Untapping the Data Monetization Potential Opportunity as Telco

Market Study, Use Cases & Business Model

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1. Introduction

The growth of the global market is driven by continuous rise in enterprises data, technological advancements in big data & analytics solutions, and increase in focus of organizations to generate new revenue streams[1]. The increase in the volume of data generation and lower cost of data storage has emerged as one of the strongest factors for data monetization tools and services adoption across regions. "Markets AND Markets" estimates the global data monetization market size to grow **from USD 2.3 billion in 2020** to **USD 6.1 billion by 2025**, at a Compound **Annual Growth Rate (CAGR) of 21.7%** during the forecast period. The global data monetization market size is projected to reach at $370,969 million by 2023, growing at a CAGR of 35.4% from 2017 to 2023.

1.1. Key Takeaways

Companies have realized that data can be used in day-to-day operations to reduce costs and grow revenue[2]. Therefore, we need to analyze some key players in monetization market such as competitive key players in 1010DATA (Advance Communication Corp.), Accenture Plc, Adastra Corporation, Comviva (Tech Mahindra), Infosys Limited, International Business Machines Corporation, Monetize Solutions Inc., Optiva Inc., Paxata Inc. (Datarobot Inc.), Reltio, SAP SE, Thales Group and TIBCO Software Inc.for more information, see Table 4: Some of the prominent players in the Data Monetization market include following-

Factors such as the increasing need to create insights from a pool of data and the rising adoption of AI[3] for data processing are expected to create ample opportunities for data monetization vendors.[4]

[1] https://www.alliedmarketresearch.com/data-monetization-market
[2] https://www.grandviewresearch.com/industry-analysis/data-monetization-market

https://www.maximizemarketresearch.com/market-report/data-monetization-market/11628/

[3] AI is short of Artificial Intelligence
[4] https://www.marketsandmarkets.com/Market-Reports/data-monetization-market-127405959.html

2. Data Monetization: A Missed Opportunity

There are two primary types of Data Monetization; internal and external data monetization.

a) **Internal Data Monetization -** An organization's data is used internally, resulting in economic benefit. This is usually the case in organizations using analytics to uncover insights, resulting in improved profit, cost savings or the avoidance of risk.

b) **External Data Monetization** - Involves using data to extend an organization's product offering with data-driven services or business models to create new revenue streams.[5]

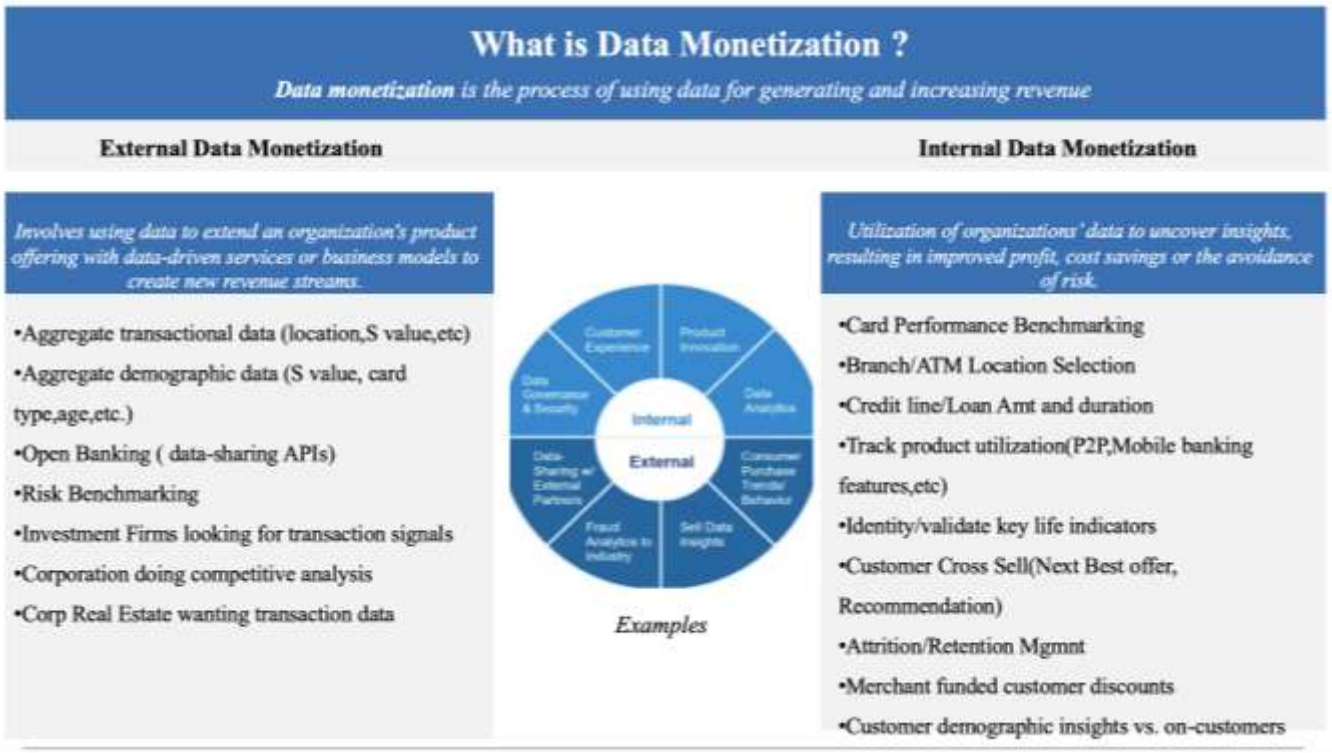

Figure 1. Internal and External Data Monetization usage examples

- **Government & Economic Data**
  This type of data monetization can empower a range of use cases from data driven governance that drive better budgeting & spending decisions to improving citizen services, for example in banking, retail, etc.
- **Consumer Transaction Data & Supply Chain**
  In this type of data monetization, data regarding consumers and their

[5] https://www.paymentsjournal.com/transform-your-payments-data-into-revenue-arm-insight-talks-safe-synthetic-data-monetization/

preferences is being collected by various providers such as supply chain-level data being made available by manufacturers to their business consumers as part of the servitization movement.

- **Geo-Location Data**

  Geo-Location data monetization utilize satellite imagery data and location specific datasets can provide hitherto hidden visual insights. For example, retail shopping volumes, bank branch usage, and can be used in fraud detection etc.

- **Machine Generated Time Series Data**

  This type of data monetization help monitors assets across manufacturing, Telecoms, energy & utilities, and smart cities.

- **Social Media Feeds**

  In this type of data monetization different social media sources like Facebook, Twitter, Telecom operators Tube, Pinterest & LinkedIn produce enormous amounts of sentiment data that can be mined to understand and prioritize news events, user opinions & preferences, in most cases these properties monetize on their data assets by selling specialized views of data via APIs.

- **Corporate Documents**

  Financial analysis in domains such as investment banking, private equity, auto finance etc. In data monetization, these datasets support a range of use cases that pertain to due diligence on both the buyer side and the seller side.

- **Curated Datasets**

  Curated and specialized data monetization datasets are increasingly prevalent in verticals and micro verticals. For instance, algorithmic traders in high finance analyze supply chain data for large manufacturing to understand demand patterns.

2.2. How Data is Being Monetized

The data monetization can generate value in mainly two ways: directly (by selling or sharing data), or indirectly (by enhancing own data-based products). This involves the consideration of various aspects and pathways of data management.

