🗺️ Civil Maps

Pioneering Autonomous Vehicle Mapping Technology

Legal Entity

Solfice Research, Inc.

Founded

2016

Headquarters

San Francisco, CA

Status

Acquired by Luminar (2022)

Company Overview

Civil Maps was an innovative technology company specializing in high-definition mapping and localization solutions for autonomous vehicles. Operating under the legal entity **Solfice Research, Inc.**, the company developed scalable mapping technology that enabled self-driving vehicles to navigate safely and efficiently.

Founded in 2016 and headquartered in San Francisco, California, Civil Maps pioneered a unique approach to autonomous vehicle mapping that emphasized lightweight, real-time map generation and localization. The company's technology was designed to address one of the fundamental challenges in autonomous driving: creating and maintaining accurate, up-to-date maps at scale.

Key Innovation: Civil Maps developed a proprietary approach to HD mapping that reduced data requirements by up to 10,000x compared to traditional methods, enabling real-time map updates and more scalable autonomous vehicle deployment.

Company Sale: On June 15, 2022, Civil Maps was acquired by Luminar Technologies for $10.595M—representing a catastrophic 89% loss from the company's 2017 Series A valuation of $100M. Despite being the ONLY HD mapping company to demonstrate production-ready city-scale maps, the company received a 0.60x funding multiple (below total capital raised), compared to peer acquisitions at 13.3x+ multiples.

> **Evidence suggests CEO Stefan Safko (0% equity) and CTO Scott Harvey (4% equity) prioritized personal employment compensation over maximizing stockholder value, resulting in a severely undervalued transaction.**

Core Technology

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HD Mapping

High-definition map creation with centimeter-level accuracy for autonomous vehicle navigation and localization.

📍

Real-Time Localization

Advanced algorithms enabling vehicles to determine precise position within HD maps using sensor data.

🔄

Scalable Architecture

Cloud-based infrastructure supporting continuous map updates and distribution to autonomous vehicle fleets.

Leadership Performance Analysis

Press Frequency & Momentum Comparison

Sravan Puttagunta Era (2012-2019)

42+

Press Articles & Announcements

Duration: 6.5 years

Avg Frequency: 6.5 articles/year

Peak Years: 2016 (15), 2017 (12), 2018 (15)

Funding Raised: $20.2M ($17.7M Seed + Series A + bridge; $2.5M convertible notes with 3x liquidation preference)

Major Products: 3 (Atlas DevKit, Fingerprint Base Map™, AR Maps)

Awards: CES 2017 Innovation Award

Strategic Focus: Product innovation, fundraising, technology development

Stefan Safko Era (2019-2022) - Value Destruction

17+

Press Articles & Announcements

Duration: 3 years

Avg Frequency: 5.7 articles/year

Peak Years: 2019 (5), 2020 (5), 2023 (5)

Exit Value: $10.595M (BELOW Series A!)

"Achievements": Sold company at flat valuation after inheriting Sravan's 7-year buildup

ROI to Investors: ~0.62x (NEGATIVE return - investors lost money)

Strategic Focus: Personal employment negotiation, self-dealing, breach of fiduciary duty

Leadership Performance Contrast: Sravan Puttagunta (2012-2019) built substantial value through innovation and capital efficiency: raised $17.7M total funding, achieved $100M Series A valuation in 2017, delivered 3 major products including world's ONLY city-scale HD maps, achieved 10,000x data compression, secured CES Innovation Award, and built operational infrastructure with superior technology. Press velocity peaked around major achievements (July 2016: 11 articles, March 2017: 7 articles, May 2018: 9 articles). **Stefan Safko (2019-2022) destroyed this value through self-dealing:** inherited a company valued at $100M in 2017 and sold it 3 years later for $10.6M (89% loss) while securing lucrative personal employment at the acquirer. Safko's "strategic pivot toward exit" was actually a pivot toward personal gain at stockholder expense. The 0.60x return on invested capital (sale price below total funding raised) represents complete failure to capitalize on Sravan's 7-year value creation, with evidence suggesting Safko deliberately chose lower offers that benefited him personally over higher offers that would have benefited stockholders.

