Need for Data Analytics in Financial Institutions

Part A – Credit Information Sharing (CIS)

Learning Objectives

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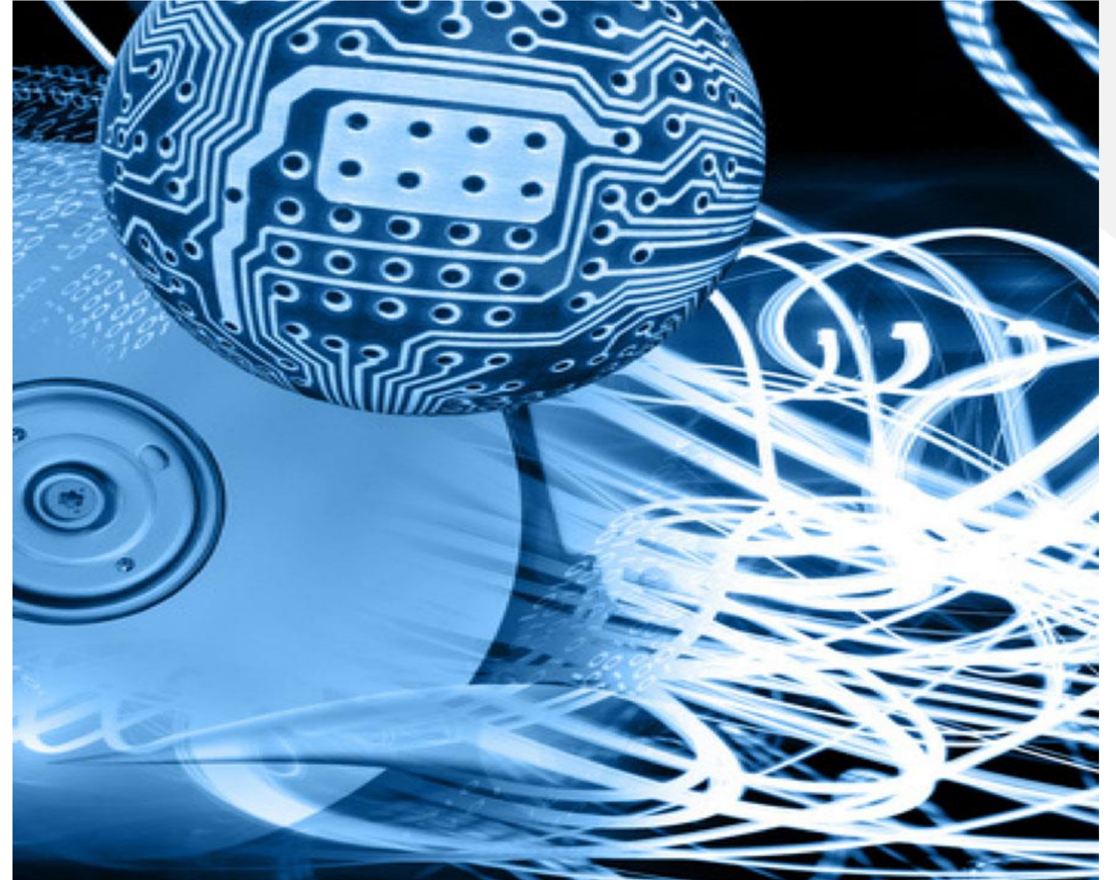
- *Overview of Credit Information Sharing (CIS)*
- *Credit Scoring System*
- *Portfolio Management*
- *CIS and CRBs*
- *The Credit Life Cycle*



Credit Reporting

- *Credit reporting is a vital part of a country's financial infrastructure and is an activity of public interest.*
- *Consequently the collection and management of data has an impact not only on each individual transaction but within each institution's portfolios and thereafter into the level of national statistics.*

‘Garbage in equals garbage out’.