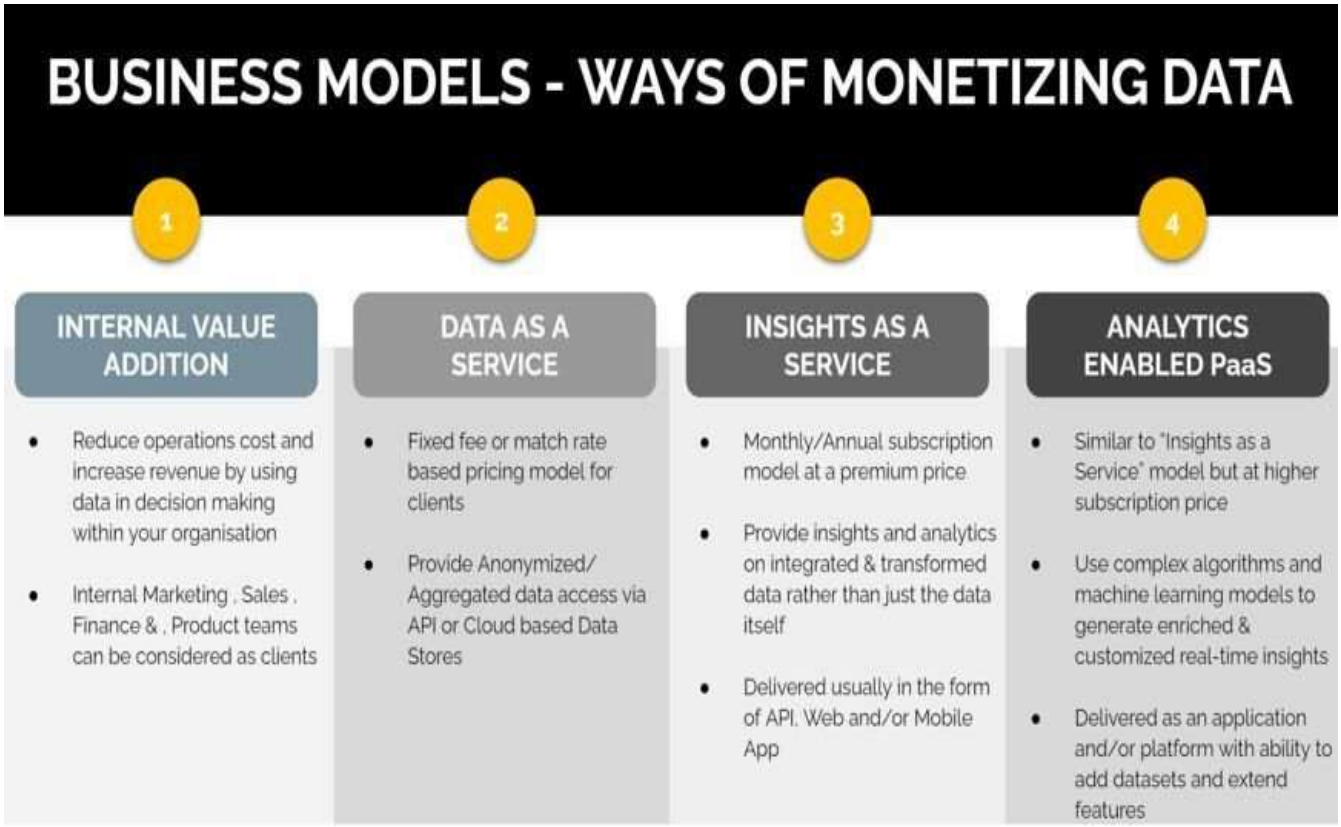

Figure 2. Data Monetization Business Model.

2.1.1. Data as a service

This is the simplest, most direct data monetization method. Data is sold directly to customers or intermediates. The data is either raw, aggregated or anonymized and the buyers mine the data for insights. Buyers don't benefit from receiving insights — they derive those for themselves.[6]

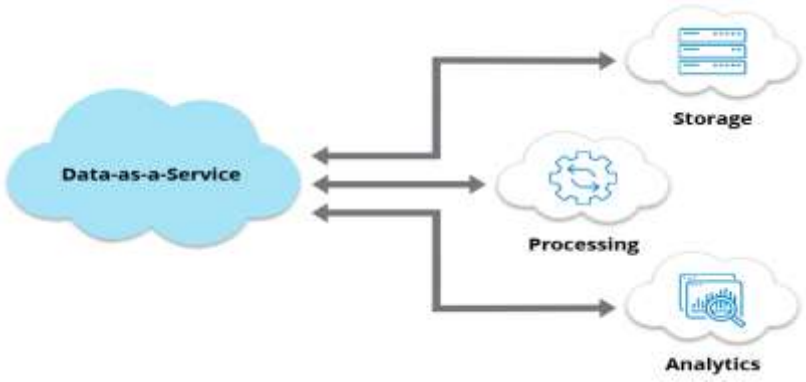

Figure 3. Direct data monetization Process model.

[6] https://www.sisense.com/data-monetization/

Use Case - Vodacom South Africa [7]

Vodcacom SMART solutions helps Telecom operators focus on small business and taking care of employees, while they focus on the technology to help Telecom operators grow. For data monetization, they provide:

- Location-based vouchering
- Promoting business advertising via targeted SMS

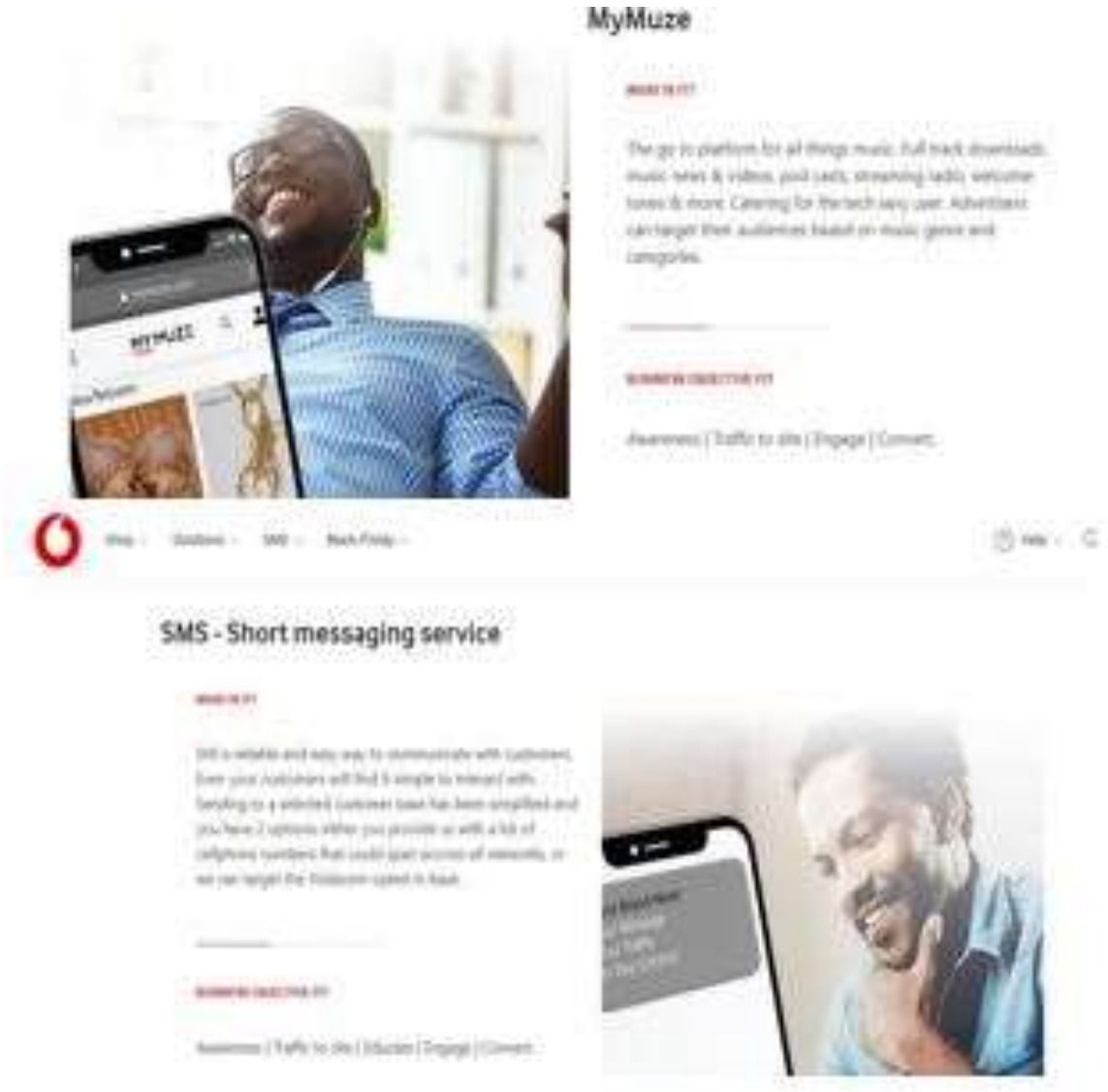

Figure 4. Vodacom South Africa offer SMS advertising, In app Purchases, and Smart advertising.

[7] https://www.vodacombusiness.co.za/business/partners/digital-advertising/portfolio

2.1.2. Insights as a service

This involves combining internal and external data sources and applying analytics to provide insights. The insights are limited to specific datasets or contexts that the buyer has purchased. [8]

Figure 5. Insights as a service.

