ChemAlive

Driving the Full Digitization of Chemical Research through SaaS Platform

MC MASSCHALLENGE SWITZERLAND FINALIST

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

MARVEL

FIT fondation pour l'innovation technologique

MERCK

EPFL ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

eit Climate-KIC

canton de vaud Office for Economic Affairs (SPECo)

amazon web services

University of Basel

www.chemalive.com info@chemalive.com +41 78 817 27 36

Problem: The chemical industry has a challenge connecting final performance to new chemistry

250 Billion *p.a.* R&D Spend
to solve this challenge using mostly trial and error

BenevolentAI — **115 Million (2018)**

Atomwise — **45 Million (2018)**

CITRINE INFORMATICS — **16 Million (2018)**

Large investments in 'AI' / Machine Learning (ML) since 2018 without proper data to learn from

Result → Minimal Impact

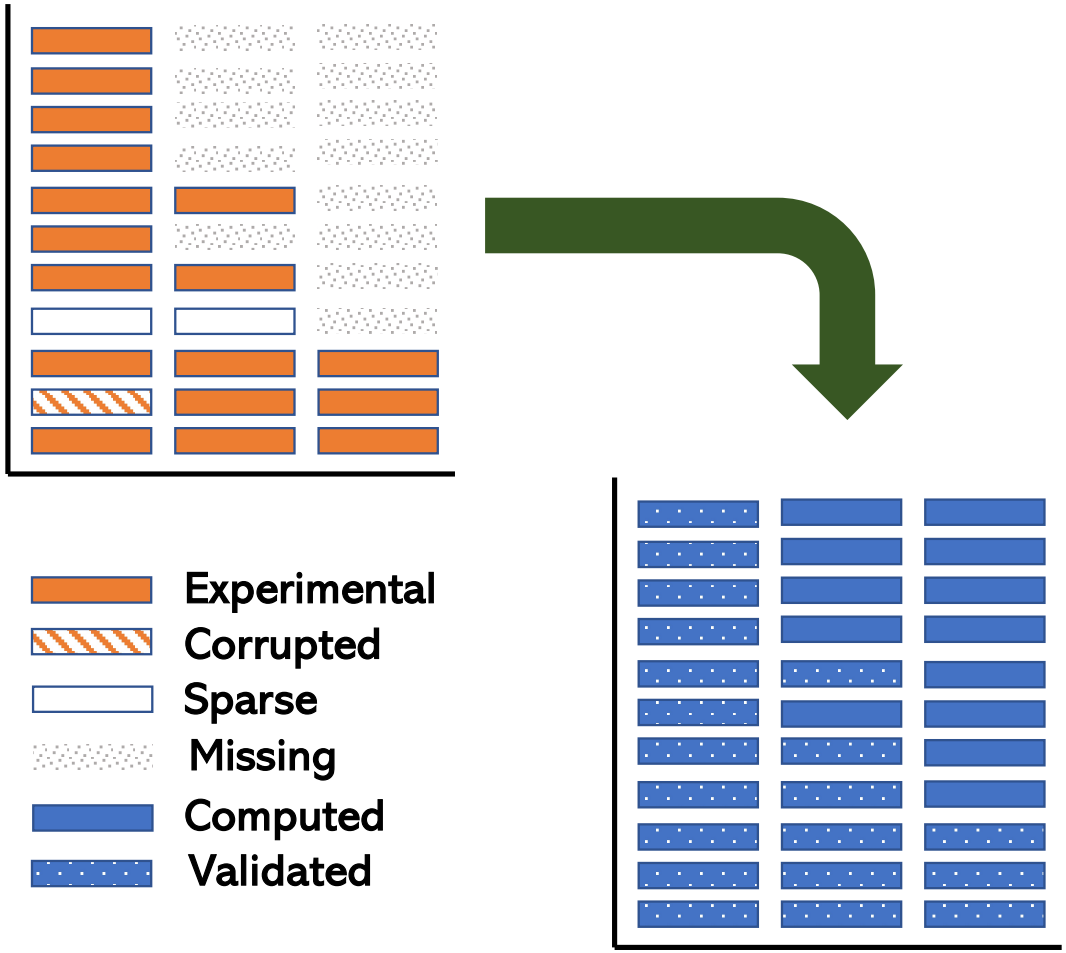
Problem: Quality Data is the Key to Realizing the Promise of Machine Learning

