AI

Steered by joint global leadership and staffed by specialists from both organisations, the as-yet-named venture aims to tap into Accenture's recent \$3 billion AI investment to help modernise Telstra's data and AI platforms, enhance customer experience, and unearth operational efficiencies.

Reflections & Final conclusion

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- 03 **From model prediction to delivering value**
- 04 Telco GenAI User Cases
- 05 Real world Cases in Telcos
Accenture / Telstra
Capgemini / Telenor AI factory
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Final words

Put Skin in the GAME

- Pick elephants not flies
Tackle a few, large use cases after careful assessment of value
- Build an AI ecosystem
- Do quantitative assessment

01

Network focused AI Telco to customer

Deep dive into each AI use cases and Artifact and prioritize according to value creation for customer ..

02

10/20/70 Rule

10% Disruptive techEngine / Algorithms

20% Technology/IT Foundations

70% Business & People Transformation

03

Wait is not an option

Rapid technology transformation has made AI/GenAI transformation an absolute MUST.