Use Case – Orange

Orange Business Services has been chosen for its Open Clouds for Research Environments OCRE project to support endless data. Following are some of the features for this use-case.

- **Transport / Territory**

Size infrastructures according to passenger flows [9]

Table 1: Transport challenges and solutions provided by Orange.

Challenges	Solutions
RATP wishes to offer an extended mobility offer through digital. **Objectives**: to better structure the large RER or metro type networks by knowing precisely	• Autonomous vehicles where the issue of connectivity, via studies around 5G in particular, to communicate with infrastructures is essential • The Flux Vision offer, a tool which, while respecting everyone's privacy,

[8] https://www.sisense.com/data-monetization/

[9] https://www.Orange-business.com/fr/temoignage-client/ratp-offre-mobilite-elargie-grace-digital

the flows that take place and also to define innovative tailor-made services.	allows precise knowledge of the travel habits of travelers in order to better structure the large networks • Data visualization of spaces such as the metro network using a hypervisor to visualize flows in three dimensions

- **Commerce / Media**

Identify the best locations according to visitor profiles [10]

Table 2: Commerce/Media challenges and solutions provided by Orange.

Challenges	Solutions
• Revitalize the city center • Make decisions based on factual elements (statistics) • Increase the range of services: opening hours for shops, parking, transport, etc. • Evaluate the impact of the commercial actions implemented	The City of Mulhouse has chosen the Flux Vision solution which includes: • Measuring attendance in downtown neighborhoods • Analysis of attendance over the entire chosen geographical area • Analysis of the origin of visitors (according to their catchment area, etc.) • Socio-demo option: age group, CSP, male / female distribution

- **Tourism / Event**

Analyze the seasonality of flows and the impact of an event [11]

[10] https://www.Orange-business.com/fr/temoignage-client/ville-mulhouse-ameliore-connaissance-flux-population-en-centre-ville

[11] https://www.Orange-business.com/fr/temoignage-client/doubs-tourisme-etudie-flux-visiteurs-marche-noel-montbeliard-avec-flux-vision

Table 3: Tourism/Event challenges and solutions provided by Orange.

Challenges	Solutions
Benefit from precise statistical indicators to analyze the flow of visitors to the Montbéliard Christmas market, better understand their mobility within the study area, the number of overnight stays, etc., and adapt strategies accordingly.	Doubs Tourisms has chosen the Flux Vision solution from Orange Business Services for: • Analyze attendance at the Montbéliard Christmas market with a tool that complements field surveys • Improve Telecom operators r knowledge of visitors (time of presence, busiest days, places of overnight stays, origin, etc.) to adapt Telecom operators r activities • Have massive data on the scale of this event • Use this data to make the right decisions • Show the economic impact to elected officials and decision-makers.

***Use Case* – Data Intelligence Hub by Deutsche Telekom**

Another use-case example is the Data Intelligence Hub by Deutsche Telekom, a platform that allows to manage information securely, as well as prepare and monetize it for a range of applications. [12]

[12] https://iot.telekom.com/resource/blob/data/372666/1ec173e5b95437a1ed778a17081c9976/data-intelligence-hub-create-value-from-data.pdf

Figure 6. As the first data marketplace, Deutsche Telekom's Data Intelligence Hub offer Data Analytics, Bicycle Rental Business, and Increasing quality in Glass Refining.

2.1.3. Analytics-enabled Platform as a Service

A flexible Analytics and BI platform based data monetization type provides considerable value to customers with highly versatile, scalable data analytics in real-time. It is available both on-premises and in the Cloud, compatible with all cloud-based data warehouses and the widest array of data formats, so one can use data from any source and any format.[13]

[13] https://www.sisense.com/data-monetization/

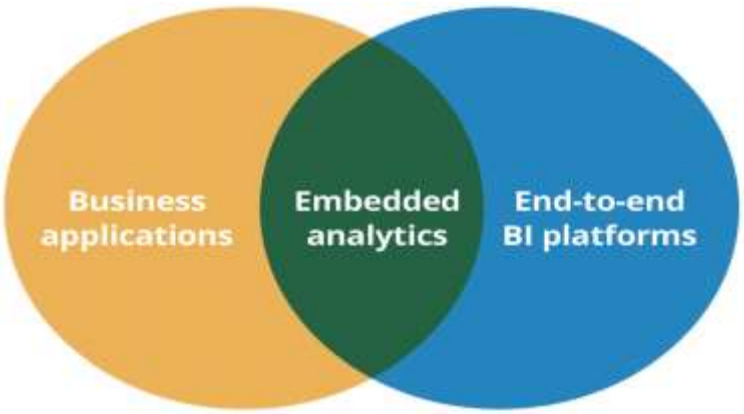

Figure 7. As the first data marketplace, Deutsche Telekom's Data Intelligence Hub offer Data Analytics, Bicycle Rental Business, and Increasing quality in Glass Refining.

Use cases –

1. **Foursquare USA** [14]

With uncompromising accuracy, accessibility, scale, and respect for consumer data privacy, Foursquare is the location technology platform the world goes for. The use-case example's platform is known for -

- Location-based targeting
- Business Decision Making - Urban planning, financial modeling, and customer segmentation
- Customer Experience
- Advertising

[14] https://foursquare.com/

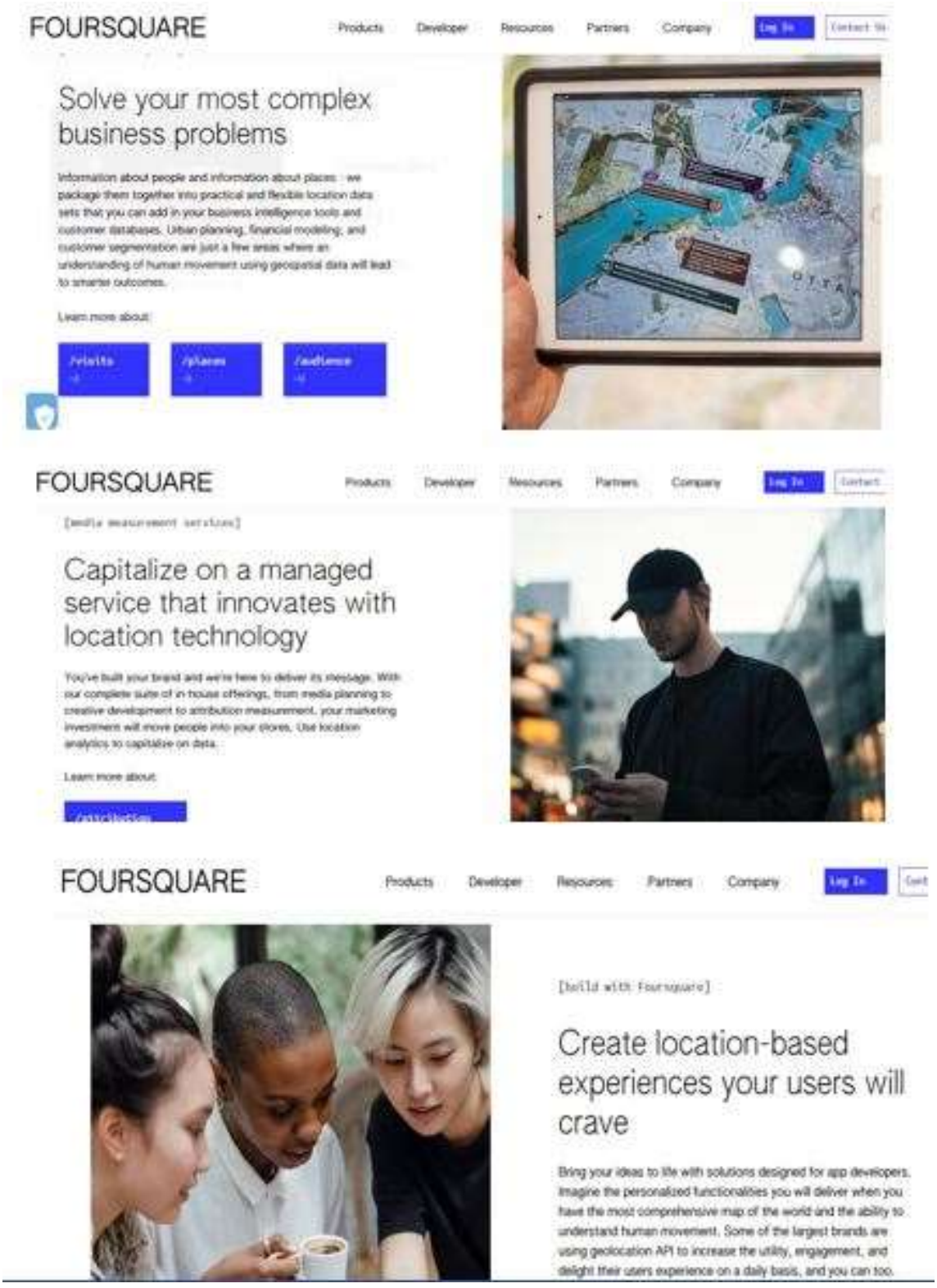

Figure 8. Foursquare offer Location-based targeting, business decision making, and complex business problem solving.

