



How Exeter Finance Got a 90-Day ROI from ML

How Exeter Finance leveraged the power of Programmatic Feature Discovery to accelerate ML development to identify possible high-risk customer segments in just 30 days while achieving a 90-day payback.



About Exeter Finance

Exeter Finance LLC is a leading indirect auto finance company specializing in non-prime lending. Founded in 2006, the company has established itself as a trusted partner for U.S. automobile dealers by underwriting, purchasing, servicing, and securitizing retail installment contracts. Their serviced finance portfolio stands at an impressive \$8.5 billion.



“ The biggest problem is that you can’t just throw more bodies at the data. When done manually, it’s just a repetitive, trial-and-error process that takes time.

dotData solves a problem I’ve been trying to solve for 20+ years. ”

Karthik Chandrasekhar
SVP of Decision Science | Exeter Finance

ONE DAY

OF RISK PATTERNS
DISCOVERED IN ONE
DAY THAT WOULD
TAKE 6-8 WEEKS
MANUALLY

EXPLAINABLE

DOTDATA FEATURES
WERE HIGHLY
EXPLAINABLE, A MUST
FOR A REGULATED
BUSINESS

10X POWER

DOTDATA MAKES
ML STUDIO 10X
MORE POWERFUL
FOR THE TEAM

90 DAYS

PAYBACK PERIOD
BASED ON
ADDITIONAL STAFF
NOT NEEDED

ABOUT THE CLIENT

Industry:	Indirect auto finance
Employees:	1,500+
Dealers:	12,000+
Customers:	500,000+
Portfolio:	\$8.5B+

CHALLENGES

- High volume of poorly documented external data made it difficult for Data Science team to discover high-value features without huge efforts.
- Adding more “bodies” was not a viable solution and open-source products were not flexible or powerful enough.
- In-house team was spending too much time working on data instead of becoming more familiar with business problems and building ML models.

SOLUTION

- dotData’s Feature Engineering technology evaluated billions of data points and discovered meaningful patterns in 2 hours.
- dotData’s unique transparency provided the business with explainable insights that business users and regulators could understand.
- dotData’s platform seamlessly integrated with Microsoft Azure ML Studio for a seamless, easy to learn experience.

Headquartered in Irving, Texas, Exeter Finance employs 1,550 dedicated professionals.

Exeter Finance focuses on solving critical challenges through the application of predictive analytics. By leveraging data science and automation, the company aims to address various problems in the financial services industry, including default risk, loss severity, delinquency risk, vehicle sales price estimation, income estimation, and payoff risk.

LEVERAGING PREDICTIVE ANALYTICS TO MITIGATE LENDING RISK

Exeter Finance harnesses the power of predictive analytics to drive numerous essential functions within its operations. Here are some critical use cases where data science automation plays a pivotal role for the company:

- **Managing the Risk of Loan Default:** Using advanced predictive models, Exeter Finance effectively assesses and mitigates the risk of loan default when receiving the loan application.
- **Improving Pricing Accuracy:** Through predictive analytics, Exeter Finance can improve the accuracy of their pricing algorithm, providing them with a competitive advantage in the market.
- **Predicting and Modeling Profitability (Forecasting):** Leveraging data-driven modeling techniques, Exeter Finance accurately predicts loss and revenue trends, enabling them to make informed business decisions and optimize financial strategies.
- **Lowering the Risk of Delinquencies:** By identifying patterns and indicators of delinquency, Exeter Finance proactively manages the risk of late or missed payments, minimizing financial losses and improving customer satisfaction.
- **Managing Customer Defaults:** Predictive analytics helps Exeter Finance identify customers at higher risk of defaulting on their loans, allowing the company to implement tailored strategies to reduce default rates.
- **Predicting and Lowering Loss Severity:** Through data-driven insights, Exeter Finance can anticipate and mitigate the severity of loan defaults, enabling them to reduce loan loss severity.

THE CHALLENGE: TOO MUCH DATA, TOO MUCH NOISE, NOT ENOUGH TIME

Like many financial services companies, Exeter Finance manages vast volumes of data and has to transform them into actionable insights. Exeter’s data includes internal data like historical payment information, transaction records, contact history, delinquency and loan balance history records, and collateral value trends. A specific pain point for companies like Exeter Finance is third-party data. Financial Services companies get data from third-party sources like credit bureaus that tend to be unwieldy and poorly documented, making it difficult to use when developing ML models.

