SaaS Innovation in Urban Treecare

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2023 | Brno

arbo technologies®
DATA-BASED CARE

Problem

Solution ✓

Not a solution ✗
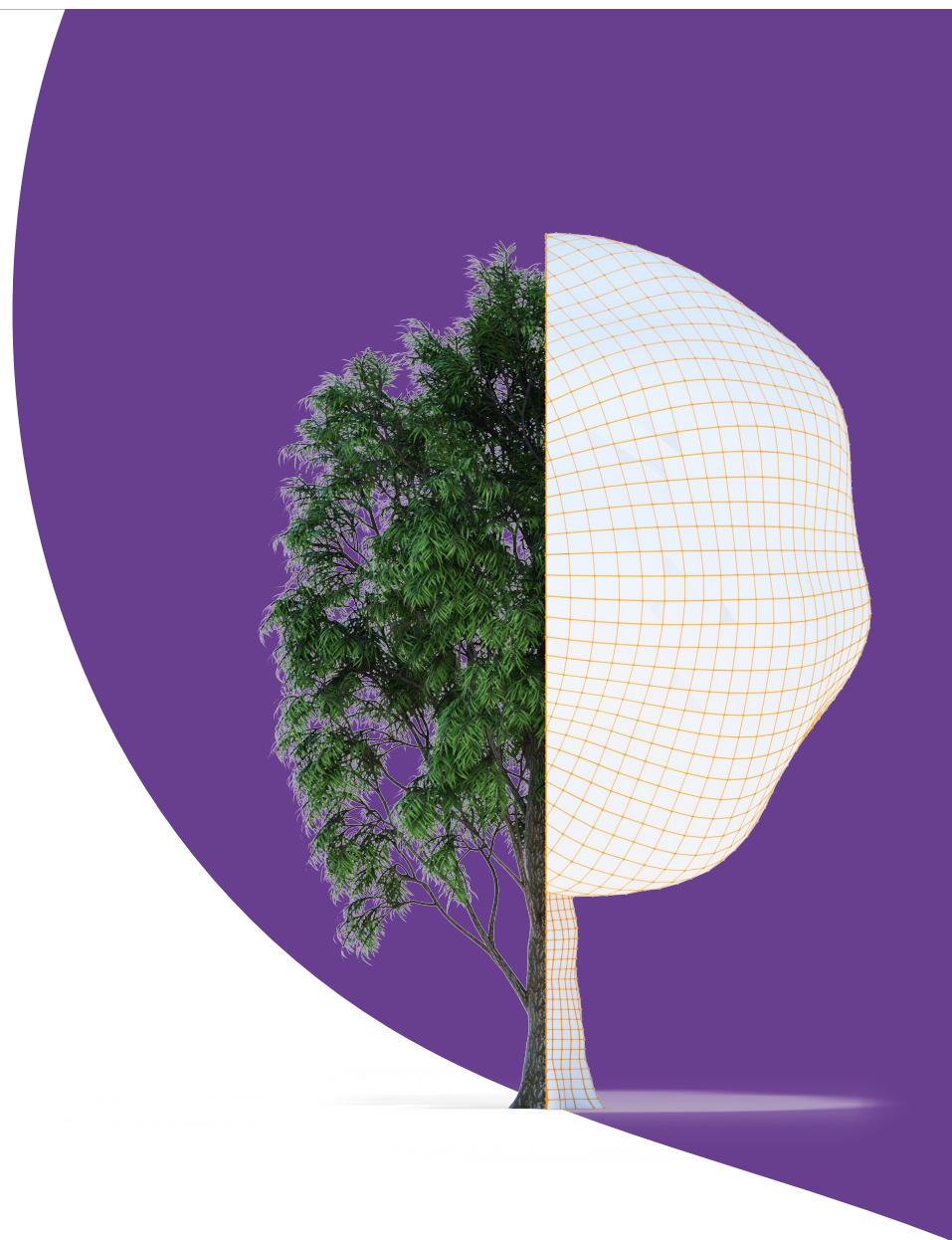
Adult trees

- Overheating cities
- CO_2 in the atmosphere
- Record droughts

- **Long term solution:** absorbs CO_2
- **Short term solution:** decrease temperature in cities (up to 12°C)