- *A FI’s credit modelling process is only as good as the quality of the credit information used as input.*
- *Thus, it is vital that those collecting and inputting the original data are careful and fastidious at their tasks.*

General Principles of Credit Reporting

GPs focus on:

- *data accuracy, timeliness and sufficiency*
- *data security and efficiency*
- *service providers' governance and risk management*
- *legal and regulatory environment*
- *cross-border data flows*

Key Participants in a Credit Reporting System

Data Subjects

- Individuals
- Businesses

Data Providers/Other Data Sources

- Creditors
- Non-financial creditors
- Other Private Databases
- Public Records Agencies

Users

- Creditors
- Government Agencies
- Data Subjects
- Non-financial creditors

Service Providers

- Credit Bureaus
- Credit Registries

Technology versus Tradition

- *It is important to understand your customer' credit risk history and the future ability to repay loans and other credit facilities'. To help you do this, you have traditionally used the checklist of 5Cs to structure a comprehensive analysis.*
- *The inadequacies of the traditional approaches to loan processing with its attendant problems arising from repayment and recovery have been the concerns of FI professionals over time. This then calls for an approach that can take care of the inadequacies in the credit processing and administration procedures.*

Introduction to the Credit Scoring System

- *The credit framework of FIs should be designed to serve as a tool for monitoring and controlling risk inherent in individual credits. This concept is referred to as 'credit scoring'.*
- *Credit scoring is a statistical method used to predict the probability that a loan or an existing borrower will default or become delinquent.*
- *This model assigns scores for potential borrower by estimating the probability of default of their loans based on borrower and loan characteristic data.*

Credit Scoring

- *The credit scoring risk assessment technique is neither a crystal ball nor a means of forecasting whether an individually scored credit applicant will repay their debt as promised.*
- *What it can do is assess the credit risk of the applicant using the historical repayment record of individuals with similar characteristics in their financial profile.*
- *The FI uses its historical credit experience to estimate the degree of risk – low, moderate or high.*

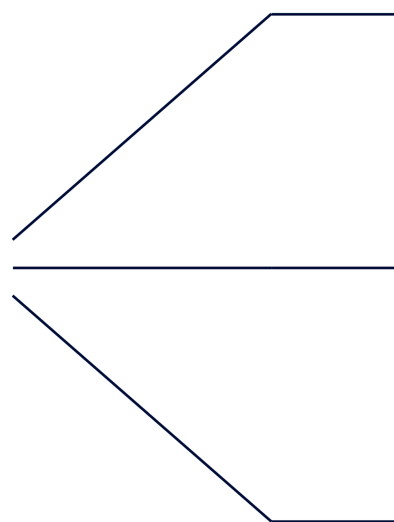
Why Score – Separating "Goods" from "Bads"

Scoring

Heterogeneous

Homogeneous

Data Points



Credit Bureau Data

Application Data

Behavioral Data

Alternative Data

- *Digital credit and mobile technology has led to financial services considering using alternative sources of data as input to their credit scoring systems*
- *Online sources of data are becoming increasingly important as many of the younger borrowers interact with their finances and financial institutions differently from previous generations.*
- *Consequently, financial institutions are considering a range of new sources of credit information from digital payment platforms, such as MPESA and from digital wallets such as Apple Pay.*

Alternative Data

- *Some FIs are using social media data in their credit scoring models.*
- *Such websites as LinkedIn can be used to confirm a borrower’s employment history. Websites which review small businesses can also be used to get a better understanding of the owner’s character and the short-term health and longer term prospects.*
- *Finally, Facebook can be used to understand the social activities of a borrower, perhaps gaining an insight into attitudes to spending as well as identifying milestones that could have an impact on their finances in the future.*

Emerging Trends in credit Scoring

- *Fis are always looking to improve their credit scoring models and the accuracy of the information*
- *used. Consequently, they are continually researching and investigating new information which could improve their lending decisions. One such information source being considered is how potential customers navigate around the FI's webpage before applying for an account or loan.*

Score Performance

Credit Scores are judged on how they perform in three major areas:

- ***Risk discrimination**:*
  - ✓ *How well they separate "goods" from "Bads"*
- ***Prediction:***
  - ✓ *How often does the system make the correct prediction*
- ***Odds Ratios***
  - ✓ *The risk should reduce as the score increases*