2. Carto USA [15]

[15] https://carto.com/

Another use-case example, Carto is one of the leading cloud native Location Intelligence Platform that allows hundreds of thousands of users to unlock the power of spatial analysis. The platform is also known for

- Business Decision Making
- Location-based targeting

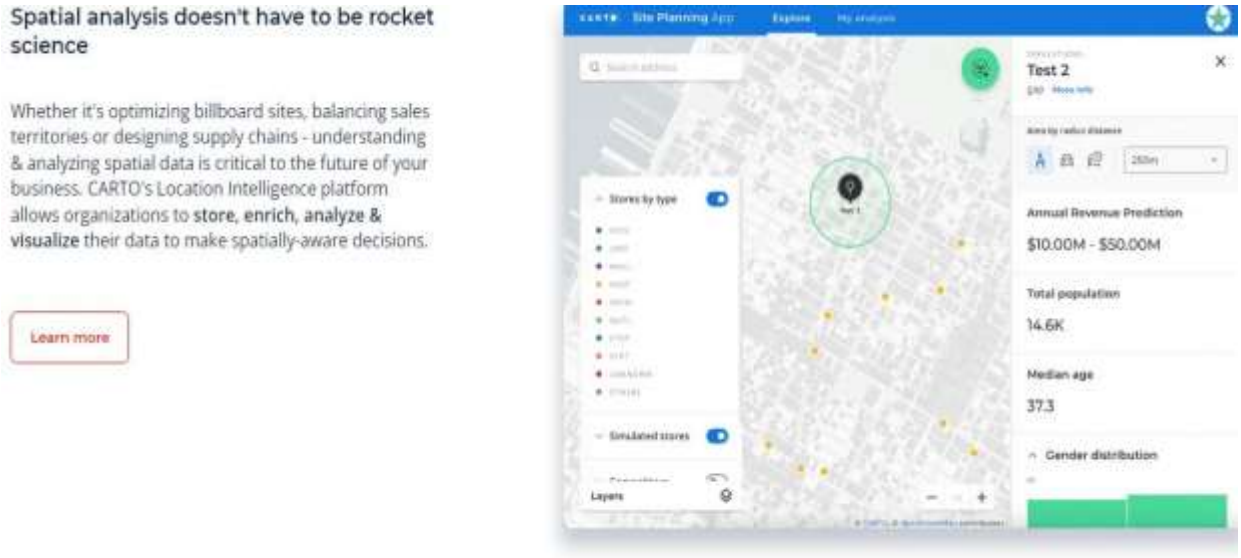

Figure 9. Carto platform offer business decision making and location-based targeting.

3. Verizon USA [16]

Digital transformation begins with Telecom operator partners we can trust. Thousands of businesses, organizations and agencies rely on Verizon's network leadership and deep understanding of technology. They have a track record of helping teams big and small with products and solutions that are flexible, reliable and secure. Other features the Platform is known for are

- Recommendation Engine

[16] https://www.verizon.com/business/resources/solutionsbriefs/online-smartplay-ott-platform-solutions-brief/
https://www.verizon.com/business/resources/solutionsbriefs/introducing_smartplay_by_verizon.pdf

- In app advertising

Figure 10. Verizon platform offer Recommendation Engine and In app advertising services.

4. LUCA[17]

LUCA Comms is an advanced visualization tool for global communications[18], famous for AI-powered decisions. As a duty of discover the potential of all their artificial intelligence solutions, the platform also includes the features such as

- Recommendation Engine
- Decision making

[17] https://luca-d3.com/

[18] (mobile, landline, switchboards, corporate networks, online) whose machine learning algorithms help to predict and understand the behavior of communications at a global level. LUCA Comms aggregates and anonymizes multiple data sources, using a cloud-based platform that allows for a complete, easy and intuitive analysis.

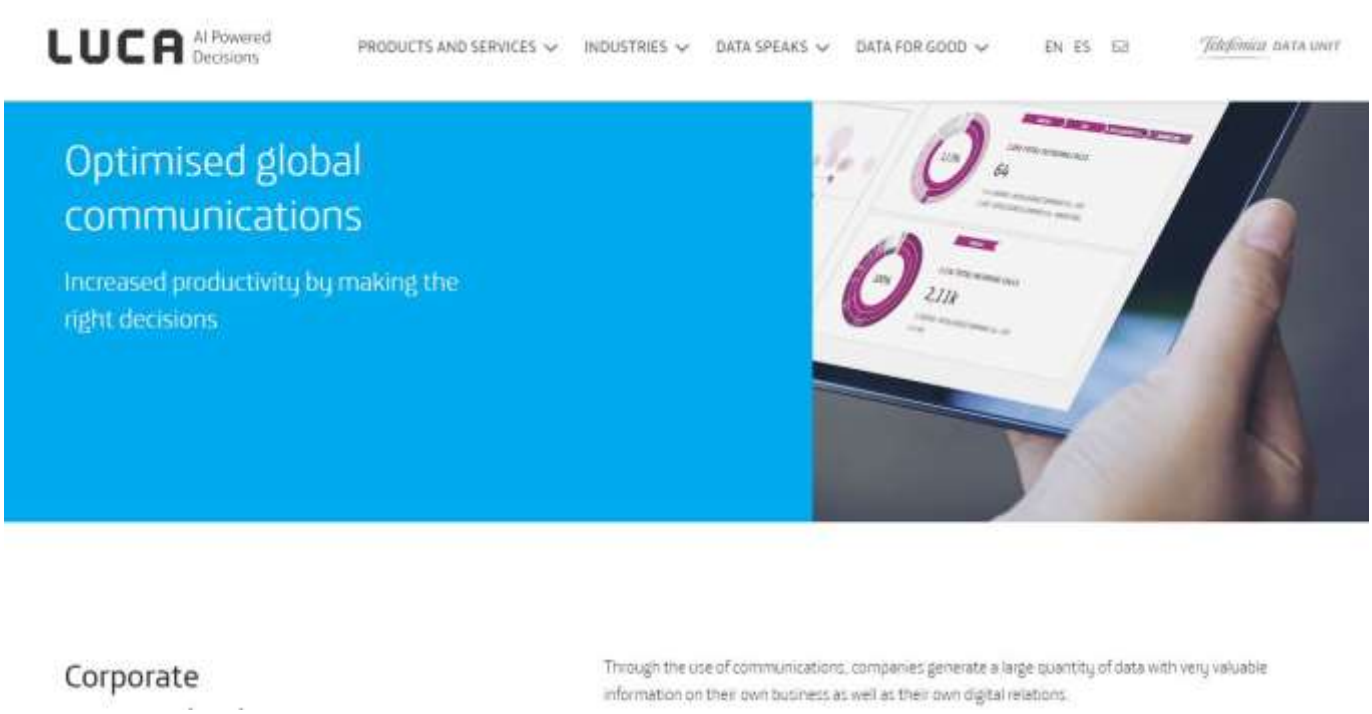

Figure 11. LUCA Platform dashboard – a website view

Tech Mahindra[19]

Tech Mahindra's Mobile Programmatic Growth Solution is the most versatile solution in the ecosystem, known for -

- Event-based bidding for SCALE
- CPA / ROAS Optimization[20]
- Complete Transparency
- Campaign Management Dashboard
- Real-time Reporting w/ Insights
- Superior Creative Experiences

3. Findings and Reflections

Data monetization services can address the different market segments such as-

- Marketing & Advertising
- Valuable decision making for businesses
- For analyzing presence of customers and visitors

[19] https://www.techmahindra.com/en-in/communication/data-monetization/
[20] CPA stands for Certified Public Accountant and ROAS stands for Return On Ad Span.