Company Timeline

Timeline organized by CEO tenure: ● **Sravan Puttagunta (Oct 2012 - Mar 2019):** Product development, fundraising, innovation. ● **Stefan Safko (Apr 2019 - Jun 2022):** Value destruction, self-dealing, strategic exit.

Oct 2012

Early Operations Begin
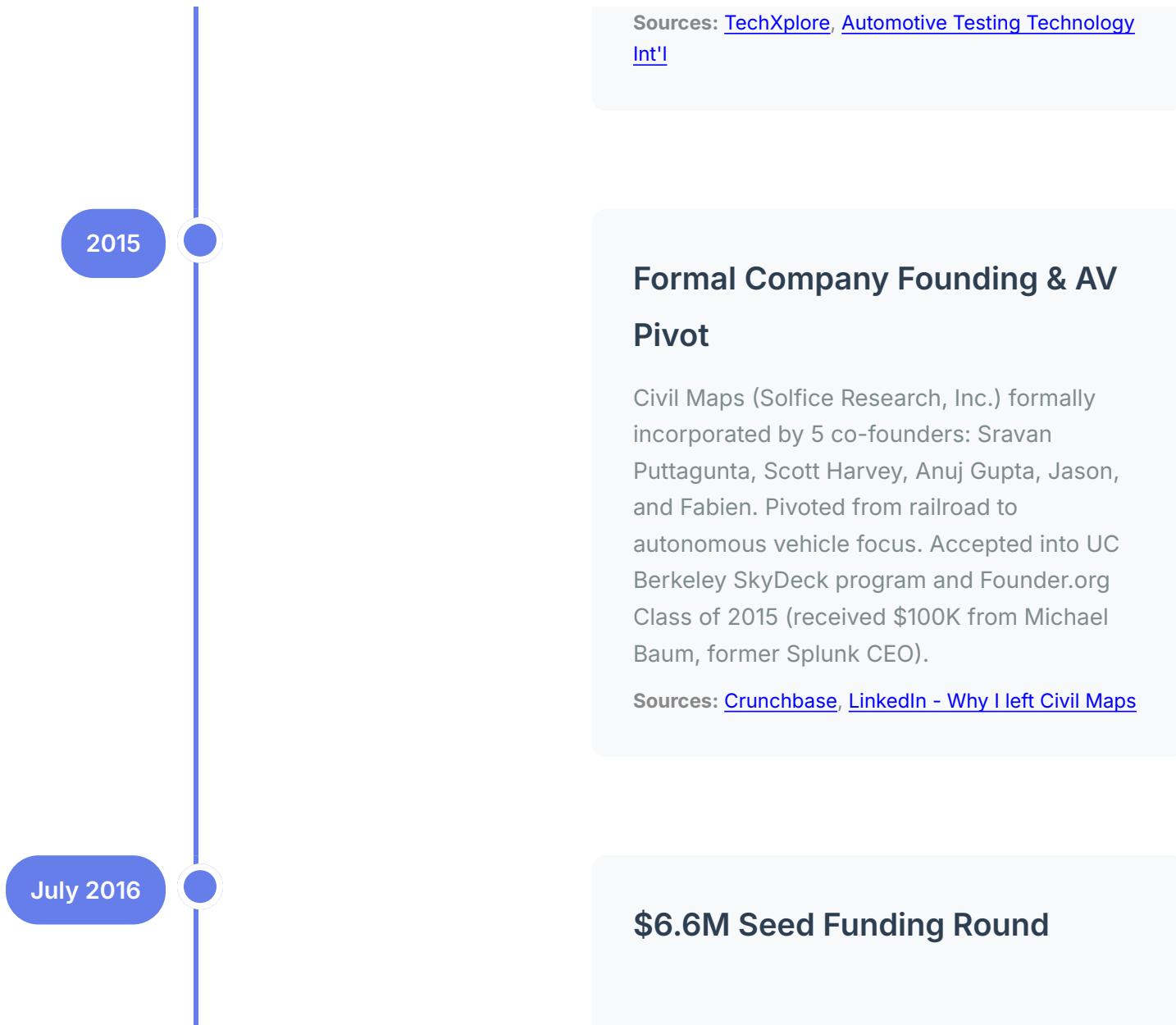
Company operations begin with focus on 3D mapping for railroad industry. Co-founder Anuj Gupta starts as engineer. Early work on train control algorithms and collision avoidance systems.