Monitoring Credit Scoring

- *Scorecards are regularly reviewed to ensure that they are still appropriate to the customer base of the financial institution. The review will normally measure the following performance areas:*
  - *Stability of the current score in comparison with the historical performance – e.g., has the level of declined applications increased?*
  - *Have there been changes to the makeup of the customer base?*
  - *How effective has the override performance been (where the lender has not followed the course of action recommended by the scoring system)?*
  - *Has there been stability in override decisions?*
  - *Has the predictability of the level of defaults or approvals matched actual results?*

Monitoring Credit Scoring

- *Historically, banks have built their credit scorecards using default or partial data from the credit reference bureaus.*
- *This has given FIs details of any credit agreements which are in default. In recent years, the use of full-file data has taken traction in the banking industry where banks can see details of all credit agreements with other lenders, whether in default or not. Although strict rules apply around the use of full file data, (Bureau Regulation 2020), there are clear benefits in preventing lending to customers who cannot afford their total commitments.*

AI (Artificial Intelligence) and Data Analytics

- *AI (Artificial Intelligence) in data analytics (**risk rating/scoring models)** is used to analyze large data sets, simplify and scale trends, and uncover insights for data analysts.*
- *AI data analytics is designed to support, automate, and simplify each stage of the data analysis journey. AI tools can help with data collection (ingesting from multiple sources) and preparation (cleaning and organizing for analysis).*
- ***Therefore, AI cannot do the work of a data analyst but helps analysts to interpret trends and insights for more informed decision-making.***

Summary – Benefits of Scoring

- *Faster TAT*
- *Objective Credit Assessment*
- *Centralized management of Risk*
- *Quick communication of changes in Risk appetite*
- *Cost reduction*
- *Profit maximization*
- *Better RoCE*
- *Happy Shareholder – Happy Customer /member*

Portfolio Management

- *Managing credit at a portfolio level is an important source of information to senior management and, therefore, the concepts we have described in this session should be understood.*
- *It is vital that those working in lending at any level, understand the importance of the quality of the underlying data used in portfolio management.*

Portfolio Management - Establishing EL

Loss Rate: 40%
Acceptance Rate: 10%

Loss Rate: 19%
Acceptance Rate: 50%

Loss Rate: 8%
Acceptance Rate: 70%

Loss Rate: 2%
Acceptance Rate: 100%

$$EL = p(D)xEAD\ x\ LGD$$

Risk of the customer represented by the probabilities derived from the scoring engine

Portfolio Management

- *Historically, FIs carried out credit risk analysis on an individual credit basis with little or no regard for the overall balance of assets in the portfolio. This produced big swings in provisions and profitability.*
- *Portfolio management enables diversification of risks because concentrations of risk can be readily identified. A balanced portfolio needs to avoid having lots of loans that will default together.*

Portfolio Management

- *A well-spread portfolio, such as one consisting of a large number of personal loans is likely to be less volatile than a narrow portfolio of property advances that have a high risk of defaulting together in recessionary conditions.*
- *FIs need to hold sufficient capital to cover the volatility in their loan portfolio. The greater the volatility, the greater the capital need. This can be developed into the concept of achieving a risk-adjusted return (to cover expected loss) on risk-adjusted capital (to cover unexpected loss).*
- *Extra capital need produces a greater cost in relation to more volatile portfolios and this needs to be factored into pricing decisions.*

