01

INTRODUCTION:
UNIT8
FIRMENCH

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Unit8

- Scale-up based in Lausanne & Zürich
- **Mission:** accelerate adoption of machine learning and data engineering in the industry
- Founded 2017
- 85 people
- Partnering with Firmenich and the d-lab since its inception
- Come talk to us at our booth, or julien@unit8.co

Unit8™

unit8.com
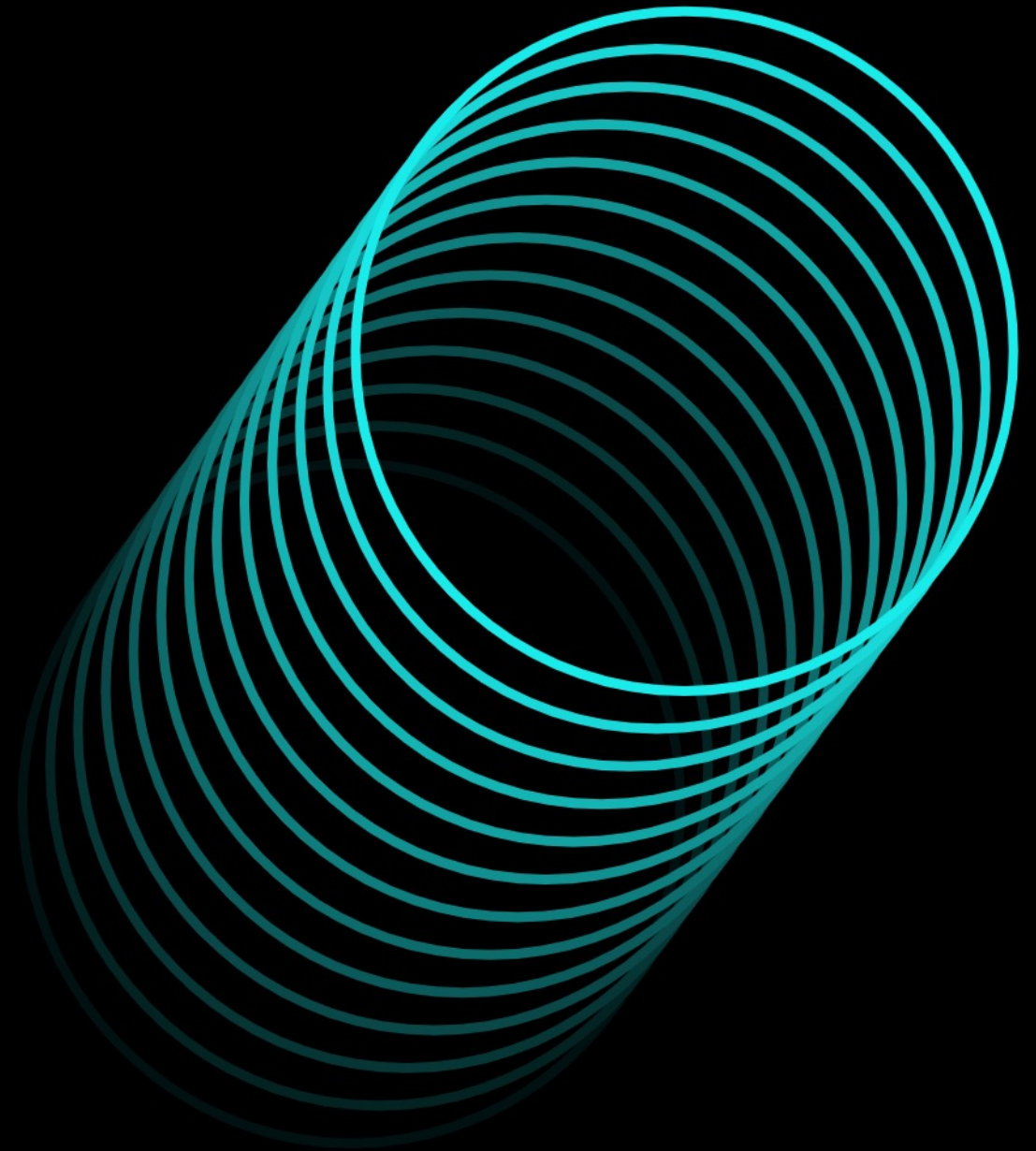
WHAT **WE DO**

Perfumery

Ingredients

Taste & Beyond

Research

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FINE FRAGRANCE **CREATIONS**