While Exeter has leveraged this rich and diverse data set from the onset, extracting valuable features from this large, complex volume of detailed data is time-consuming and resource-intensive. In addition, as Exeter’s SVP of Decision Science, Karthik Chandrasekhar said, *“the biggest problem is that you can’t just throw more bodies at the data. When done manually, it’s just a repetitive, trial-and-error process that takes time.”* Exeter Finance had experimented with open-source products like FeatureTools but found that the

unsupervised workflow created more work and was overwhelming for their data scientists. They had also developed one-off in-house tools, but mostly, they were one-offs that took too long to build, were too niche in scope, and were hard to maintain.

EXETER'S STRENGTHS AND THE NEED FOR SPEED

Exeter Finance boasts three core machine learning (ML) process strengths. First, they possess extensive domain knowledge and leverage their expertise in auto finance to build and enhance their risk models. Second, the data science team brings deep experience in ML and develops highly effective predictive models in areas like loan default predictions — finally, Exeter leverages pre-built feature sets provided by third-party data providers.

Despite their existing success, Exeter Finance recognized the need for more ideas to be tested and evaluated beyond what they had previously been able to explore manually. The team also knew that working with time-series data was time-consuming and difficult. They sought a solution to address these challenges and to give them the flexibility to capture emerging trends, evaluate new data sources, and provide scalability without adding exorbitant costs. As Mr. Chandrasekhar said, *“Finding an automated solution for pattern discovery in our vast data repositories is a challenge I’ve been trying to solve for 20+ years.”*

After extensive research and evaluation, Exeter Finance found dotData to be the ideal solution to address their challenges and propel their data science capabilities. The reasons behind their choice of dotData hinged on dotData’s programmatic approach to feature discovery and engineering for Machine Learning:

- **Quick installation:** Installing the dotData product took just one hour, ensuring a swift setup process and rapid time-to-value.
- **Testing more Ideas and utilizing data diversity:** Exeter Finance was impressed by dotData’s ability to enable them to test more ideas faster and at scale. dotData’s data-centric approach automatically analyzes available data and surfaces feature hypotheses, requiring minimal intervention from the team. This capability allowed Exeter Finance to explore a broader range of ideas and leverage data diversity, resulting in more robust and accurate models -- *“dotData really allowed us to discover the unknown unknowns, the hypotheses we would have never considered.”* Said Mr. Chandrasekhar.
- **Focus on business understanding, not algorithm building:** dotData’s platform relieved Exeter’s data science team from the burden of building complex data manipulations and algorithms for feature discovery and analysis. By automating the feature discovery process, dotData empowered the team to concentrate on understanding the business and deriving actionable insights. This shift in focus allows the team to do in a few hours what typically took months.
- **Skill expansion without steep learning curve:** dotData allowed Exeter Finance to expand its skills without needing a steep learning curve. The platform seamlessly integrated into their workflow, allowing data scientists to interact with dotData within Azure ML’s Studio environment using regular Python code. This streamlined integration enabled a smooth transition and accelerated their learning process, making it 10X easier for the team to explore data.
- **Scalability for handling massive data volumes:** Exeter Finance valued dotData’s scalability, demonstrating its ability to handle massive data volumes effectively. This assurance gave them confidence that the platform would continue to provide value in the long term, even as their data needs grow.

SOLUTION

- dotData Feature Factory with Microsoft Azure ML Studio

RESULTS

- Discovered dozens of potential risk patterns in a day that would have taken their team 6 to 8 weeks to discover manually.
- Newly discovered model variables impacted exposure to bad debt in 30 days.
- dotData’s ability to discover and evaluate multiple hypotheses simultaneously means the team can now focus on solving problems, not data.

“Finding an automated solution for pattern discovery in our vast data repositories is a challenge I’ve been trying to solve for 20+ years.”

- **Support for broad data types:** dotData's versatility in the handling of temporal, geospatial, text, categorical, multi-categorical data, and more was a crucial factor for Exeter Finance. The platform's ability to effortlessly accommodate various data types enabled Exeter Finance to build richer and more powerful models with minimal effort and without adding costly resources.
- **Control and flexibility:** dotData provided Exeter Finance with granular control over various aspects of the feature discovery process. They could instruct dotData to ignore certain columns or exclude specific types of variable transformations, ensuring a customized and precise approach to feature selection.

