Wells Fargo's Quantitative Analytics Centers of Excellence

The Modeling activities at Wells Fargo are organized into Centers of Excellence (CoEs). Corporate Model Risk is responsible for model validation or model risk assessment while other CoEs are responsible for model development.

1) Artificial Intelligence Machine Learning Model Development *(Risk Analytics & Decision Science Track)*
2) Commercial Banking Model Development *(Risk Analytics & Decision Science Track)*
3) Consumer Modeling *(Risk Analytics & Decision Science Track)*
4) Corporate Model Risk *(Both Tracks)*
5) Market and Counterparty Risk Analytics *(Capital Markets Track)*
6) Mortgage Model Development *(Capital Markets Track)*
7) Retail Investing & Financial Advice *(Risk Analytics & Decision Science Track)*
8) Risk Modeling Group *(Risk Analytics & Decision Science Track)*
9) Traded Products Model Development *(Capital Markets Track)*

1) Artificial Intelligence Machine Learning Model Development
The AI/ML CoE provides end to end development of AI Models and supports Enterprise Analytical platforms. The team provides Artificial Intelligence (AI), Machine Learning (ML) and Natural Language Processing (NLP) talent and expertise. The team partners with Wells Fargo business and enterprise teams to use AI to deliver new solutions, provide impactful insights, and reduce risk.

3) Commercial Banking Model Development
The Commercial Banking Model Development CoE is responsible for development, deployment, and risk management of all models involving the Commercial Bank and its customers. These include internally developed models using open source, proprietary, and third-party tools in a Hadoop or analytics lab environment as well as vendor models embedded in third-party solutions. Model applications include sales and marketing analytics, risk analytics, customer and digital experience analytics, data management, and intelligent automation.

3) Consumer Modeling
The Consumer Banking Model Development CoE team leverages machine learning and statistical techniques to develop predictive models to drive revenue and cost savings within Consumer and Small Business Banking and Consumer Lending. Areas of focus include targeting, personalization, fraud detection, lifetime value estimation, and operations, and model applications range from batch propensity models to time series forecasting to real-time bidding and optimization. The CoE has a strong focus on business outcomes and works closely with external partners to understand current problems and maximize impact of applied modeling.

4) Corporate Model Risk
The Corporate Model Risk (CMoR) CoE team is responsible for model risk assessment (or validation) of all models developed at Wells Fargo. These include more than 1,400 models in Risk Analytics & Decision Science as well as Capital Markets. The quantitative validation teams use sophisticated mathematical as well as statistical, machine learning, and NLP techniques to validate models developed by the modeling CoEs. The Advanced Technologies for Modeling team within CMoR conducts R&D of cutting-edge techniques and implementation in efficient algorithms.

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5) Market and Counterparty Risk Analytics
The Market and Counterparty Risk Analytics (MCRA) CoE team develops, governs, and manages quantitative and qualitative models for the Market and Counterparty Risk Management (MCRM) organization. Market Risk Analytics models support the Corporate & Investment Banks traded products across the following asset classes: commodities, credit, equities, foreign exchange, rates and structured products. Counterparty Credit Risk Analytics develops models used for counterparty credit risk management and limit monitoring, Comprehensive Capital Analysis and Review (CCAR) submissions, and counterparty portfolio stress testing. MCRA's model development activities use primarily C++, Python, and MATLAB.

6) Mortgage Model Development
The Mortgage Model Development CoE team develops risk models for all mortgage-related capital markets activities. We support Home Lending, Investment Portfolio, Treasury/ALM, Risk, and WFS Trading. We utilize various cutting-edge quantitative modeling techniques such as high-dimensional Monte Carlo simulation, multi-factor interest term structure model within no-arbitrage framework, and time series analysis for forecasting mortgage prepayment behavior.

7) Retail Investing & Financial Advice
The Retail Investing and Financial Advice Modeling CoE team develops, implements, executes and monitors all quantitative and qualitative models supporting the delivery of retail investment solutions, plans, and advice to our clients. Models include both internally developed and vendor solutions supporting: Retail customer financial planning applications; Financial plan implementation and execution; Generating capital market assumptions for retail applications; Generating tactical and strategic investment strategies for retail investors; Developing retail investment products; Surveillance of Financial Advisors and transactions.

8) Risk Modeling Group
The Risk Modeling Group team is responsible for development, deployment and governance of the following model types: 1) Credit loss forecasting models for the entire loan portfolio; 2) Models to support Pre-Provision Net Revenue (PPNR) estimates including forecasting models; 3) Recovery & Resolution Plan valuation models; 4) Operational Risk models for use in regulatory capital estimation and CCAR (Comprehensive Capital Analysis and Review) processes; 5) Compliance Risk models for Financial Crimes and Fair Lending; 6) Credit Scoring and Decisioning models for commercial and retail portfolios. Modeling techniques used by RMG include statistical and econometric methods (e.g. regression, survival analysis, time series analysis), as well as applications of machine learning methods.

9) Traded Products Model Development
The Traded Products Model Development CoE team is responsible for developing models for pricing, hedging and official risk management. These models are used by various Wells Fargo trading desks. The CoE includes teams aligned with the various primary traded asset classes (Rates, Equities, Foreign Exchange, Commodities, Credit, Asset-Backed Finance), as well as horizontal teams supporting Credit and other Value Adjustments ("XVA"), the Core library, and regulatory/policy adherence. Beyond model development, the team also directly interacts with trading and sales teams by providing model use and calibration expertise.