"…we've learned there's a lot of talk and very little in terms of actual delivery of impact…people underestimate how little clean data there is out there…"

CEO of Novartis discussing Machine Learning in 2019

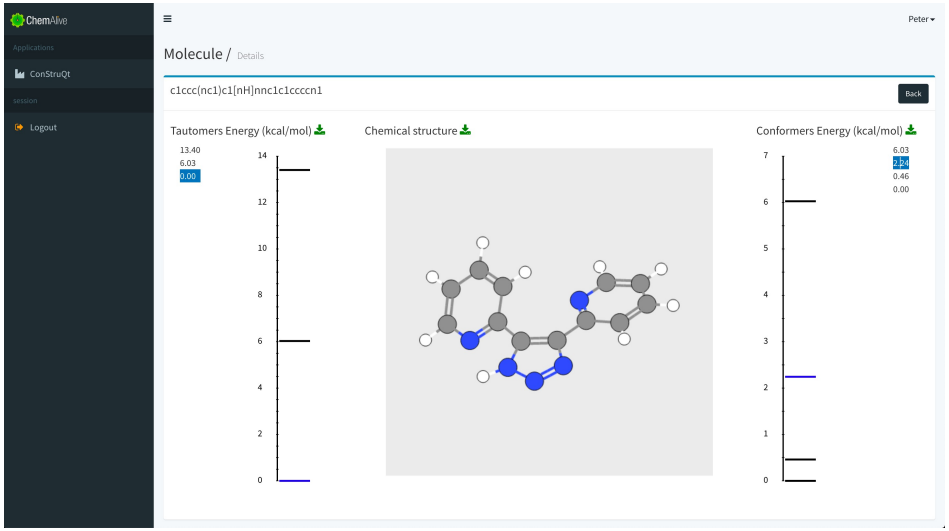
https://www.forbes.com

Solution: Augmented Empirical Data with Accurate Automated Prediction



Experimental
Corrupted
Sparse
Missing
Computed
Validated

Beta App @ www.app.chemalive.com

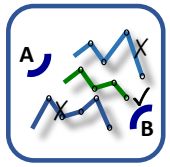


- 350 freemium ConstruQt users
- Deployed since January 2020
- TRL 7 moving to commercialization
- AWS Cloud with 200,000,000 molecule database