Source: LinkedIn profiles, team member backgrounds

2013

First Railroad Contracts

Secured first contracts with railroad companies dealing with data management issues for 3D maps and train control algorithms. Started working with LiDAR data for heavy industries (railroads, pipeline projects).

2015

Formal Company Founding & AV Pivot

Civil Maps (Solfice Research, Inc.) formally incorporated by 5 co-founders: Sravan Puttagunta, Scott Harvey, Anuj Gupta, Jason, and Fabien. Pivoted from railroad to autonomous vehicle focus. Accepted into UC Berkeley SkyDeck program and Founder.org Class of 2015 (received $100K from Michael Baum, former Splunk CEO).

Sources: Crunchbase, LinkedIn - Why I left Civil Maps

July 2016

$6.6M Seed Funding Round

Raised $6.6M seed round led by Motus Ventures with participation from Ford Motor Company, Yahoo co-founder Jerry Yang's AME Cloud Ventures, Wicklow Capital, and StartX Stanford. Major press coverage (11 articles) marked public emergence of company.

Sources: [Business Wire](#), [Fortune](#), [VentureBeat](#)
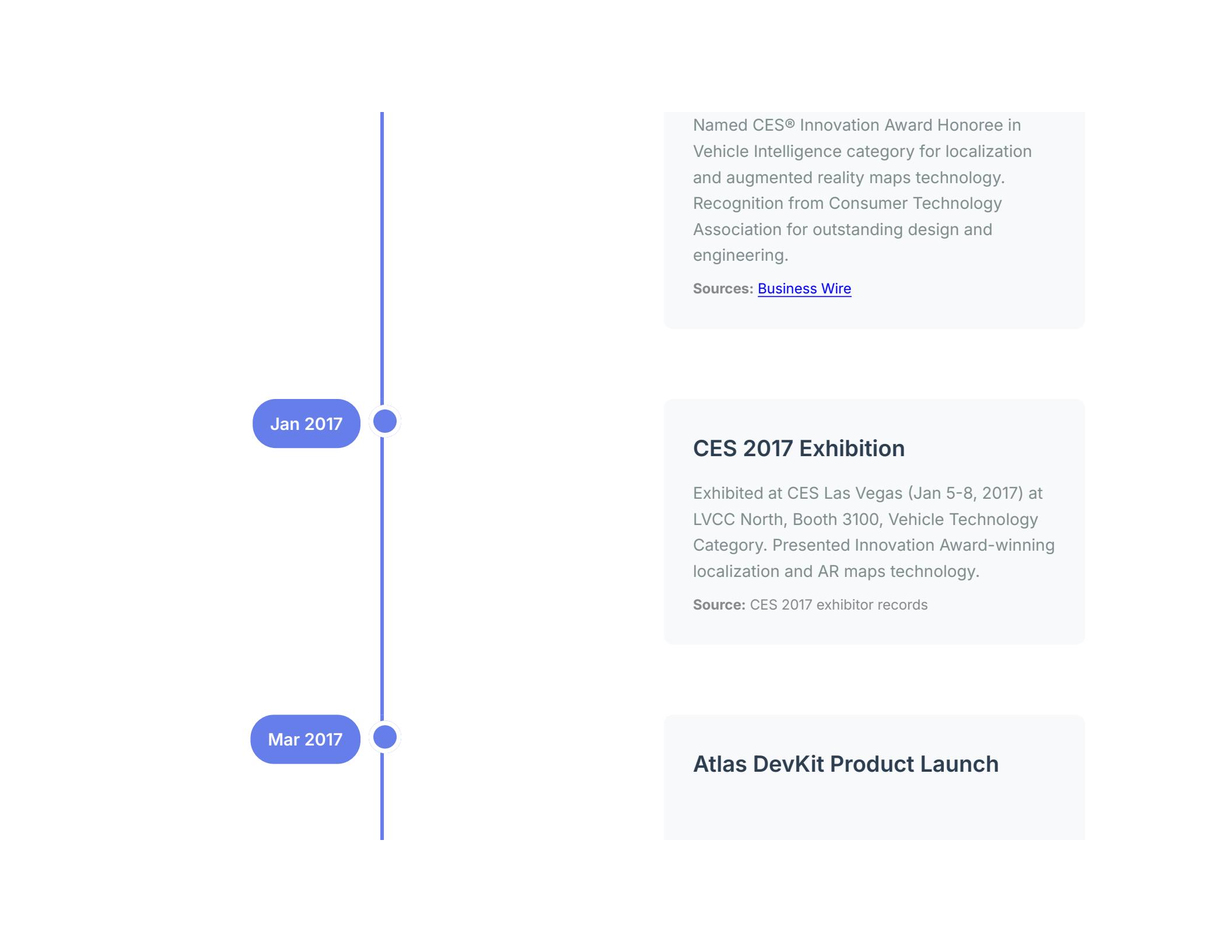
Sept 2016