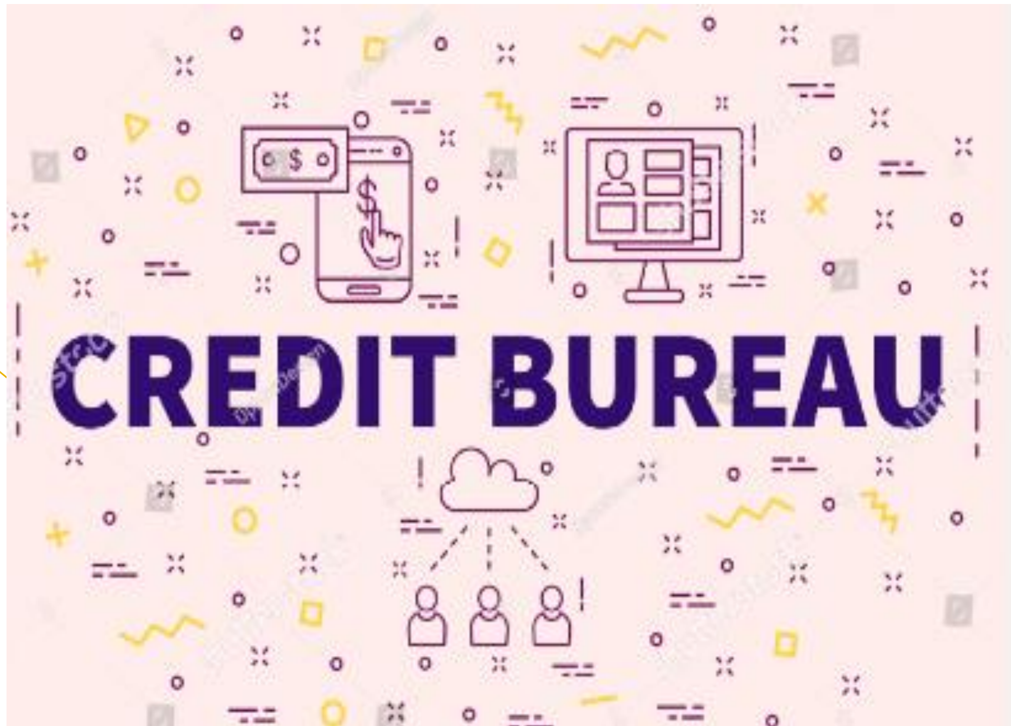
Portfolio Management

- *So, Portfolio management is an important information source as it :*
  - *Enables the optimization of risk and reward.*
  - *can entail directing business development efforts into acquiring different types of loan assets or making a conscious effort to exit certain types of business.*

Credit Information Sharing (CIS) and Credit Reference Bureaus (CRB)

- *Lenders need to have reliable information to make lending decisions*
- *Consumers and businesses need to be able to give evidence to the lenders to prove their reliability*
- *Regulators need to be able to monitor risk with lenders and within the credit markets*

Solution



- *A CRB is a firm that collects information from various sources and provides consumer credit information on individual customers for a variety of users (banks, Saccos, mortgage lenders, and other providers of credit.*
- *The CRBs primary objective is to enhance data quality and availability for lending decision-making by consolidating data from different creditors and other sources*

Credit Information Sharing

- *Credit Information Sharing (CIS) is a process where credit providers (such as banks, SACCOs MFIs and other credit providers) exchange information on their outstanding loans and advances through licensed CRBs.*

Benefits of CRBs to the Member/Customer

- *Good members distinguish themselves from persistent defaulters,*
- *Consolidates a customer's positive credit information from various lenders*
- *Ability to negotiate credit terms on the strength of their good repayment history.*
- *Credit providers have online access to credit reports generated by the CRBs*
- *customers are able to easily change credit providers and thereby take advantage of competition to secure better credit terms.*

Benefits of CRBs to Credit Providers/Lenders

- *CIS strengthens the risk management processes used by lenders.*
- *A customer's info on past loan repayments with Lenders is made available on a credit report*
- *CRBs also deter serial defaulters from moving from one FI to another.*

The Credit Bureau System

Benefits of CRBs to the Wider Economy

- *Links between access to credit and economic development of a country.*
- *A functioning CRS is known to reduce transactions costs in lending to SMEs which will have the effect of making credit more available while helping to reduce price through reduced costs.*
- *The ratio of private sector credit to GDP will rise, hence improving efficiency in financial intermediation that comes with reduced cost of operations.*

The Credit Life Cycle

Credit monitoring and review → Business opportunity identified → Due diligence → Credit application → Credit analysis → Credit committee → Credit negotiation → Loan agreement signed → Loan drawdown → Credit administration → Credit monitoring and review