- Location-Based Targeting
- Commerce / Media

3.1. Data Monetization: Market Overview

The above derived use-case examples and their features helped in identifying how we can bring some industrial players seen in section 1 in competitive market analysis considering their prominent features such as category type, company name, the services they provide and the possible jurisdictions.

Table 4: Some of the prominent players in the Data Monetization market include following-

Category	Companies	Services	Jurisdictions
Tech Companies	• Accenture Plc • Adastra • Cisco Systems, Inc. • IBM Corporation • Infosys Limited • Comviva • Energyworx • Carto	• Business reporting, advanced analytics • Retail, Outdoor advertising, Financial services • Financial, Human Mobility, Demographics, Road Traffic, Points of Interest	• Dublin, Ireland • Toronto, Canada • San Francisco, California, US Armonk, New York, US • Pune, India • New Delhi, India • Utrecht, Netherlands. • New York, US
Govt.	• Dubai Pulse • Abu Dhabi Open Data • European data	• Business & employment, Economics & Finance, Education, Entertainment,	• Dubai, UAE • Abu Dhabi, UAE • European Union

		Environment, Events, Finance • Agriculture, the environment, health, transportation, the economy, tourism, education, energy, and technology • Agriculture, health, transportation, the economy, education, and technology	
Telecom	• TASIL • Deutsche Telekom • Orange Business Telecom • Vodacom • Verizon	• Targeted marketing • Data Analytics, Bicycle Rental Business, and Increasing quality in Glass Refining • Transport, Tourism, Event, and commerce	• Warsaw, Poland • Bonn, Germany • France • Midrand, South Africa • New York, United States

3.2. Data Monetization Value

Data is the primary resource for businesses today. Creating customer value is a prioritization of Data Monetization approach adopted by many companies.

3.2.1. Customer Value Calculator by Tasil

According to Tasil, Customer data worth is estimated for 34.6% of the total Data Monetization Market. Telecom operators, banks, retailers, insurers and all others operate on large amounts of data. They can increase their growth by using data collection and analysis to understand their customers better and further optimize their experience. Tasil's[21] Customer's Data Value Estimator gives a rough estimate of ROI for enhancing customer value[22].

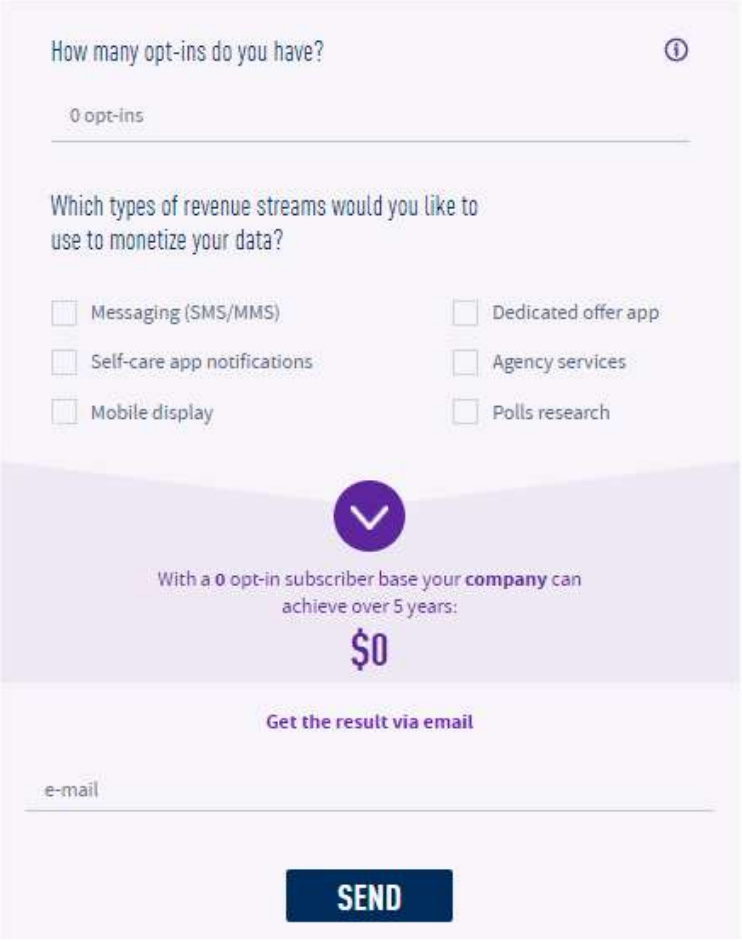

Figure 12. TASIL, a ready-to-market data monetization platform. It is a tool for transforming raw, collected data into valuable insight.

[21] https://tasil.com/data-value-estimator/

[22] It is important to consider that this valuation is through Data Monetization through marketing using Use-case alone. ROI from other use-cases can potentially be much bigger.

Figure 13. Sample ROI based on 150,000 Opt-Ins.

3.3. Embracing Data Monetization in GULF-based Enterprises: Profitability and Growth

By virtue of its advanced information technology infrastructure, relevant knowledge economy policies and flexible free government and market orientations, data monetization is a ripe opportunity for businesses looking to dive into lucrative revenue streams. The prime adopters of big data systems in the Gulf region have been government service providers and media business sectors. The E-government and Smart Dubai initiatives in the UAE have been outstanding examples of government deployment of data analytics in the service sectors. Bahrain is another leading example for openly sharing datasets of public expenditures, demographics and data on cities for their citizens. Another early example includes a telecom operator Du who launched Smart Insights, a technology that tracks people's movement throughout the city of Dubai on their smartphones. The data is meant to be used by retailers interested in mobility patterns to attract and target consumers and prospects[23]. However, the adoption of data monetization in telecom industry is still very limited, especially in the Gulf region. The table above derives the conclusion that how in Gulf, the Data monetization work has been done only in the government sectors, not in the telecom sector. Therefore, we need to see a panorama on Data Monetization under telecom industry as well.

[23] The data extracted from an article on Big Data in the MENA Region: The Next Path towards Socio-economic and Cultural Development by Ilhem Allagui & Mohammad Ayish

4. Data Monetization Proposition for Telecom

The data monetization market in GULF/MENA region is expected to witness market growth at a rate of 21.95% in the forecast period of 2022 to 2029. [24] Telecoms who have started monetizing their data have primarily seen new revenue streams from three key channels: expanding service offerings to existing customers, creating new offerings for outside companies, and improving internal business practices[25].

4.1. Monetizing Data via Current Customers

Identifying new offerings for existing customers and finding ways to bring new subscribers over from the competition. This technology can also spot usage trends that telecom can use to create innovative upgrade and add-on features – some of which may be new to the industry. For example providing flexible plans, by analyzing usage patterns, new customized levels of service can be created to accommodate select customer segments.

4.2. Monetizing Data via Outside Companies

Data can be monetized by creating revenue streams that target third parties. In addition to growing the number of revenue sources, such streams tend to be high margin. Here are just a few examples of how outside entities consume telecom data:

- App developers acquire aggregated data to improve user experience, prioritize features, and build relevant in-app purchase opportunities.
- Municipalities consume location and transportation data to improve traffic infrastructure settings, alter public transportation routes, and reduce road congestion.
- Stores buy location data to select future retail sites and plan expansions.

[24] https://www.databridgemarketresearch.com/reports/global-data-monetization-market
[25] https://www.absolutdata.com/blog/ai-and-data-monetization-a-lucrative-opportunity-for-telecoms-absolutdata/

- Advertisers use location data to personalize offers when customers are in the immediate area.

4.3. Making A Success of Data Monetization

Telecom industries must also consider compliance and harmonizing data when adopting data monetization practices.

4.3.1. Compliance and Security

Telecoms have a host of regulatory, privacy, and ethical practices to consider before selling or sharing data. Some of these are;

- Transparency
- Encryption
- Secure stored data

4.3.2. Data Harmonization

Using AI to automate the data preparation process saves an enormous amount of time, the process of collecting, cleaning, and anonymizing data for internal or external purposes is admittedly daunting.