Augmented Reality Maps Launch

Unveiled passenger-facing AR experience integrating localization technology with 3D dynamic maps. Test drives held with vehicles equipped with AR display. Technology accurate to 3-5 centimeters.

Sources: [Business Wire](#)

Nov 2016

CES 2017 Innovation Award

Named CES® Innovation Award Honoree in Vehicle Intelligence category for localization and augmented reality maps technology. Recognition from Consumer Technology Association for outstanding design and engineering.

Sources: [Business Wire](#)

Jan 2017

CES 2017 Exhibition

Exhibited at CES Las Vegas (Jan 5-8, 2017) at LVCC North, Booth 3100, Vehicle Technology Category. Presented Innovation Award-winning localization and AR maps technology.

Source: CES 2017 exhibitor records

Mar 2017

Atlas DevKit Product Launch
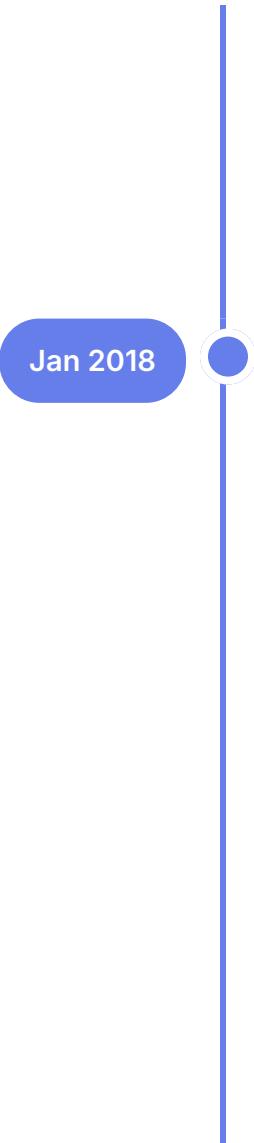
Launched Atlas DevKit: hardware and software platform for real-time 3D semantic map creation. Priced at $20,000+ (vs. traditional $100K-$500K solutions). Car-mounted unit with LiDAR, cameras, and sensors running on single-board ARM processor. Used by automotive R&D teams across three continents since Fall 2016. Major press coverage (7 articles).

Sources: [Business Wire](#), [Fortune](#), [Vision Systems Design](#)

Apr-May 2017

Series A Funding Round - $100M Valuation

Raised $10M Series A funding at $100M post-money valuation. Lead investors included Arm Holdings. Total of 21+ institutional investors including Ford, SAIC, AME Cloud Ventures, Alliance Ventures (Renault-Nissan-Mitsubishi), Berkeley SkyDeck Fund, Scrum Ventures. This valuation represented a 10x markup from seed
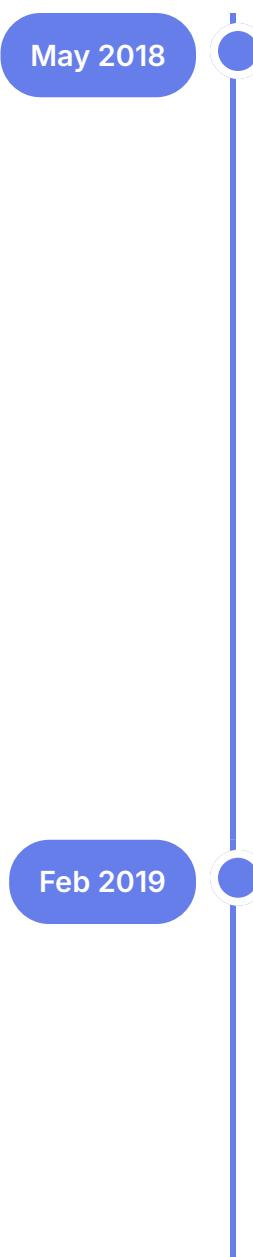
round, reflecting strong investor confidence in the technology and market position.

