

# Wells Fargo's Quantitative Analytics Centers of Excellence

Model-related activities at Wells Fargo are performed by the following **Model Development Centers**.

- Artificial Intelligence Machine Learning Model Development (Risk Analytics & Decision Science Track)
- Commercial Banking Model Development (Risk Analytics & Decision Science Track)
- Consumer Model Development Center (Both Tracks)
- Market and Counterparty Risk Analytics (Capital Markets Track)
- Model Risk Management (Both Tracks)
- Mortgage Model Development (Capital Markets Track)
- Risk Modeling Group – Forecasting (Risk Analytics & Decision Science Track)
- Risk Modeling Group – Decisioning (Risk Analytics & Decision Science Track)
- Traded Products Model Development (Capital Markets Track)

**Artificial Intelligence Machine Learning Model Development Center** 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.

**Commercial Banking Model Development Center** 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.

**Consumer Model Development Center** focuses on quantitative models related to growth, personalization, and optimization for the consumer lines of business: Consumer, Small, and Business Banking (CSBB), Consumer Lending (CL), and Wealth and Investment Management (WIM). Areas of focus include marketing & customer value, marketing mix, pricing optimization, advice and planning, causal inference, wealth and investment management, and consumer generative AI. The team has a strong focus on business outcomes and works closely with partners across the lines of business and other corporate functions to understand current problems, propose modeling solutions, and maximize impact of applied modeling.

**Market and Counterparty Risk Analytics** 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.

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**Model Risk Management** is responsible for model risk assessment (or validation) of all models developed at Wells Fargo using mathematical, statistical, machine learning, and NLP techniques. These include more than 1,400 models in Risk Analytics & Decision Science as well as Capital Markets track.

**Mortgage Model Development Center** 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 highdimensional Monte Carlo simulation, multi-factor interest term structure model within no-arbitrage framework, and time series analysis for forecasting mortgage prepayment behavior.

**Risk Modeling Group – Decisioning** is responsible for development, implementation, production and monitoring of the following model types: consumer and commercial credit decision, fraud, and financial crimes models. RMG - Decisioning primarily uses traditional scorecard models (logistic regression) and interpretable machine learning techniques (EBM, LightGBM, XGBoost).

**Risk Modeling Group - Forecasting** 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) Fair lending compliance models. Modeling techniques include statistical and econometric methods (e.g. regression, survival analysis, time series analysis), as well as applications of machine learning methods.

**Traded Products Model Development** is responsible for developing models for pricing, hedging and official risk management. These models are used by various Wells Fargo trading desks. The group 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.