4.4. Revenue Potential

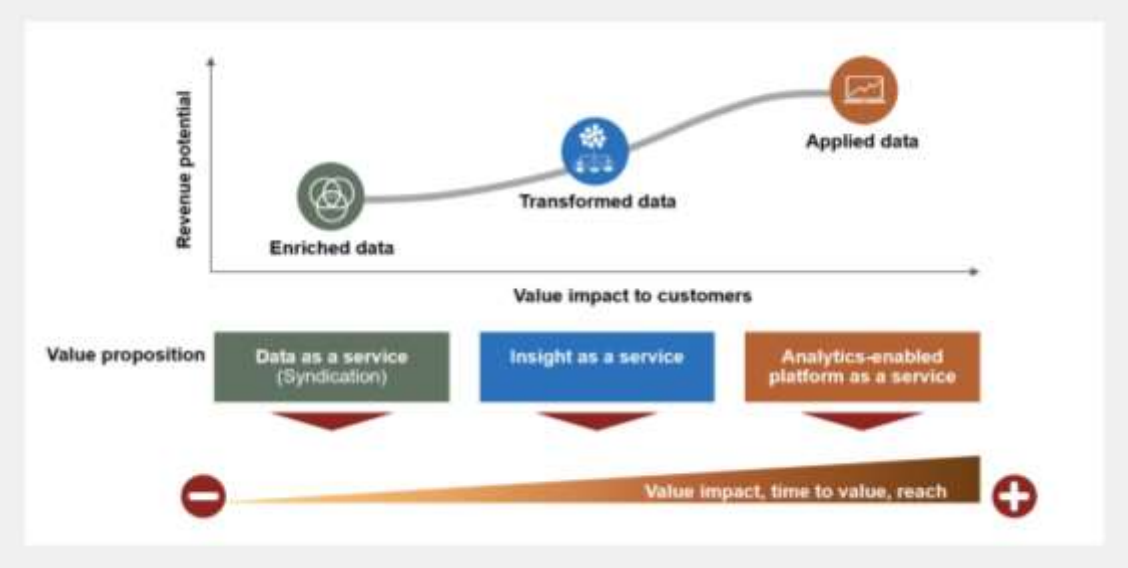

Figure 14. External data monetization model level of value impact to customers, analytics sophistication, and revenue potential

I have observed several different models and use cases for following value propositions; data-as-a-service, insight-as-a-service, analytics-enabled-platform-as-a-service. In light of that following are some points that can be considered for CX[26] and data monetization strategies: [27]

- Segmentation/micro-segmentation (cross-sell, up-sell, targeted advertising, enhanced market locator); for example;
    - Identify targets for consuming baby products or up-selling a kids-related TV channel
    - Identify females in the age range of 18-35 to target for high-end beauty products or apparels
- Personalized loyalty and reward programs (incentivize customers with what they like). For example, movie tickets or discounts for a movie lover, or food coupons and deals for a food lover.
- CX-driven network optimization (allocate more resources to streaming hotspots with high-value customers).

[26] CX is short for Customer eXperiences
[27] https://aws.amazon.com/blogs/big-data/part-1-data-monetization-and-customer-experience-optimization-using-Telecom-data-assets/

- Identifying potential partners for joint promotions. For example, bundling device offers with a music app subscription.
- Hyper-personalization. For example, personalized recommendations for on-portal apps and websites.
- Next best action and next best offer. For example, intelligent bundling and packaging of offerings.

The above discussion highlights the market share, value proposition of data monetization in revenue industry, however, for data monetization to work, two critical components must be in place: a technical framework and a high-quality data roadmap. It takes data management and munging to create the kind of data that can serve as a new stream of revenue and growth. But more than just a pure technical framework is needed. Therefore, propose a Road Map and Business Model Canvas on data monetization based on telecommunication industry.

5. Data Monetization Business Model and Roadmap for Telecom

Although big data monetization in Telecoms is in its infant stages, McKinsey reports that the top performers are more conscious about monetizing their data and using data for enhanced value to customers and the business, adding new services, building new business models, and offering data-based services or products.

5.1. Data Monetization Options

- **Embrace the change: Data Monetization are changing the way business is done**

Reporters report that the use of data and monetization strategies has brought important changes to their companies' core business functions, especially in telecom industry. Embrace compliance and understand the different data types, so it becomes apparent that data monetization and data compliance go hand-in-hand. In many organizations, compliance and technology/business executives have conflicting priorities.

- **Get the foundations right first**: **Understand the 3 Data Types**

We need to understand the three data types is the most important and central aspect of the first phase. They directly influence all of the other steps.

Raw data has the highest monetizable value but also the most risky, that is why we also refine the data. Personally identifiable information (PII) is removed to create anonymous data, but the real transaction data remains unchanged. Anonymized data is low risk. Synthetic data is the breakthrough data type and has no associated risk — it is fake data.

When financial services companies consider data monetization, there are 2 types of revenue streams to choose from: external and internal (as we already know). It's important to include a compliance team fully as Telecom operators embark on this phase of data monetization. The opportunity-versus-risk profile of each option will inform which data type (cleaned-raw,

anonymous, or synthetic) should be used with which data monetization option (external or internal).[28]

Table 5. Opportunity-versus-risk profile of each data type.

	Data Type	**Time**	**Risk**
External Monetization	Synthetic and Anonymous	6-8 months	Very low to none for synthetic data, low risk for anonymous data. ARM Insight recommends starting with synthetic data to protect the privacy of the consumer and comply with data regulations.
Internal Monetization	Synthetic, Anonymous, Cleaned-raw	10-24 months	Very low for synthetic data, high for cleaned-raw data (make sure Telecom operators understand Telecom operators compliance and customer contracts well).

- **Refining the Data**

There are a few steps for refining the data:

- Aggregate raw data files from various siloed environments to be used as part of Telecom operators' data monetization strategy.
- Clean the data to allow for deeper analysis while ensuring the integrity of the data is intact.

[28] https://www.paymentssource.com/whitepaper/road-map-to-safe-data-monetization#group-step-4-choose-your-data-monetization-options-sS14zzL6HQ

- Transform the data into 1 or all 3 data types based on Telecom operators r compliance approach in step one
- Enhance the cleaned and transformed data: Tag merchants, tokenize customers, hash specific fields, etc.
- Output agnostically: Structure the output so that it can work with any PCI-compliant cloud and front-end tools to enable Telecom operators to execute monetization options.

5.2. Value Realization

The second phase emphasizes that the driver of data monetization is in the use or application of the data to create value. That is, the value of data isn't in possession but in the application of the data to create new sources of customer, product, and operational value. As organizations undertake the telecom based Data Monetization Roadmap, they will encounter two critical inflection points:

Inflection Point 1 is where organizations transition from data as a cost to be minimized, to data as an economic asset to be monetized. We name it as the "Prove and Expand Value" inflection point.

Inflection Point 2 is where organizations master the economics of data and analytics by creating composable, reusable, and continuously-learning and adapting digital assets that can scale the organization's data monetization capabilities. We call this the "Scale Value" inflection point.