BEST-SELLING CLASSICS

NICHE SUCCESS STORIES

PROMISING RECENT CREATIONS

SKIN CLEANSING

HAIR CARE

SKIN CARE

DEODORANTS

ORAL CARE

FABRIC CARE

SURFACE CARE

AIR CARE

CONSUMER FRAGRANCES **CREATIONS**

Sweet Goods

DAIRY · BAKERY & CEREAL · DIETARY & NUTRITION · PHARMA · CONFECTIONERY · DESSERTS

Beverages

ALCOHOLIC DRINKS · CARBONATED SOFT DRINKS · HOT DRINKS · JUICES & NECTARS · POWDERED SOFT DRINKS · SPECIAL SOFT DRINKS

Savory

SOUPS · PREPARED MEALS · PROTEINS · FATS & OILS · SNACKS · PLANT BASED PROTEINS

CREATORS OF GREAT TASTE
FOR THE BRANDS WE LOVE

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D-LAB: AI FOR AUGMENTED CREATION

Situation before

- Early data science efforts scattered throughout the company

- Hard to scale and industrialize ML projects

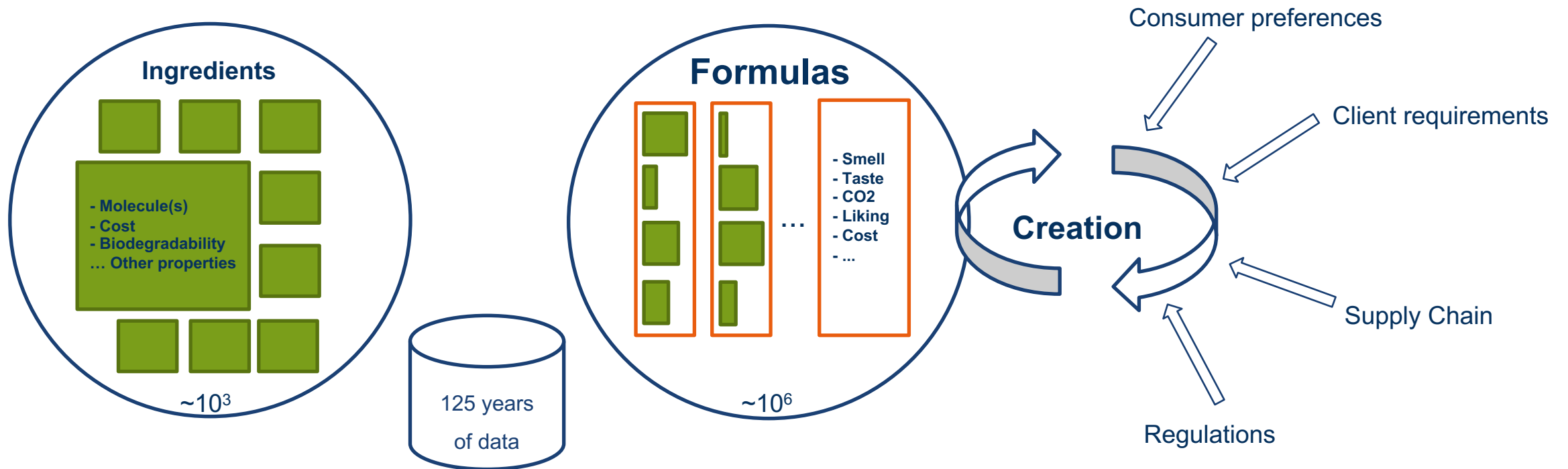- Lack of capacity to answer growing demand

d-lab

- Centralized data science lab for the company

- At EPFL: Access to labs, students, startups, network

Benefits

- Engine for the corporate digital innovation strategy

- Deliver a difference for customers

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DATA: FORMULAS, INGREDIENTS, TEXT, ...

Ingredients

- Molecule(s)
- Cost
- Biodegradability
... Other properties

~10^3

125 years
of data

Formulas

- Smell
- Taste
- CO2
- Liking
- Cost
- ...

...

