



# TENFIFTY

TAILORED AI SOLUTIONS

## Prime Optima

A HYPEROPTIMISATION ENGINE

Prime Optima is an hyperoptimisation engine capable of improving solutions to most difficult optimisation problems.

Microsoft  
Partner



Gold Application Development  
Gold Application Integration  
Gold Application Lifecycle Management  
Silver Data Analytics  
Silver Data Platform

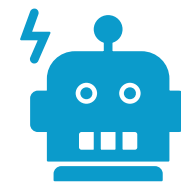


Tenfifty is an **industry and solution agnostic AI company** that deploys concrete, custom built services for companies who want to optimize, automate, forecast and predict on **all kinds of data**.



### 50+ projects

Large number of successful and implemented AI projects.



### AI first

We are AI artists and experts in our field.



### 15+ years

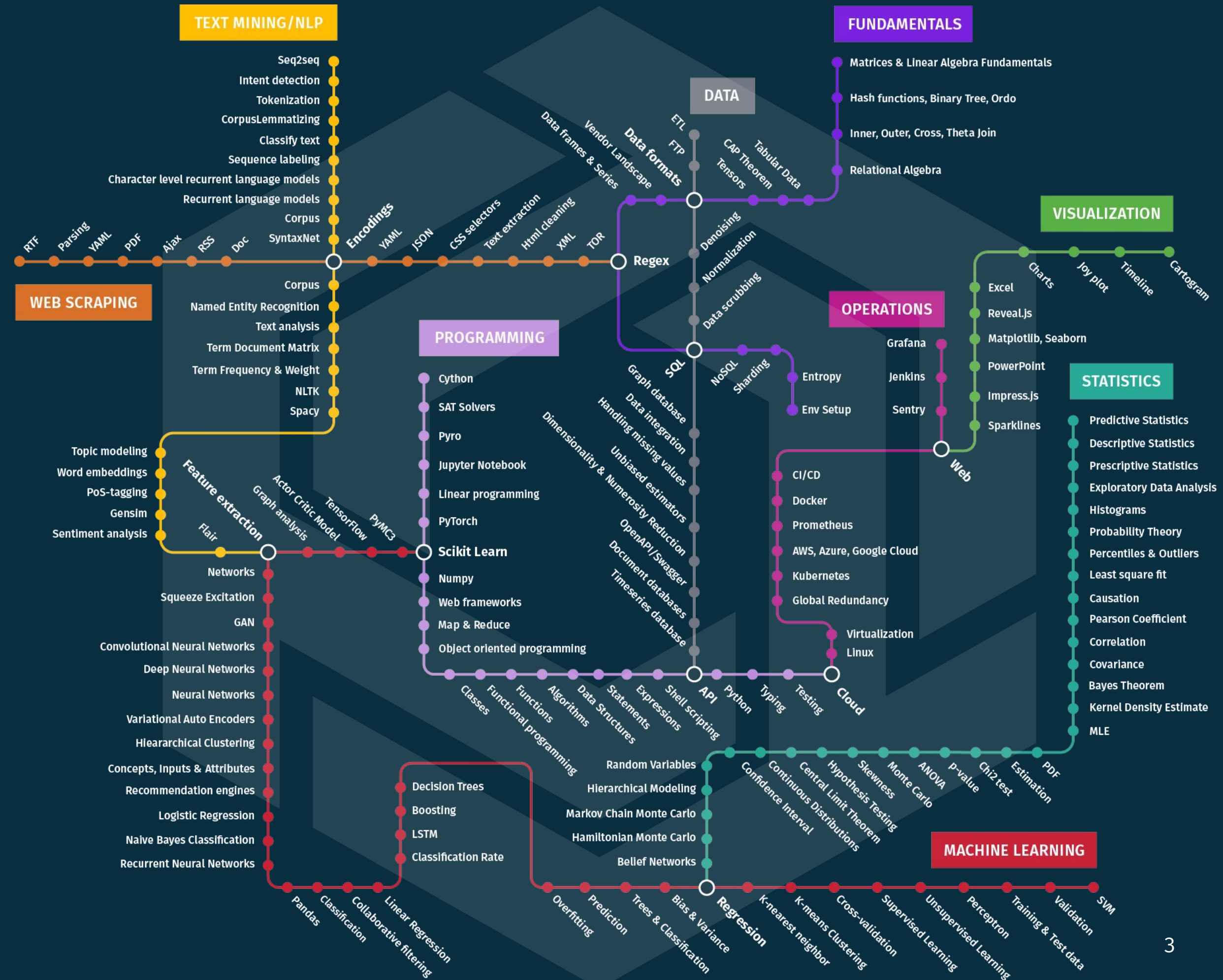
Unique and extensive experience.