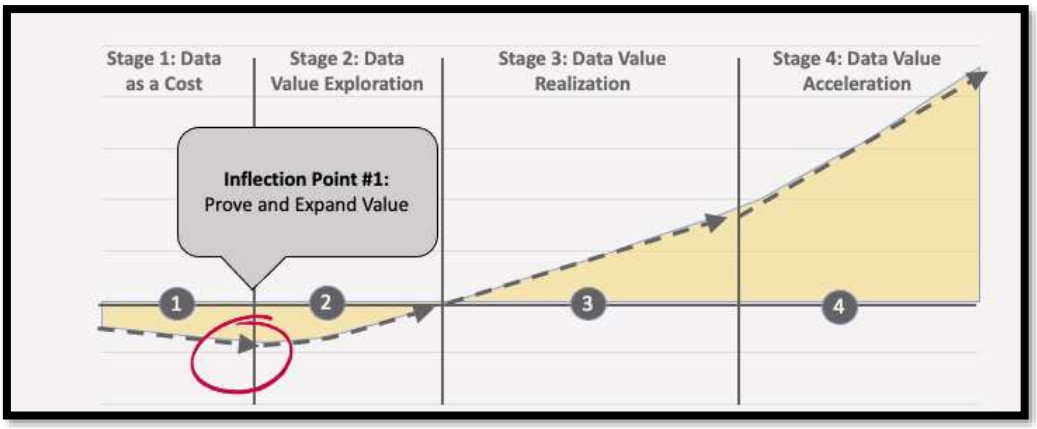

Figure 15. Inflection Point 1: Proving and Expanding Value

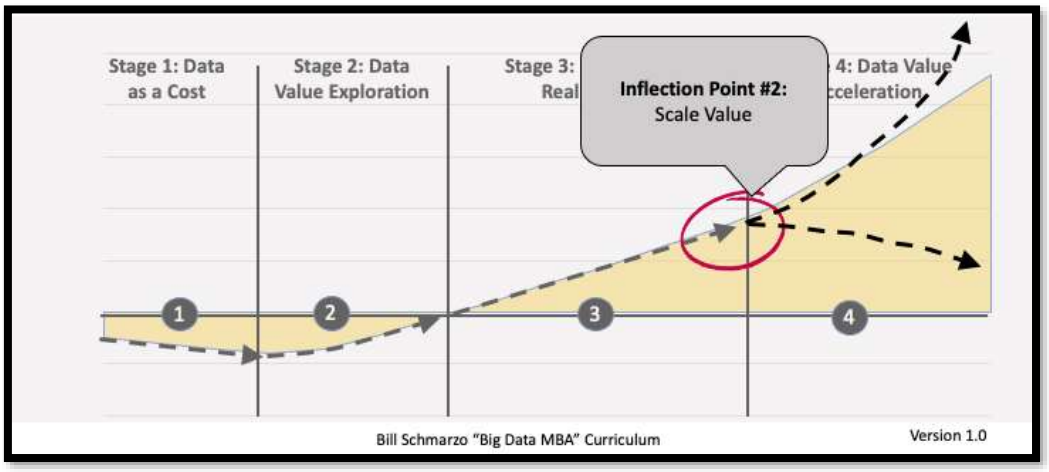

Figure 16. Inflection Point 2: Scaling Data Monetization Potential

After carefully navigating these two inflection points, organizations can fully exploit the game-changing economic characteristics of data and analytics assets – assets that never deplete, never wear out, can be used across an unlimited number of use cases at zero marginal cost, and can continuously learn, adapt, and refine, resulting in assets that actually appreciate in value the more that they are used.[29]

5.3. Implementation

In this phase, the model will provide a cloud architect on hand to help evaluate Telecom operators' architectural or infrastructural choices and tradeoffs every step of the way. Build, buy, or partner choices will be key here. Once Telecom operators find best spot, engage with

[29] https://www.datasciencecentral.com/profiles/blogs/mastering-the-data-monetization-roadmap

data architects and scientists to build the architectural guidelines and tune the data analysis algorithms.

5.4. Industry Outreach and Revenue Realization

In first three phases, key talent/infrastructure, key vendors, partner companies to identify clientele and use cases they form part of Telecomm operators in ecosystem to support Data Monetization implementation. Once the ecosystem and infrastructure is in place, consider the proposed Business Model Canvas to understand how value is being converted to revenue.

5.4.1. Business Model Canvas

Following model canvas is a Business proposition for Ooredoo Oman to pursue Data Monetization as an additional revenue stream.

Figure 17.Telecom Data Monetization Business Model Canvas.

5.4.2. Key Resources

Key resources allow Telecom operators to reach target market and maintain a quality customer relationship with customers so that the business can earn revenue.

In key resources section of Business Model Canvas, we have-

- Customer Data[30]
- Customer Profiles[31]
- Governed data[32]
- Well-defined datasets[33]

5.4.3. Customer Segments

Telecom operators now need a customer segmentation, a process of dividing company's customers into groups and to decide how to relate to customers in each segment in order to maximize the value of each customer to business.

The business model canvas have the following customer segments;

- Retail[34]
- Tourism[35]
- Advertising[36]

[30] Customer data or consumer data refers to all personal, behavioral, and demographic data that is collected by telecom companies from their customer. Such as age, gender, social media usage, political views, traveling history, and purchasing history.

[31] Customer profiles are records held about individual customers, which is used in telecom as a guide for determining whom to target with certain products, and including details such as age, gender, and spending patterns.

[32] Governing data means that data is shared according to the classification (confidential, sensitive, public) rules associated with that data. Governing data means that the creation of new versions of the same data is scrutinized closely to manage and eliminate the redundancy of data.\

[33] Well-defined datasets refer to well-organized customer and key resources data in a tabular form for telecom industries.

[34] Retail customer segmentation helps you identify purchasing trends across multiple demographics and create stronger, more successful marketing strategies based on telecom data.

[35] Tourism market segmentation is the strategic tool for getting a clear picture of diversity among the tourists

[36] By using telecom data for advertising which help producers or companies to know their competitors and plan accordingly to meet up the level of competition. Telecom data-based advertising such as SMS, etc. make people aware of the new product so that the consumers come and try the product.

- Transport & Mobility[37]
- Manufacturing & Logistics[38]
- Businesses[39]

5.4.4. Key Partners

Key Partners are the relationships that Telecom operators have with other business, governmental, or non-consumer entities that help the business model work. These relationships types can be based on Telecomm operators or suppliers, or even Government manufacturers, business partners, etc. or other Data Monetization Service Providers.

- Tech companies[40]
- Govt.
- Telecom[41]
- Other Data Monetization Service Providers.

5.4.5. Value Proposition

There are different kinds of value propositions that can be created by selling: raw data, processed data, and insights. The main aim is to create value from data.

- Provisioning of Trusted Data for analytics[42]

[37] Transport mobility provides increased opportunities for individuals to undertake fundamental tasks beyond the home environment, such as going to work and purchasing essential goods.

[38] In Telecom business, success in logistics translates to increased efficiencies, lower costs, higher production rates, better inventory control, smarter use of warehouse space, increased customer and supplier satisfaction, and an improved customer experience.

[39] A customer is an individual or business that purchases another company's goods or services. In telecom customers are important because they drive revenues; without them, telecom businesses cannot continue to exist.

[40] Technology companies are electronics-based technology companies, including, for example, businesses relating to digital electronics, digital services, software, and internet-related services, such as e-commerce services, data monetization, etc.

[41] Data monetization in Telecoms amplifies segment targeted marketing initiatives which can only mean increased profit.

[42] Data Provisioning means the act of bringing data or being able to fetch the desired data from the source is called Data Provisioning.

- Improved Business Insights[43]Optimize Profiles Revenue[44]Reduced customer attrition/increased Lifetime value[45]Increased operational efficiencies[46]
- Differentiated/Improvised product and customer experience[47]
- Augmented Market Position[48]
- Improved vendor/partner collaboration[49]

5.4.6. Customer Relationships

Customer relations refers to the process used by businesses to engage with customers and foster long-term relationships with them. When done right, it can lead to positive outcomes such as higher customer retention, increased customer lifetime value (CLV), and stronger customer relationships.

- Rewards and customized packages[50]
- Customer assistance[51]
- Users community[52]
- Brand awareness[53]

[43] Business insight is the combination of life/work experiences with systematically collecting and analyzing customer data. Marketing insights mean is therefore the process of developing a deep understanding of consumers, customers, and competitors.
[44] Revenue optimization basically is a process of combining data from sales, marketing, customer success, and product in order to optimize sales, marketing, pricing, and customer success strategies and tactics using that data.
[45] Customer lifetime value must account for customer acquisition costs (CAC), ongoing sales and marketing expenses, operating expenses, and, of course, the cost required to manufacture the product and services the company is selling.
[46] Increase efficiency and effectiveness of business operations to improve internal and external customer services.
[47] Differentiated customer experience doesn't entail making marginal, meaningless changes. It means making the changes that will impact your business the most.
[48] Augmented marketing is the idea of adding value to a proposition via an additional, innovative offer.
[49] A vendor collaboration is a process where you, as a company, grant the access to your vendors in order to selling data to third party.
[50] Rewards and customized packages program are a customer retention strategy that motivates customers to continue buying from us instead of a competitor.
[51] Customer support is a range of customer services to assist customers in making cost-effective and correct use of a product.
[52] User communities represent a unique organizing structure for the exchange of ideas and knowledge.
[53] Brand awareness is the level of recognition and association by a potential customer towards the products and services.

5.4.7. Channels

Channels are the touch points through which an organization liaises with its customers and as such, play a huge role in defining the customer experience.

- DaaS[54]
- SaaS[55]
- API[56]
- Portal[57]
- Packaged solutions[58]

5.4.8. Key Activities

Key activities are any activities that Telecom operators in businesses are engaged in for the primary purpose of making a profit. Business activities include operations, marketing, production, problem-solving, and administration. There are some key activities in the proposed business model canvas as following;

- Marketing and advertising e.g. SMS[59]
- In-app[60]

[54] Data as a service (DaaS) is a data management strategy that uses the cloud to deliver data storage, integration, processing, and/or analytics services via a network connection. Customer data is being sold as a service to the third parties to generate more revenue from it.