Products: Augmented Empirical Data with Accurate Prediction

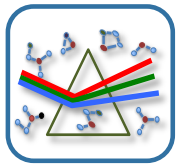
ConstruQt®

Discovery. 3D structure is **70% of design**



ReaQt®

Process / Manufacturing. **9/10 reactions fail**, most can be further optimized



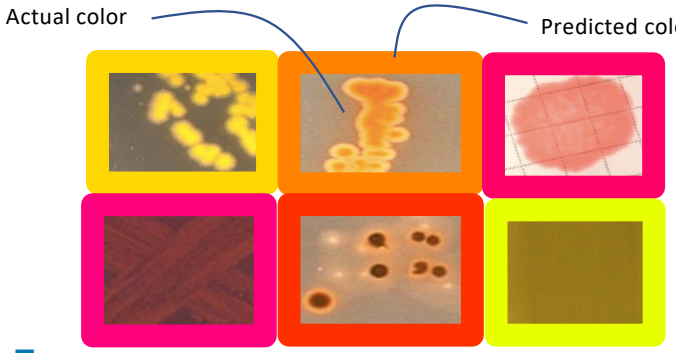
SpeQtra®

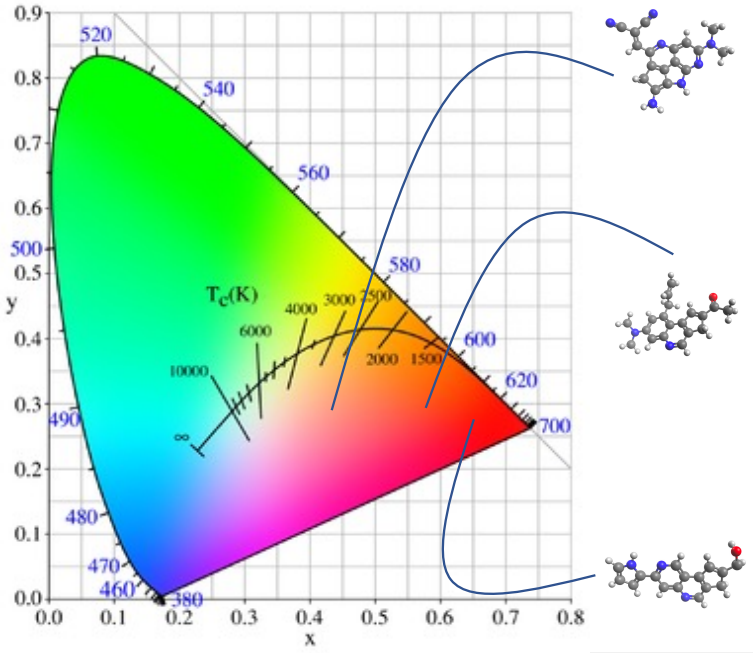
Performance. **Reduce lab time by 83%** through rational target selection

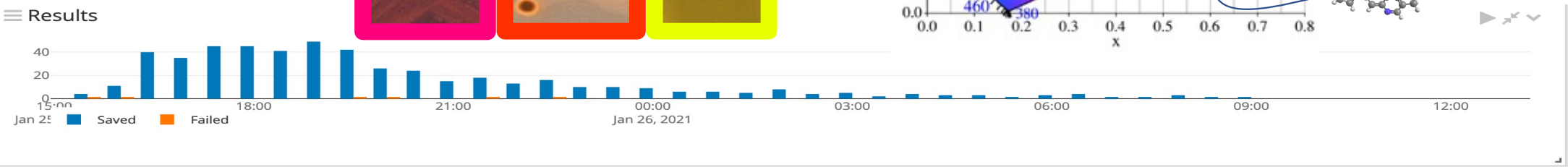
Use-Case: Red Dye Color Prediction

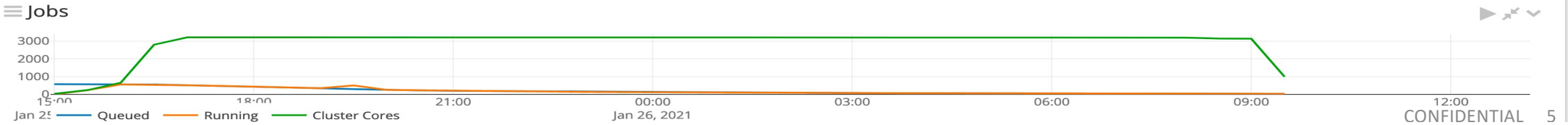
ConstruQt®

SpeQtra®









Market – Chemical R&D and Data

Contract Research

$30 B — R&D Spend in Chemistry — $250 B ↗5% p.a.

Fast growing CRO market is full of opportunity

Computation

$10 B — R&D Spend on Software and Infrastructure — $19 B by 2020

Cloud based computations captures growing quantum software and infrastructure spend