= 1467 x

- Unnecesarry tree cutting and tree prunning
- 4000 EUR for replacing a tree

- Around 1/3 of city tree cutting is preventable with better analytical methods
- Trees can live in city for hundreds of years

Tree planting

- CO_2 break even after **30-40 years***
- Average age of trees in the cities 7-32 years
- Almost no cooling effect until adulthood

„The problem is not that we don't have enough trees. The problem is that we don't know how to take care of the trees we already have."

* Street tree survival rates, PA, USA

Founding team

Ondrej, CEO

- CEO and co-founder of ARBO Technologies (3+ years)
- Degree in Innovation Management in Business from the Czech Technical University in Prague
- Passionate about data-driven approaches in tree management, international public speaker
- Led the development of Adbian as an easy-to-use analytical tool

Jarek, (Ph.D.) Arborist Consultant

- CEO of leading arborist company in CZE for 30+ years
- Co-founder of ARBO
- University lecturer in arboriculture with a PhD, international conference speaker
- Innovator with participation in 5+ European projects
- Leading contact for EU Arboriculture standards
- Founder and lecturer of Arborist Academy
- Creator of the largest tree database in CZE (1,5mil. Trees)

Matous, CTO

- Senior full-stack developer with 15+ years experiences in tree care and programing
- Author of the most of the calculations our software
- Passionate about integration of math and programming

Andrea, (Ph.D.) Arborist Consultant

- Researches responsible for the correct implementation of arboriculture know-how
- Both Ph.D. in biomechanics
- Both participated in a number of international projects
- Cooperation with a Czech University of Forestery
- Both 20+ experience in practical tree care industry
- Attention to detail and to proactively looking for solution in white papers

Jarka, Head of Sales

- Journalist and media studies graduate (freelance journalist)
- Experienced trainer and lecturer in adult education
- Passionate about leadership, coaching, and communication skills (formar manager in IBM)
- Fund-raising for NGO
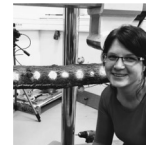
Barbora, (Ph.D.) Arborist Consultant

Our advisors:

Gerrit Jan van't Veen

Maria Stathi

Petra Wolkenstein

Lukáš Konečný

Ondřej Krajíček

ARBO Technologies

Mission: To maximize tree benefits in cities and landscape to society, with breakthrough technology.
We are experts in both, **arboriculture** and **technology.**

We provide better analytical tools for arborists, enabling them **higher profit and increase in efficiency**, replacing boring and repetitive jobs. Municipalities doing business with such arborist can **better utilize their money**, **reduce tree cutting** by **up to 1/3,** leading to cost savings and nature protection. Arbo is collecting **SaaS revenue** for doing so. (**B2B2G** model in Europe, **B2B2C** in US).

Vision: To become the biggest tree data owner in the world
- Saas based products with database in our servers
- Valuable data collected and stored as a **digital twin**
- In multiple datapoints already an advantage
- **Neural networks** build to improve efficiency and future innovation, unlocking potential on our existing product with new value, but also enabling new products and research in the future