### Customers

Customers in Sweden, Norway, Denmark, Finland, Netherlands, Germany, England, etc.

# AI understanding and skills within Tenfifty, and **needed** in **advanced** data science projects







Using AI for planning means optimising your models and processes, which is a complex problem, but with great value.

### CHALLENGES

Most optimisation software packages are specialised and extremely sensitive to the parameters used to configure them.

### IDEAL SOLUTION

Ideally you would want an easy to use software library that can automatically search the parameter space for the best combination for your application.

### DESIRED OUTCOMES

Optimising your models should give you concrete and actionable feedback that can improve the performance of your processes.





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## Prime Optima

Better optimisations through Bayesian statistics for hyperparameter optimisation.

1

### PLAN FOR SUCCESS

Using Prime Optima on top of your models helps you optimise your processes and create value for your organisation.

2

### OPTIMISES EVERY PROBLEM

Based on state-of-the-art Bayesian statistics, Prime Optima can optimise parameters for any solver for any problem.

3

### AZURE READY

Prime Optima is designed to run on and connect to your existing Azure infrastructure.



# Tenfifty Prime Optima & Microsoft Azure

Microsoft Azure is the ideal platform for running **Tenfifty Prime Optima models**, both in production use as well as for training workloads. The broad range of services available in Azure provides the computing power needed to fully enjoy the benefits of the Prime Optima service. Prime Optima is also engineered to take advantage of the advanced features of Azure.



## Prime Optima & Databases in Azure

Prime Optima can use data directly from data sources in Azure, such as managed SQL databases or Azure Cosmos DB.

For every Prime Optima application there is a fitting database solution in Azure.



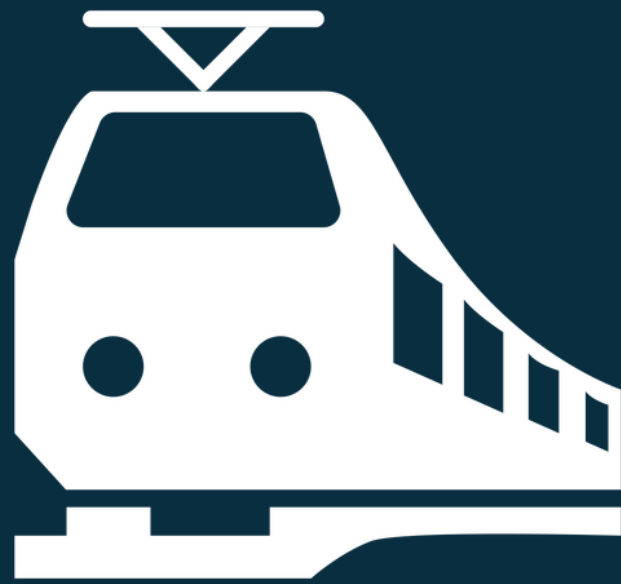
## Prime Optima & Azure ML

Using Prime Optima in Azure ML, providing the unique prediction capabilities of PRIME to ML pipelines, is the quickest way to enjoy the possibilities of Prime Optima.



## Prime Optima & Azure DevOps

Developed from the get go for containerization, Prime Optima can be deployed to local machines, servers in public or private clouds as well as clusters.



"Once we work with third parties, we want them to be the best at what they do. Tenfifty is characterized by very technically knowledgeable people and we are very good at taking the technique and linking it to a user experience. Our customers save two working days with Tenfifty's optimization engine Prime Optima, so for us, this collaboration and solution has turned out just as well as we wanted it to."

- A Development & Operating Company that develops and delivers vehicle planning systems used for bypass planning in the railway industry.



### Planning

# Optimize train routes with Prime Optima



## Purpose

The customer offer a service that plan which trains will run which routes. The challenge is to put together a schedule that optimally plans maintenance, refuelling and other activities.



## Data sources

Existing train schedules and optimization problems.



## Technologies

MIP-solver, MCTS reinforcement learning, Genetic algorithms, custom heuristic algorithm, Prime Optima hyperparameter optimisation.



## Outcome

Tenfifty delivered a combination solver on a human level. A previously unresolved problem for this domain. The service is used commercially by train companies to optimize train routes.





# Let's talk

Whether you want to get a project started, ask a question, or just say hello, we'd love to hear from you.

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Learn more: <https://tenfifty.io>



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