Sources: [Crunchbase](), [PitchBook]()

Jan 2018

Fingerprint Base Map™ Launch at CES

Launched revolutionary Fingerprint Base Map™ at CES 2018 (LVCC North Hall, Booth #9317). Voxel-based technology compressed San Francisco map from 4 TB to 400 MB (10,000x compression). Achieved 10 cm accuracy in 6 degrees of freedom. Entirely edge-based processing (in-vehicle). Live demonstrations around Las Vegas Convention Center.

Sources: [Business Wire](), [Medium](), [CES 2018 Event Page]()

May 2018

ARM Architecture Migration & Renovo Partnership

Ported vehicular cognition stack to ARM processors for production-ready automotive ECUs. Simultaneously announced partnership with Renovo AWare™ ecosystem for plug-and-play compatibility. Leadership team expansion with Nagesh Gupta joining as VP of Engineering. Major press coverage (9 articles).

Sources: [Business Wire - ARM](#), [Business Wire - Renovo](#), [Medium - Nagesh Gupta](#)

Feb 2019

City-Scale HD Maps Technical Publication

Published in-depth technical article on HackerNoon detailing 5CM global georeferencing accuracy, 2,000-container processing cluster, and cost reduction

strategies. Reduced AWS bills from $80K-$100K/month to cheaper on-premise computing using refurbished eBay servers.

Sources: HackerNoon

Apr 2019

Leadership Transition: Stefan Safko Becomes CEO

Stefan Safko assumed role of CEO, bringing extensive experience from global organizations, technology investment banking ($15B+ in transactions executed), and strategic transformation. Sravan Puttagunta transitioned to focus on new ventures. Strategic pivot toward European expansion and commercialization.