We can achieve this with our two innovation platforms: **Adbian & TreeWatch**
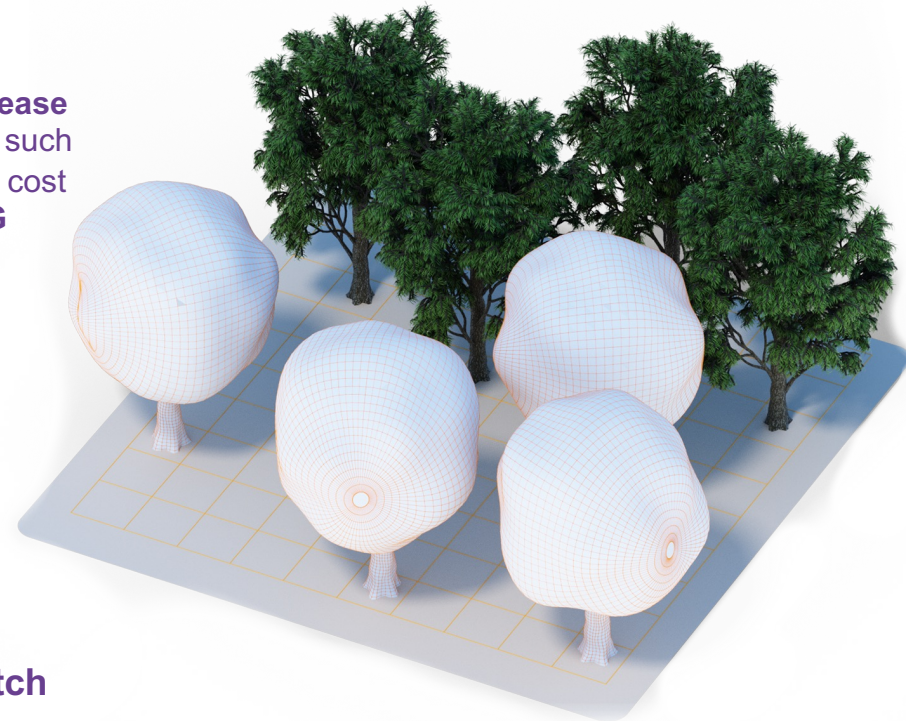
Adbian (Advanced Biomechanical Analysis)

- SaaS to calculate biomechanical stability of trees based on exact geometry

- Worldwide unique combination of technologies, that enables arborists to collect and interpret precise geometry of trees just with their phone

- 4 precision levels of analysis, for assessing tree stability

- Tool for tree care specialists to extend their knowledge base by non-visible parameters

- Enables to save adult trees with precise data about their safety in given area

Go to market:
- Presentations on international conferences
- Lead generation with webinars, handbooks and online presence
- Direct sales on the leads (newsletter + automatic onboarding in future)
- Also creating a demand on tree owners side with direct sales and then connecting with our arborists
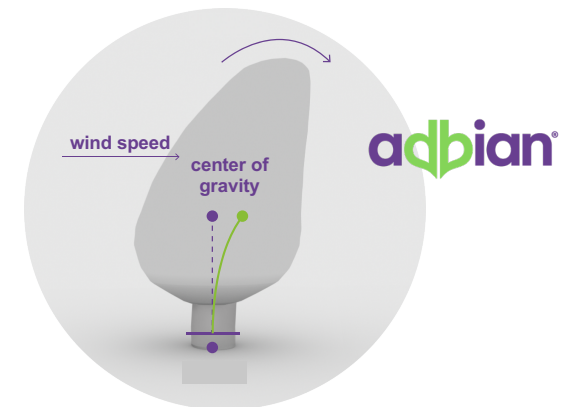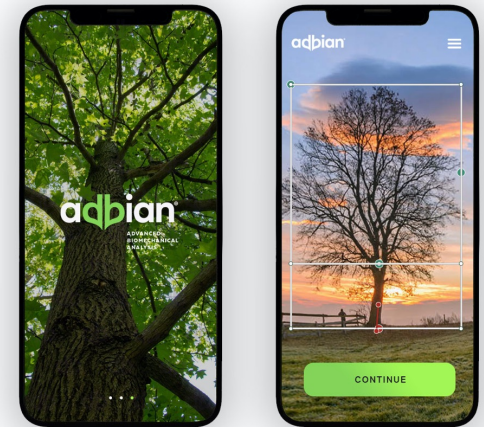
Ideal Customer + Traction (Adbian)