A "FREE" DATA SCIENTIST AND A 30-DAY PAYOFF

Exeter Finance's initial use case with dotData focused on enhancing their predictive model for measuring delinquency risk among active clients. With the help of dotData, the Exeter Finance team discovered significant features that impacted model performance in the first 2 hours of using the product. *"We were honestly stunned,"* said Mr. Chandrasekhar. *"dotData discovered dozens of potential risk patterns in a day that would have customarily taken our team 6 to 8 weeks to discover manually. dotData easily saves us the cost of hiring at least one additional data scientist."* dotData provided four critical advantages:

- **Discovery of new features:** Within 2 hours of utilizing dotData, Exeter Finance uncovered new and unexpected features based on historical time-series transaction data. These additional features, previously not part of Exeter's feature library, significantly increased the predictive power of their models and identified critical issues with their data. *"We knew our model was under-performing,"* said Mr. Chandrasekhar, *"but we did not realize the problem existed in the data, not our model."*
- **Speed and 90 Day ROI:** dotData enabled Exeter Finance to obtain answers faster than traditional manual analysis. Without dotData, they would have hired at least one additional data scientist. With dotData, they could discover dozens of risk patterns in one day that would have taken the team 6 to 8 weeks to discover manually. By quickly identifying the potential causes behind events like higher delinquencies or payoffs, dotData significantly reduced the time and effort required by data scientists and provided Exeter Finance with annualized savings that resulted in a 90-day payback period for their investment.
- **Feature coverage and predictive power:** By incorporating newly discovered insights into their models, Exeter Finance experienced a notable improvement in predictive power. dotData identified unique features highlighting specific criteria for customers likely to default on their loans. Incorporating these features reduced the company's exposure to delinquencies in the first 30 days of using dotData.
- **Enhanced explainability:** dotData identified relevant features and provided transparency and explainability critical for a financial institution - not just to explain predictive models to a line of business users and the regulators that must approve their use.

Overall, dotData's capabilities empowered Exeter Finance to leverage data science automation effectively, resulting in faster insights, expanded feature coverage, improved predictive power, and enhanced explainability.

WHAT'S NEXT

Exeter's use of dotData Feature Factory thus far has been to "fix holes" (as described by Mr. Chandrasekhar). However, The plan moving forward is to empower a more proactive mode and incorporate Feature Factory into an everyday toolset used by Exeter Finance's data science team. *"dotData makes ML studio 10X more powerful,"* said Mr. Chandrasekhar. *"Moving forward we want the team to be able to use this platform with little if any guidance, we want it to become part of the standard toolset used by the entire data science team."*

CONCLUSION

Exeter Finance, a leading non-prime auto finance company, faced the challenge of utilizing its abundant data for predictive analytics. Seeking a solution to test more ideas, enhance productivity, and scale their operations, Exeter Finance turned to dotData.

By implementing dotData, Exeter Finance accelerated its feature discovery process, finding dozens of risk patterns in one day that would have previously taken the team 6 to 8 weeks to discover. The added speed provided by dotData allows the team to quickly test more ideas and leverage in-house and external data sources. dotData's integration with Azure ML Studio seamlessly fits into their existing workflow, ensuring a smooth transition and empowering their data scientists to focus on understanding the business instead of algorithm building.

Exeter Finance realized immediate benefits from dotData, seeing returns in 30 days and achieving ROI in 90 days. The platform enabled them to discover new features, improve predictive power, and enhance model explainability. With dotData, Exeter Finance achieved faster insights, increased productivity, and better data utilization, leading to improved risk management, revenue forecasting, pricing strategies, and customer default mitigation.

dotData proved an invaluable partner for Exeter Finance, providing a scalable, data-centric solution that empowered their data science team and drove actionable results. With dotData, Exeter Finance continues to lead the non-prime auto finance industry with advanced predictive analytics and automation.

ABOUT DOTDATA

dotData's pioneering automated feature discovery and engineering platform solves the hardest challenge of AI/ML projects. Our Feature Factory technology discovers hidden gems for empowering your business as transparent, explainable features by connecting the dots within large-scale data sets in hours, without human bias. It enables data scientists to explore 100X more features, including those you've yet to imagine, and arguments AI/ML projects in an agile manner to deliver business value faster. In an era of rapid change, AI-discovered insights can be a game changer for business growth and innovation across industries. The power of dotData's platform and ability to provide game-changing insights is why Fortune 500 organizations across the globe use dotData.

For more information, visit www.dotdata.com, and join the conversation on [Twitter](#) and [LinkedIn](#).



1730 S. El Camino Real
San Mateo, CA 94402
<https://dotdata.com>

TAKE THE NEXT STEP

LEARN MORE