~10^6

Creation

Consumer preferences

Client requirements

Supply Chain

Regulations

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02 Achievements: Examples

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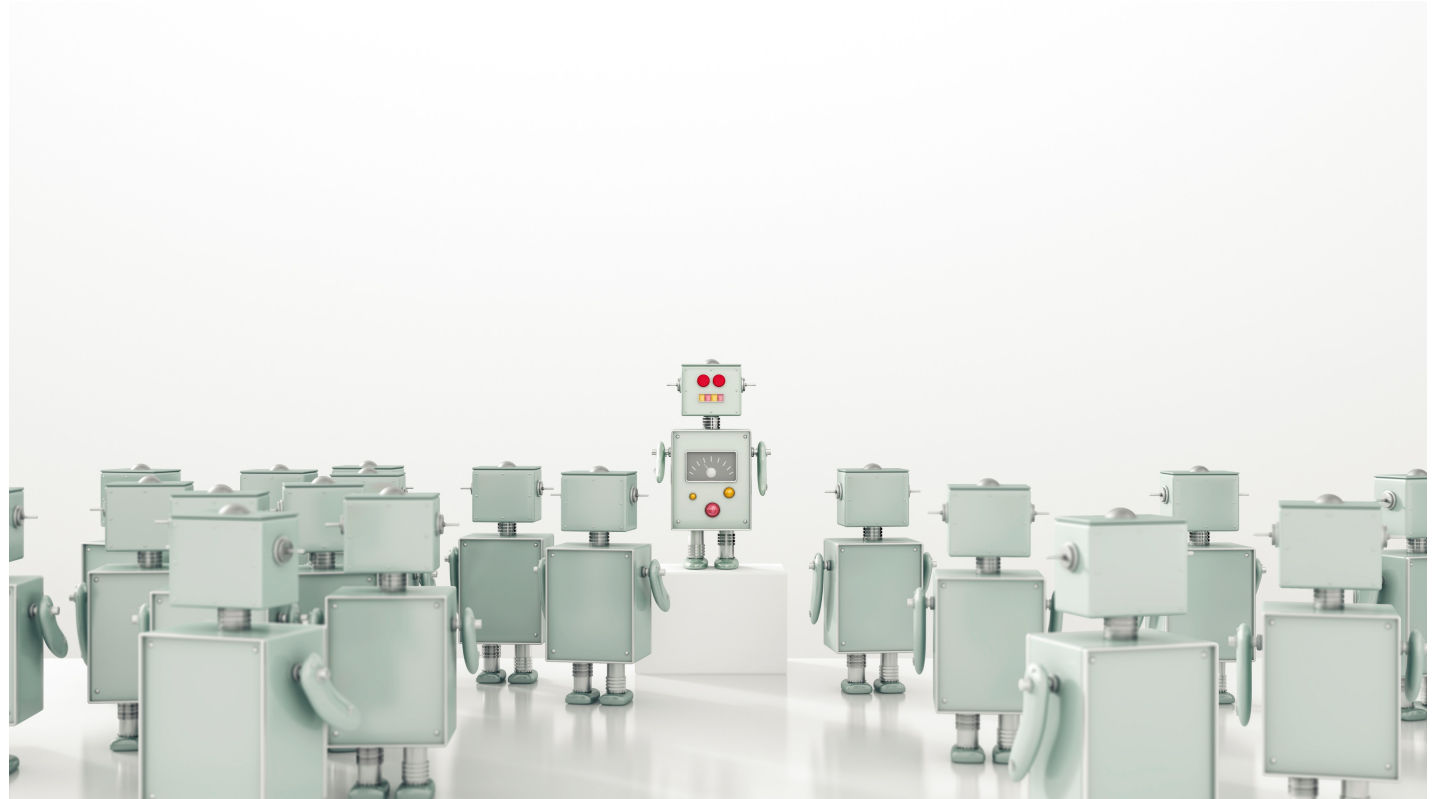
AI Formula Generation

*Using ML to assist perfumers and flavorists during creation: Proposing inspirations for new formulas*

Predictions

Using ML to make predictions: smell, taste, customer satisfaction, sustainability, and other formula and ingredients' characteristics.