Adbian- Ideal customer
- Arboriculture company, with **15+ consultants**
- Using acoustic tomography
- Is or want to be a leader on their market
- Has an ongoing relationship with municipalities
- **Value for customer** (arborist):
  - Increased revenue (up to **~30%**)
  - Increased profit (up to **3x**)
- **Value for the end user** (tree owner)
  - Decrease adult tree cutting (up to **1/3**)
  - If so, saving around **3000 EUR/ tree**
    - + tens of thousands/ tree in ecological benefits

Traction
- Pilots- not ready for full market addoption
- Pilot testing with **(~120) users**, in **8 countries**
- Pay-as-you-go model for **0,5-80 EUR** per tree, switching to subscriptions,
- **~ 96% margin**
- **~ 30k/year in subscriptions,**
- **~ 750k/year in a pipeline**
- Able to collect **~4%** of tree care company revenue

Pilot projects
- **Amsterdam municipality**(NL)- Using Adbian for several old trees, that their want to cut down based on other methods, to double check for more percise data. Now just for a few trees, if it goes well 1K EUR/ month, with potential of 80K EUR/year
- **SafeTrees**(CZ)- Prepaying 28K EUR/ year to combine Adbian with their device methods. With potential to double this number in the future. With Adbian +30% of revenue and up to 3x of the profit
- **Urbani Summari**(HR)- Prepaying 3K EUR/ year, for same reason as SafeTrees. Just a smaller team.
- **Pius Floris**(NL)- Prepayed 1K EUR to test the app, we found out that it is not feature complete for them (missing custom wind speed input). Potential 5x of Safe Trees
- **Bratislava municipality**(SK)- Signed contract for 1000 EUR/ month for a basic tree checks
- **Budapest municipality** (HUN)- First tree end of May, but in talks for bigger pilot.
- **Stradford Tree Care** (USA)- The most proactive in sales, it shows a strong interest of US market.
- **Institut Drzeva** (PL)
- **Sumins** (HR)
- **Universities in Zvolen and Nitra** (SK)
- **Renaldas Zelinskyj** (LI)

Competition (Adbian)

	Adbian	TreeCalc	WLA	Ceiba
Webside	www.adbian.com	www.treecalc.com	www.wla.cz	www.ceiba-conseil.com/
Data collection + input **Time to collect the data**	In the field 3-5min/tree	in the field+ online 2+5min/tree	in the field+ online 3+8/tree	in the field Not on market yet
Price	0,5-80 EUR/tree	3 EUR/tree	Free	Not on market yet
Principle	4 levels of detail Real world data	1 level of detail (Equivalent of our lvl 1)	1 level of detail (Equivalent of our lvl 1/2)	1 level of detail Not-known
Input data	Basic tree parameters Real geometry (photo) Real geometry (3D scan) + Bark thickness + Excentricity + Percise wind speed	Basic tree parameters	Basic tree parameters + Excentricity + Bark thickness	Basic tree parameters + Estimate of cavities
Can be combined with device tests	Yes	No	No	-
Uprooting check	Yes	No	No	No
Data stored for future comparison	Yes	No	No	No
3D model	Yes	No	No	-
Service	Yes/ Self serving	Self serving	Self serving	Self serving
Can store valuable data and improve?	Yes (3D scans + fotos)	None	None	None

TreeWatch (product no.2)

- Optimized tree mapping service and the only available solution for arborists.

- Increase efficiency of data collection – in 3 days equivalent of one month of maual data collection

- Combination of third party components + our software (lidars, cameras, gps,…)

- Data are post-pocessed after the the collection semi-manually by human operators