Publishing

$4 B — $5 B

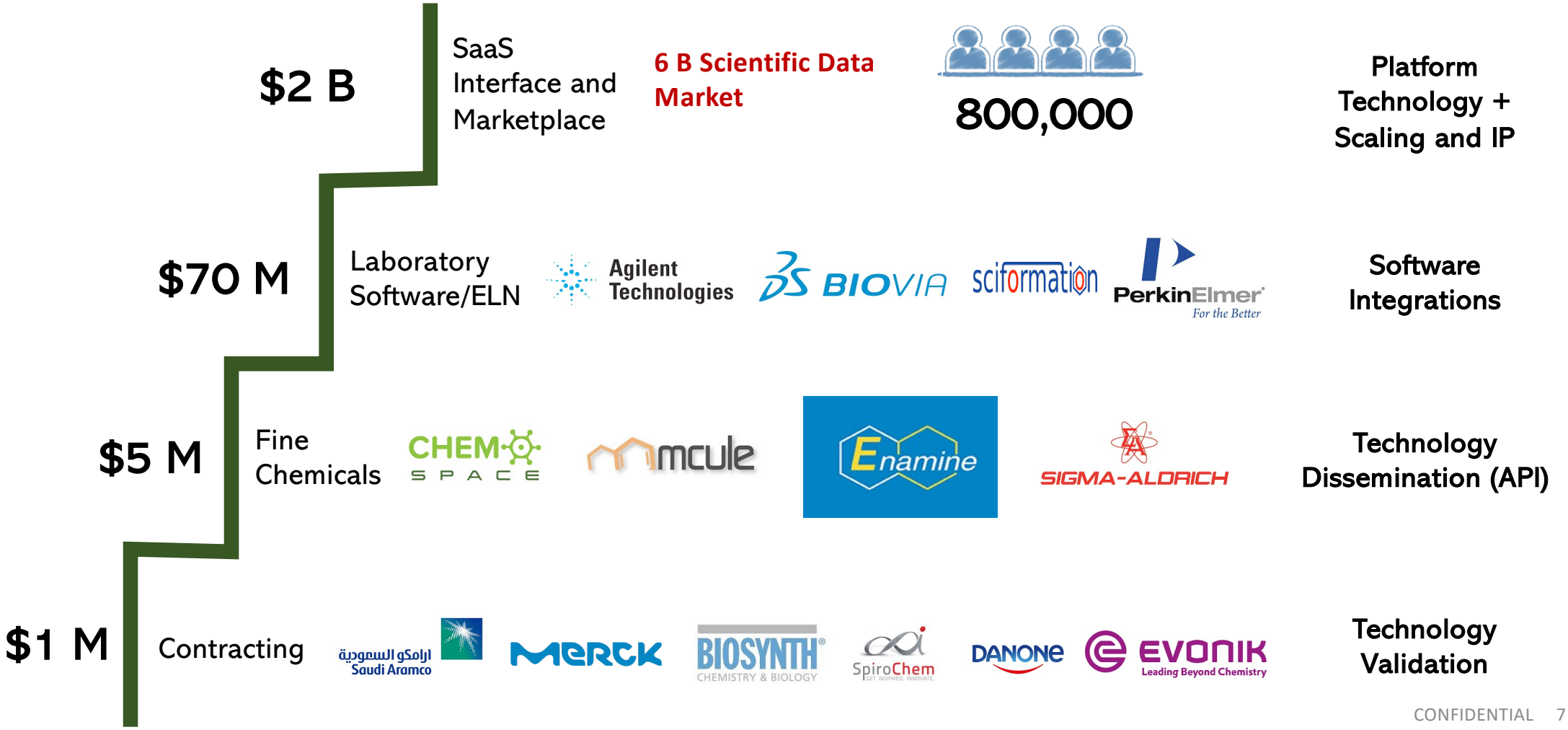
Highest value chemical data is in a tradable form (2D chemical structure)