Formula Optimization

Using ML to improve formulas: consumers' liking, renewability, performance, cost, safety, ingredients replacements , circumventing shortages
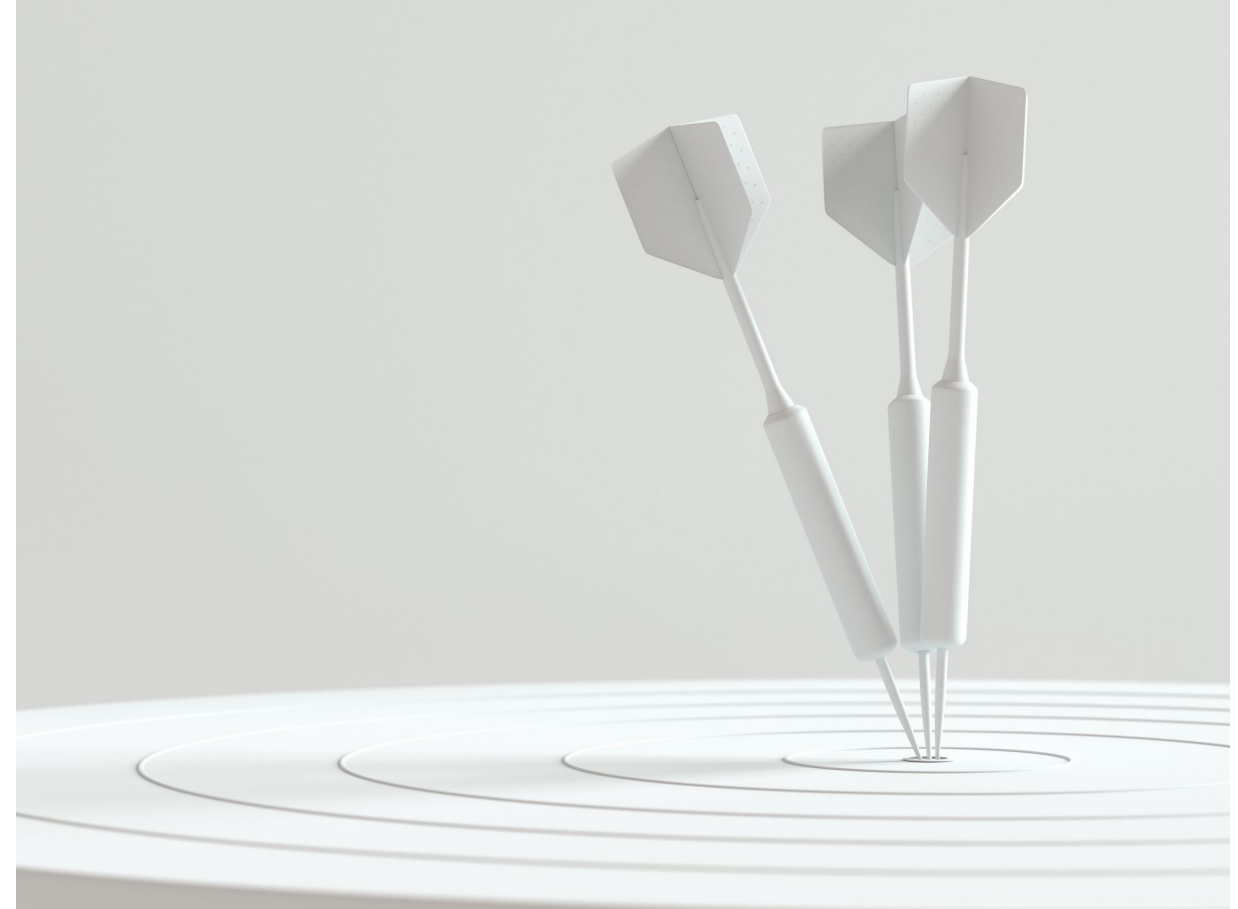
Product Recommendation

Searching and identifying the best products for the clients

Amplify Ingredient Discovery

Using ML for generating new molecules and optimizing molecule synthesis

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03 LESSONS LEARNED

Invest in Infrastructure

A ML Lab is 25% ML - 75% Engineering

Data → **ML** → **Package** → **Scaling**

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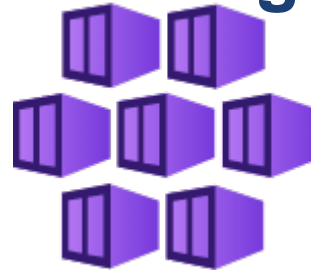
Pillars of Success

People & culture
Open-mindedness, OK to fail, agile, owning

Interaction with business
Building cross-disciplinary agile teams, involving business from day one

Skills
Understanding fundamentals – it's not just about doing a train/test split

Tech
This is at the core – but not an end in itself

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It's a Balancing Act

You need both low-hanging fruit and moonshots

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TEAM EFFORT

Mostafa AJALLOOEIAN
ML Expert

Mohammadreza BANAEI
EPFL Student

Dario BEHRINGER
Project Lead and Application
Developer

Maryline BILLAT-ROSSI
Senior Flavorist Innovation
Sweet Good

Igor BODNAR
T&B Project Associate
Director

Fabio CAPELA
Senior Data Scientist

Christine CHICHESTER
Director Digital Lab

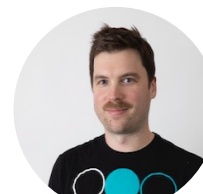**Laurence CHIRAT**
VP Fragrance Design
Innovation

Philippe GLENAT
VP Digital Lab

Guillaume GODIN
Scientific Director A.I.

James GORDON
Flavor R&I Scientist

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Olivia MAHUE
Associate Fragrance
Development Director

Florent MONTAGNE
Flavorist

Vincent NOUCHI
Senior Data Scientist

Gaetan RAMET
Machine Learning
Engineer

Maud REITER
R&D Director of new &
renewable ingredients

Addisalem SHIFERAW
Data Scientist

Ruud VAN DEURSEN
Senior Data Scientist

Jean-Michel ZENHAUSERN
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Celine AMOREIRA
R&D Senior scientist
chem/bio Informatics

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