Go to market:
- Partners- arboriculture companies, having a relationship with road managers.
- Direct sales + lead generation in search and webinars
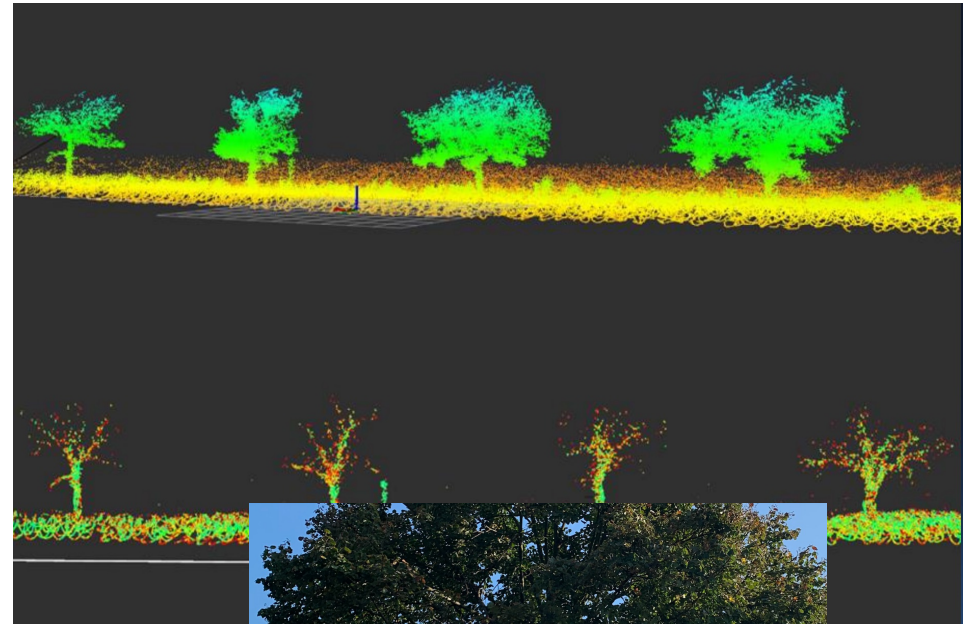
Ideal Customer + Traction (TreeWatch)

Ideal Customer

- Road management company with 1000+ km in management
- Has to control their inventory every 3-5 years
- **Value for customer** (compared to manual collection):
  - Same price
  - Increased precision of measurement and localization
  - Decrease the time of data collection by 90%

- **Value for ARBO**:
  - ~60% margin compared to 10-15% of manual data collection. Gives price flexibility + cashflow to further increase value of the data
  - Can upsell more value on the same data (vitality, Adbian,…), with just one data collection

Traction

- Pilots with more than **5700km** of commercial use
- **40-60 EUR/km**, selling it as a service with **~60% margin**, in the future product + data processing fee
- **1500km** in signed contract
- **~10.000km** in pipeline (in CZK)

Pilot projects

- South Bohemia RSD, Pilsen SUS, Olomouc RSD, Central Bohemian RSD,…
- Data collection of trees by the roads of 1st, 2nd and 3rd class (also highways)
- We've been able to increase our margin from **20%** to **60%,** with potential of **additional growth** and still won the deals on price
- Also we've been able to decrease a number of missing tree detection to **0** (from around 10%)

Competition (TreeWatch)

	TreeWatch	GreeHill	Geovap
Webside	www.adbian.com	www.greehill.com	www.geovap.com
Data collection + input	Normal cameras + lidar	360 cameras + lidar	Just lidar
Time to collect the data	250km/day	not known	not known
Limitation	Trees visibe from road	Cities (for road managers not price competitive)	No visual, no
Price	40-60 EUR/km	1,6 EUR/tree	not known
Principal	Basic tree inventory	1 level of detail	Pointclouds for trees
Input data	Video from several cameras LiDAR cloud Percise GPS location	Video from 360 camera LiDAR cloud Percise GPS location	LiDAR cloud Percise GPS location
Business model	Service, goal: product + SaaS	Service	Service
Uprooting check	Yes	No	No
Data connected to GIS	Yes	Yes	No
3D model	Yes - TBD	Yes	Not known
Direct arboriculture know-how	Yes	No- need of a partner	No
Can store valuable tree data and improve?	Yes (LiDAR cloud+ fotos)	Yes (LiDAR cloud+ fotos)	LiDAR cloud