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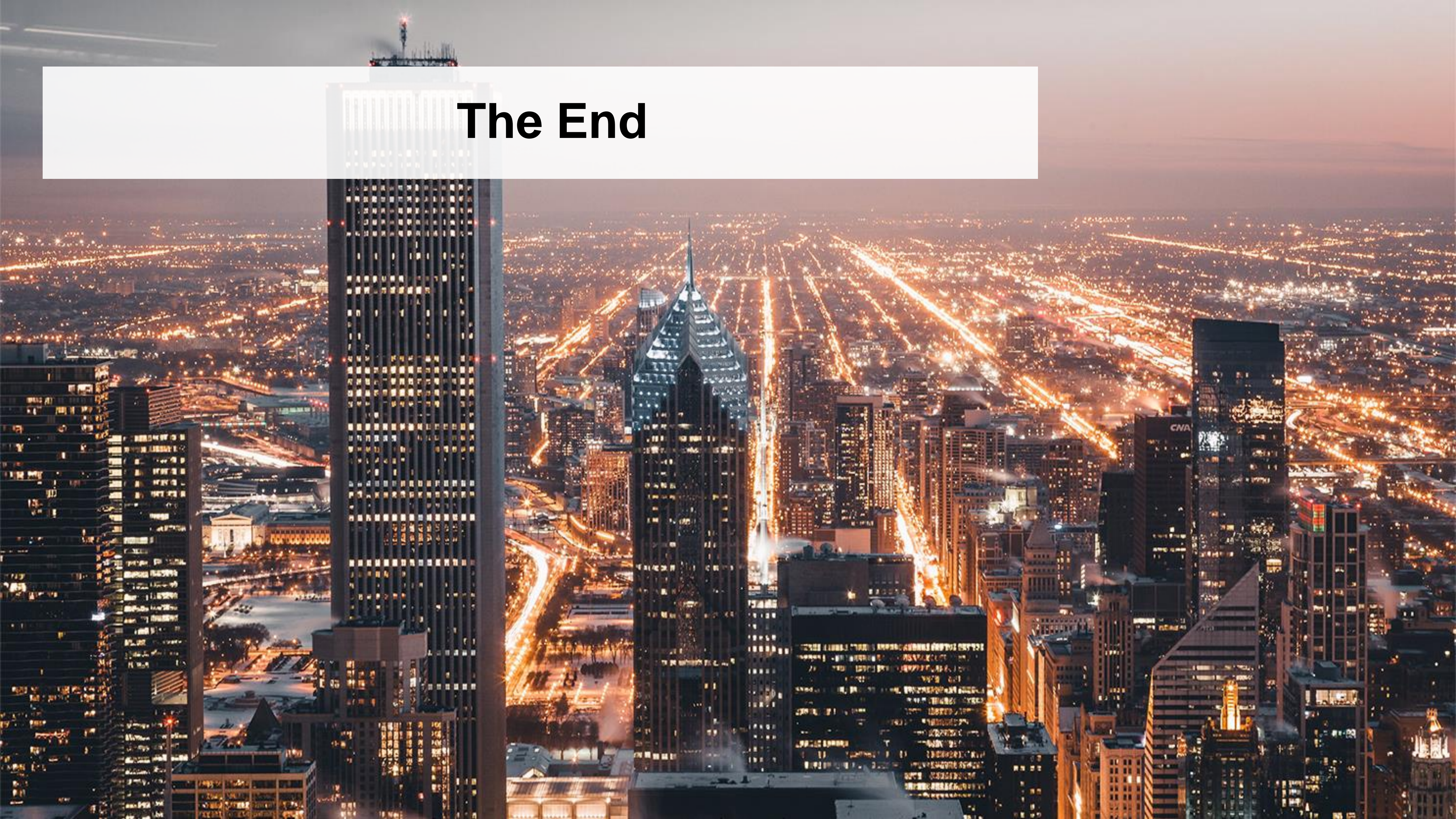

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