[55] Software as a service (or SaaS) is a way of delivering applications over the Internet—as a service.

[56] API is the acronym for Application Programming Interface, which is a software intermediary that allows two applications to talk to each other such as Facebook, etc.

[57] Different telecom industries offer product as a service to their users or third parties for their revenue stream generation.

[58] Packaged solutions are different customization applications to help businesses and increase revenue.

[59] Marketing is the process of identifying customer needs and determining how best to meet those needs. Advertising is the exercise of promoting products or services through different channels.

[60] In-app purchasing refers to the buying of goods and services from inside an application on a mobile device, such as a smartphone or tablet. Telecom In-app purchases allow developers to provide their applications for free as a result the number of customers' increases.

- For analyzing presence of customers and visitors[61]
- Location-based targeting and vouchering[62]
- Commerce/Media[63]
- Targeted SMS advertising[64]
- Transport/Territory[65]Business decision making urban planning[66]
- Financial modeling[67]
- Customer experience[68]
- Recommendation Engine[69]

5.4.9. Cost Structure

Cost structure describes the costs that business occurs through its operations. These include employees, infrastructure, and costs associated with all activities as well as sourcing through key partnerships. Such as;

- IT capabilities development and maintenance
- Marketing, Technology
- General & admin, and Costs of revenue; (such as Payment processing fee, Customer service, and Operations cost).

[61] Using the Presence Analytics statistics, businesses can analyze user behavior and improve customer engagement, and thus maximize revenue opportunities, optimize workspace, and increase market presence.
[62] Location-based marketing allows businesses to target consumers at a granular, person-level with online or offline messaging based on their physical location. Using location data, marketing teams are able to reach consumers based on qualifiers like proximity to a store, events happening in their region, and more.
[63] In online activities that relate to the buying and selling of goods and services, both online and in-store.
[64] Geo-targeted SMS messaging brands to send a bunch of texts to their customers based on their locations, making the whole SMS marketing experience even more personalized and unique to them.
[65] The prospect of growing revenue and insights from transportation data is enticing. Yet, a distinct competitive advantage is only possible with the right digital infrastructure in place.
[66] For better decision making when it comes to realty investment, but it has also allowed for more innovative investments.
[67] Financial modeling is the process of creating a summary of a company's expenses and earnings in the form of a spreadsheet that can be used to calculate the impact of a future event or decision.
[68] By identifying unmet customer wants and needs in this context, you'll be able to deliver on the promises your brand makes, and the expectations set as a result.

[69] A recommendation engine is a type of data filtering tool using machine learning algorithms to recommend the most relevant items to a particular user or customer. It operates on the principle of finding patterns in consumer behavior data, which can be collected implicitly or explicitly

5.4.10. Revenue Streams

This section of the canvas can be used to map out the income generated from each of a company's Customer Segments. This can be calculated by subtracting costs from the revenues created by Telecom operators for Customer Segments.

Such as;

- Licensing[70]
- Usage fee[71]
- Add-ons[72]
- Bundles[73]
- Freemium[74]
- Purchases[75]Ads[76]

5.5. Unique Selling Point of the proposed Business Model/Road Map

Building a market plan for Data Monetization needs some specific considerations for an industry like telecom. The proposed model/ roadmap suggests some useful drivers, such as

- Unique source: Data with limited substitutes or proxies can be extremely valuable.

[70] Licensing is a business agreement involving two parties: one gives the other special permissions, such as using patents or copyrights, in exchange for payment. Rights or resources may include patents, copyrights, technology, managerial skills, or other factors necessary to manufacture the good.
[71] Usage Fee means the fee paid for the use of the performance in material to advertise the product, service or cause, for the specified usage period.
[72] An Add-on Service is a type of Service that cannot stand alone and can only be added to an existing Telecom Service.
[73] Bundle includes all products and related services for generating new revenue streams to mobile operators by serving third parties and society with bulk anonymous location data.
[74] Freemium is a business model that offers basic or limited features to users at no cost and then charges a premium for supplemental or advanced features.
[75] Purchasing is the process to acquire goods or services to accomplish its goals. Although there are several organizations that attempt to set standards in the purchasing process, processes can vary greatly between organizations.
[76] Advertising is a marketing communication that employs an openly sponsored, non-personal message to promote or sell a product, service or idea. Sponsors of advertising are typically businesses wishing to promote their products or services.

- Extensive coverage: Ideal data will have broad applicability to a diverse trading strategy.
- Clear mechanism to impact economy: Modelling data behavior of consumers or important players in the market smoothly.
- Structural barriers to usage: Better when investors with quant expertise can extract more value than non-sophisticated investors (to reduce competition and lengthen useful life).
- Novel Impact: Ideal data will have relatively low correlation to existing predictive features.
- Reliability: to fully support automated ingestion and use,
    - Consistent scope and semantics
    - Consistent availability at a predictable time
    - Low risk of data being disrupted
- Actionable:
    - Can be tested and researched immediately.
    - Does not require new investment in expensive complementary data roadmap

6. Telecom Data Monetization Considerations

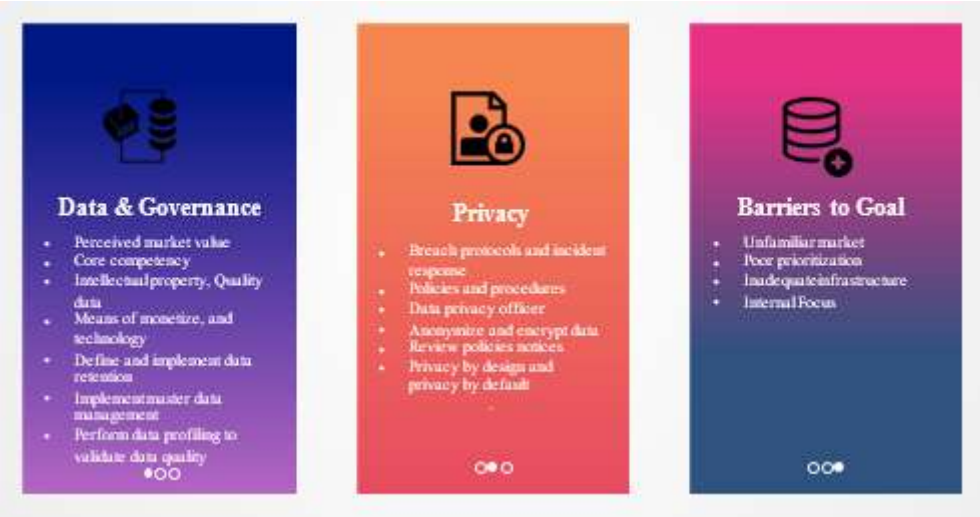

Figure 18. Some of the Gaps enlisted in the proposed Model.

Despite the great potential of Data Monetization for Telecoms, there exist technology gaps and limitations to realize data monetization strategies. Some of these considerations include:[77]

- Non-overlapping technology investments for CX[78] and data monetization due to misaligned business and IT initiatives
- Huge CAPEX requirements to process massive volumes of data
- Inability to unearth hidden insights due to siloed data initiatives
- Inability to marry various datasets together due to missing pieces around data standardization techniques
- Lack of user-friendly tools and techniques to discover, ingest, process, correlate, analyze, and consume the data
- Inability to experiment and innovate with agility and low cost

[77] https://aws.amazon.com/blogs/big-data/part-1-data-monetization-and-customer-experience-optimization-using-Telecom-data-assets/
[78] CX is short for Customer Experiences

- Telecom companies need to be mindful of the following considerations while pursuing Data Monetization opportunities.

There are several core issues to be addressed before data monetization success is achieved. In privacy we have several key points to consider such as breach protocols and incident response, policies and procedures, availability of data privacy officer, anonymization and encryption of data for regulatory compliance, reviewing policy notices, privacy by design and privacy by default. In Barriers to Goal, there is unfamiliar and untapped market factor with opportunities existing but few precedents and so many possibilities with little time for existing infrastructure to scale.

7. Final Word

It is a budding industry and Gulf is a ripe market because of lack of competition. Existing initiatives in UAE and Omantel TASIL are the only ones in Gulf, which shows the infrastructure/ecosystem and precedence for telecoms exists as well. The Ooredoo Oman Management recommended to consider the highlighted potential revenue stream.