Total Addressable Market:
0.2x0.5x19 B + 4 B = $6 B

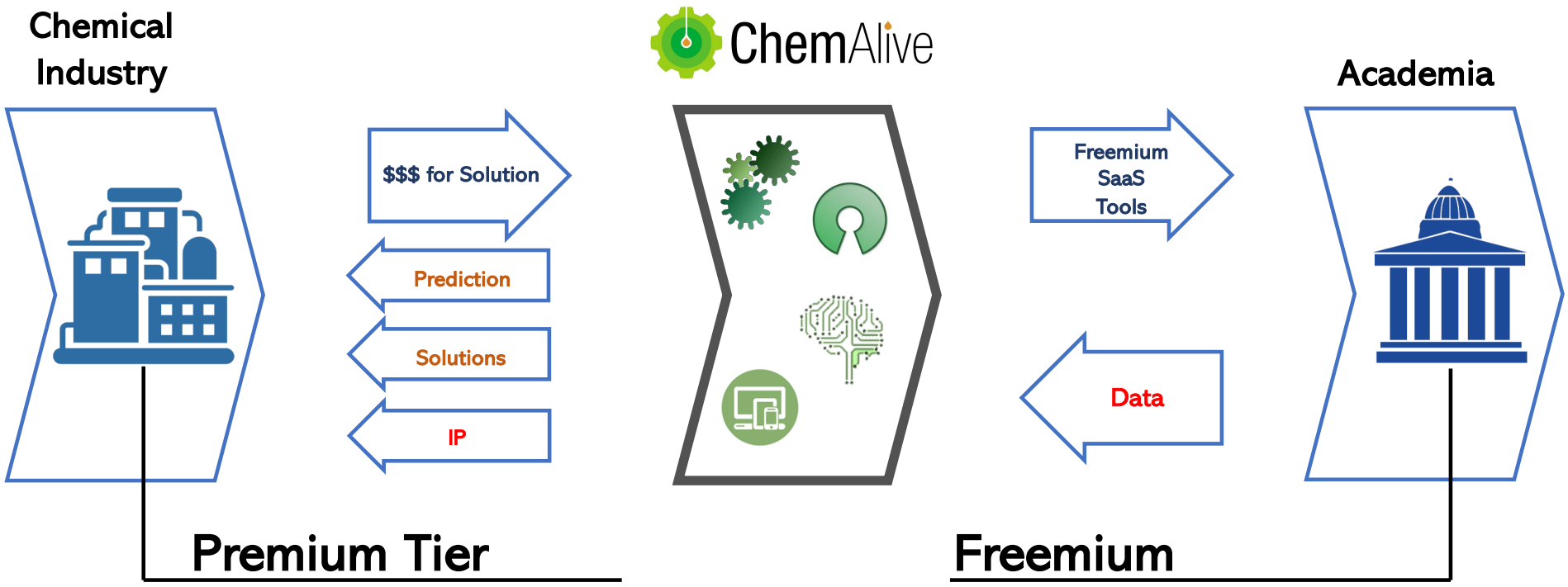
Addressable Market | Full Market

References:
ACS Business Review
STN Publisher Network
Biannual Report

Addressable Market and Market Entry



Business model is freemium / premium



Premium Tier

- Monthly Licensing
- Extra Compute Charge
- Extra Data Storage Charges
- **Partnerships and IP Licensing**

Freemium

- All automation functionality available
- Limits on library size
- Limits on method accuracy

Business roadmap

2017

Grants / Awards

Masschallenge	40 kCHF
Innosuisse	20 kCHF
Swiss grants	200 kCHF
Merck	30 k€
Climate-Kic	85 k€

Research Contracts

Oil and gas
Fine chemicals
Agrochemicals

2018

Technology

Largest quantum Database

First quantum SaaS, **Constru***Qt*-API Demo

2019

Partnerships

In-bound marketing Through API-SaaS Software with fine Chemicals Parners

2020

SaaS Demo / testing

User base growth and TRL 7 testing of GUI-SaaS (app.chemalive.com)