Arboriculture market in numbers (2025 est.*)

	USA	Europe	World	
TAM	$12,7bil.	$5,5bil.	$30bil.	/ year in revenue
SAM	$3bil.	$2,7bil.	0	
SOM (4%)	$120mil.	$108mil.	0	validated on CZE customer
Target revenue	$100k.	$2mil.	0	

Once we have a digital twin of the tree, we could tap into markets such as:

Carbon offseting	$415bil. in 2023	expected to triple by 2028**
Construction planning sw	$9,3bil.	expected to grow to 28,9bil. By 2031***
Selling the data	Unknown	

Use of the investment 1,1mil. EUR

~ 40% software dev. + HW
~ 30% sales + marketing
~ 20% operations
~ 10% R&D

Reasults:

- Decrease the lead time (from 12-18 to 6 months)
- Automatization of small customer onboarding
- Switch from direct sales to marketing oriented
- In-house software development, release of Adbian to the market
- New version of TreeWatch, pilots abroad
- Breaking even
- Tested usability on US market
- Broad EU adoption
- 18+ months runway

| Q1 2021 | Q3 2021 | Q1 2022 | Q2 2022 | Q3 2022 | Q1 2023 | 2023 | 2023 |

Pre- seed round 200k EUR with a Venture Capital

Prototyping. Continuous delivery based on the customer feedback

Czech market pilot with paying customers

First international customers. Interest across Europe

International events showcasing. First direct sales.

Pilots extended to SK, PL and NL. Switching pay-as-you-go to subscriptions.

First US trial. Continuous improvement of customer experience and technology.

Raising 1,1 mil. EUR to accelerate growth + release for the market

Awards and contests:

Won one of the 19 spots in one month accelerator in Vienna (300 applied)

Got 45k EUR grant for further development.

Won a Better Incubation contest.

Selected by PwC as one of the 50 startups to help to solve climate challenges in CEE region

Got 22k EUR grant for further development.

V4- one of 4 companies winning one month acceleration program
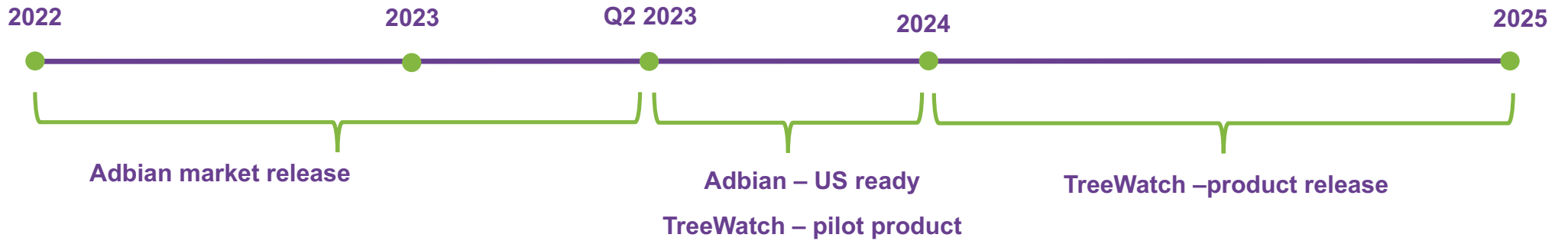
Winner of We Make Future CZE

Innovation Award from Ministry of the Interior

Finalists of Generali SME EnterPRIZE 2023

Revenue:

2021	Q4 2022	Q2 2023	2023	2024	2025

145k EUR   55k EUR   100k EUR*   1mil. EUR*   2.1mil. EUR*

Product:

2022	2023	Q2 2023	2024	2025

Adbian market release   Adbian – US ready   TreeWatch –product release

TreeWatch – pilot product

Investment:

2023	2024	Q2 2025	2026

1,1mil. round   Runway + breaking even   4mil. Round, US + Asia expansion

* Estimate

arbo technologies®

DATA-BASED CARE

Lets build, greener future, one tree at the time!

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