ConstruQt®

600 kCHF Invested

2021

Commercialized Software Platform

High throughput quantum platform for molecular validation

SpeQtra® 700 kCHF

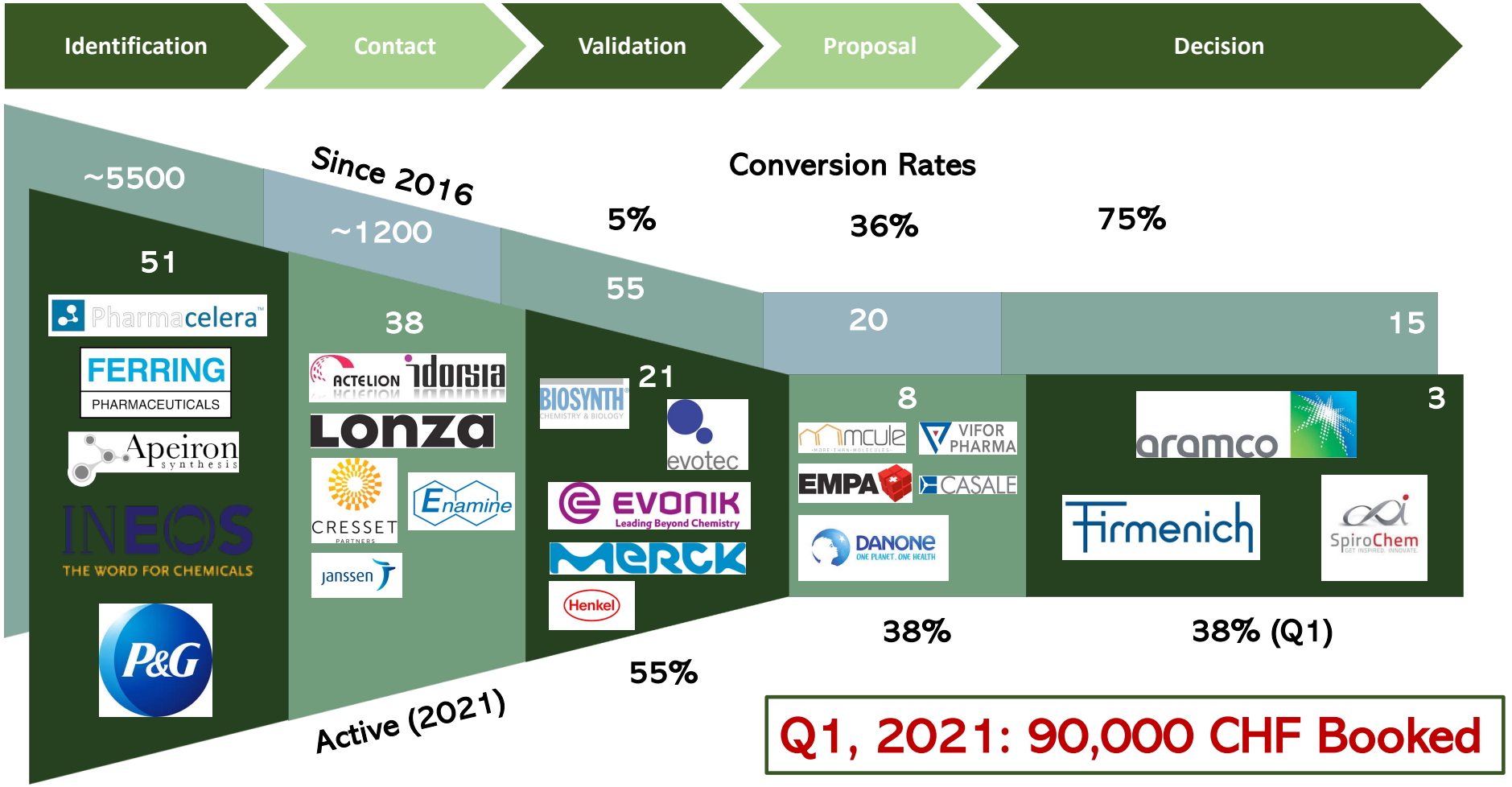
ReaQt® 1,300k CHF

Financial Projections

K CHF	2020	2021	2022	2023	2024	2025
Revenue Product	0	410	1720	3585	5990	9010
Revenue Service	180	216	259	311	373	448
Total revenue	180	626	1979	3896	6363	9458
CoGS	(779)	(1273)	(2039)	(3068)	(3927)	(4921)
EBIDTA	(599)	(647)	(60)	828	2436	4537

	2020	2021	2022	2023	2024	2025
FTEs	1	8	13	22	30	35

Funnel and Tube



Competitors in predictive analytics

Information

Prediction

Software

SCHRÖDINGER

Premier Chemical software with multiple investments from Bill Gates (**67 M** USD revenue)

BIOVIA

Quantum and ELN software, operating in computational and data space (**155 M** USD revenue)

SaaS

dotmatics knowledge solutions

Direct competitor of ChemAxon (**16 M** USD revenue)

ChemAxon

Cheminformatics on-line with freemium (**20 M** USD revenue)

ChemAlive

Unique focus on **high throughput quantum** with freemium tier SaaS tools to achieve critical data mass.

Blue Ocean SaaS for Quantum

Competitors are not Oriented Towards the Data Revolution

	ChemAxon	SCHRÖDINGER.	BIOVIA	ChemAlive Quantum Chemistry for All
Quantum Calculations	✗	✓	✓	✓
Big Data	✗	✗	✗	✓
Cloud Based	✓	✗	✓	✓
Usable by non-experts	✓	✗	✗	✓
Data Sharing	✗	✗	✗	✓

Our team and Capacity

Peter Jarowski, Ph.D.
Director / Technology

Thomas Eaton, Ph.D.
Business / Operations

Martin Ockajak
Engineering / Machine Learning

Machine Learning

Shantanu

Vincenzo

Chemical Modeling

Stephanie

Alexandra

Conrad

Science Advisory

Leyla **Data Science**

Jiabo Li **Machine Learning**

Warren S. Wade, **Discovery Pharmaceutics**

Jacques Bauer **Clinical Pharmaceutics**

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canton de vaud Office for Economic Affairs (SPECo)

amazon web services

University of Basel

Climate impact with current clients

Leaking Oil Wells

Design of gel material to repair oil wells

Recurring contracts with Saudi Aramco **200 thousand+ CHF**

Cow Methane

Scale-up synthesis of new drug in agrochem.

Research in a **1 billion USD** potential market

Refinery Operations

Evaluation of reaction fouling in steam cracker

Addressed **multi-million USD** plant shutdown mitigation

Plastic Recycling

Improving the lifecycle of recycled plastics

Impacted core business of a multi-national food producer

Climate-KIC

Funding round to close Q2, 2021

Round Info

- Will add to 0.7 M in past investments
- 2 M CHF raise in 2021
- 3 M CHF raise in 2022
- Target multiple 15x – 22x
- Minimum Target Exit 80 M to 120 M CHF (2026)

ChemAlive

Purpose of the Raise

We seek capital to:

- Commercialize API software
- Commercialize GUI software
- Expand our business/sales team (+3 FTEs)
- Expand our Engineering team (+4 FTEs)
- Expand our Frontend team (+4 FTEs)

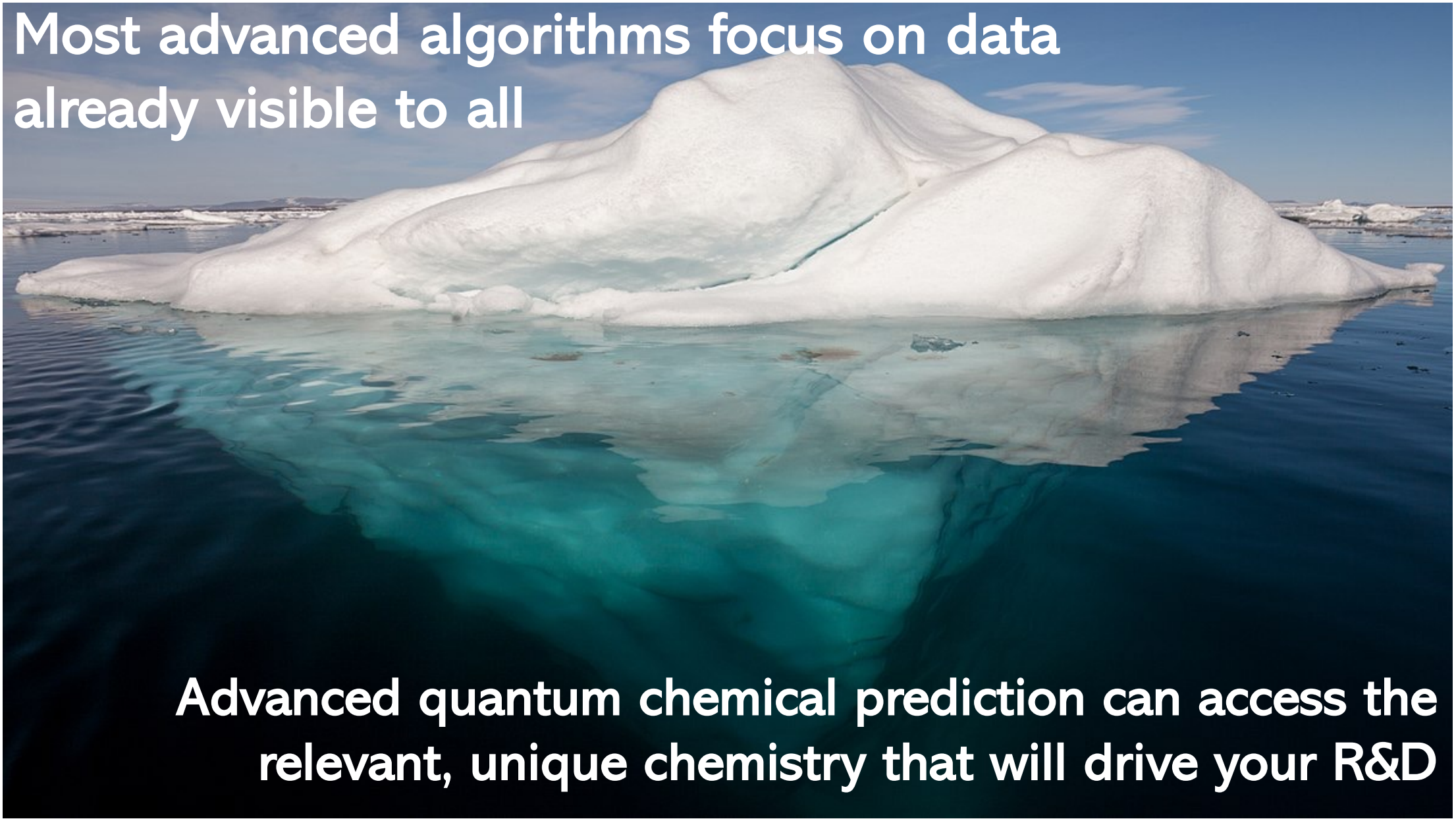
ConstruQt® 600K already invested

SpeQtra®

ReaQt®

> 2M CHF to commercialize

www.chemalive.com info@chemalive.com +41 78 817 27 36


Most advanced algorithms focus on data already visible to all
Advanced quantum chemical prediction can access the relevant, unique chemistry that will drive your R&D

The Problem: Focus on Public Experimental Chemical Data

Low IP value

Public domain or already patented data available to anyone

Missing, Sparse and Unreliable Data

Un-curated / un-validated incomplete historical data not fit to purpose for advanced analytics

Limited access to Adjacent Data

Paywalls limit high-throughput analytics and thus discovery on adjacent data

The Solution is High-throughput Library-scale Accurate Prediction

ChemAlive

Quantum Chemistry

State-of-the-art predictions able to access all of unexplored chemistry with functional accuracy **AT SCALE**

High Throughput / Automation

Fully automated and dynamically scalable cloud-supported computational routines at unparalleled speeds

Data Curation / Machine Learning

Computed Data is fully curated and fit-to-purpose for advanced algorithms