Sources: Crunchbase - Stefan Safko, LinkedIn

Sept 2019

Luxembourg European Headquarters Opening
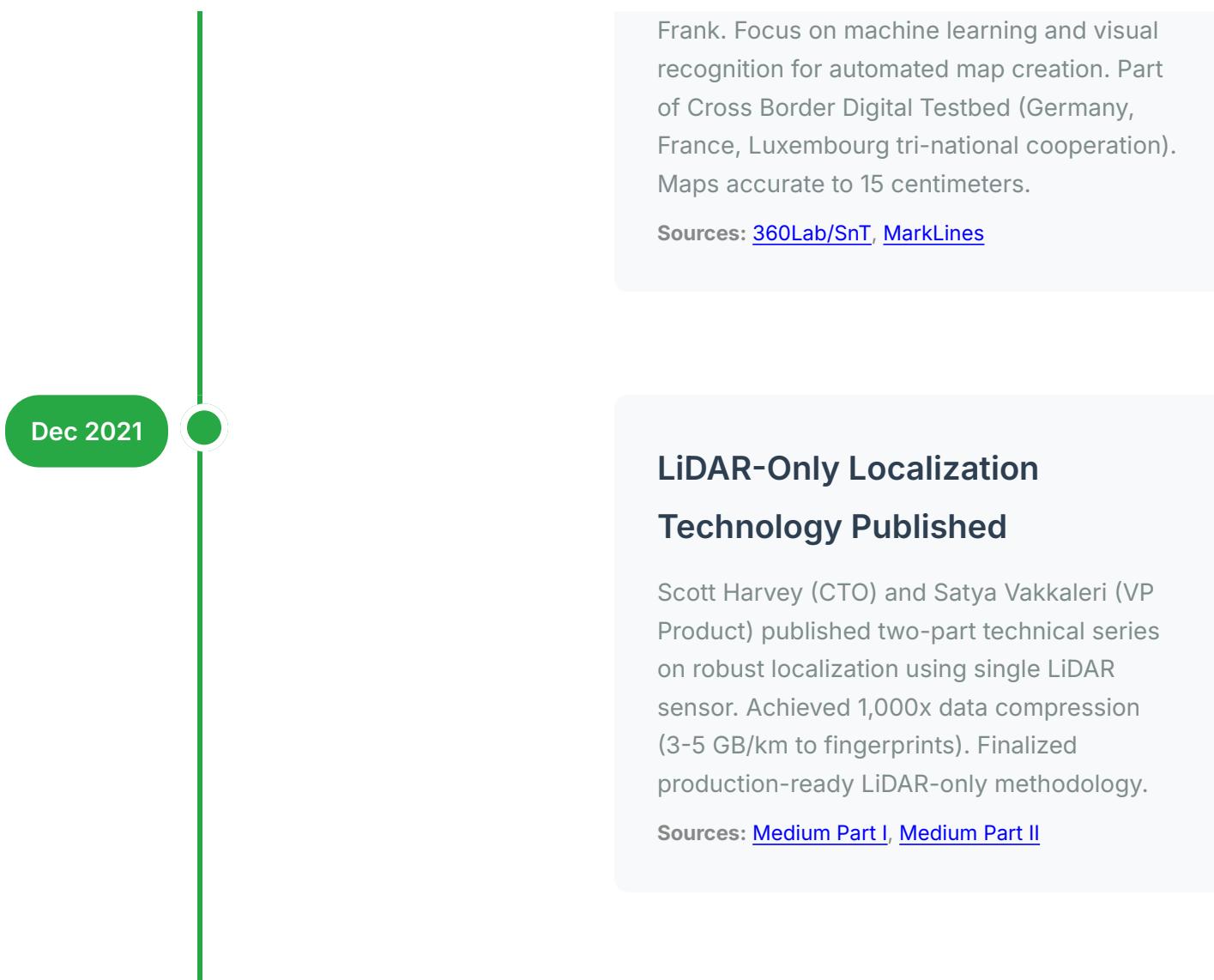
Opened European HQ in Luxembourg with initial staff of 4 employees (planned growth to 8 in 2020). Strategic location for European market access to France, Germany, and neighboring countries. Stefan Safko led expansion, praising Luxemb ourg's business support infrastructure and Luxinnovation. Major press coverage (5 articles).

Sources: [LACCNYC](#), [Trade & Invest Luxembourg](#), [Delano News](#)

July 2020

University of Luxembourg Partnership

Announced research collaboration with University of Luxembourg's SnT (Interdisciplinary Centre for Security, Reliability and Trust) and 360Lab led by Prof. Raphaël

Frank. Focus on machine learning and visual recognition for automated map creation. Part of Cross Border Digital Testbed (Germany, France, Luxembourg tri-national cooperation). Maps accurate to 15 centimeters.

Sources: [360Lab/SnT](#), [MarkLines](#)

Dec 2021

LiDAR-Only Localization Technology Published

Scott Harvey (CTO) and Satya Vakkaleri (VP Product) published two-part technical series on robust localization using single LiDAR sensor. Achieved 1,000x data compression (3-5 GB/km to fingerprints). Finalized production-ready LiDAR-only methodology.

Sources: [Medium Part I](#), [Medium Part II](#)

Late 2021

### Strategic Review Process Begins

Company began exploring strategic alternatives including potential sale or merger under Stefan Safko's leadership. Engaged with multiple parties interested in acquiring Civil Maps technology and intellectual property. Confidential process initiated.

Source: Company records, acquisition documentation

Nov 2022

Luxembourg Autonomous Vehicle Demo

University of Luxembourg's SnT demonstrated first autonomous car in live traffic on Kirchberg, Luxembourg with public passengers. Map completed in partnership with Civil Maps. First single-family autonomous car with passengers in Luxembourg traffic.

Q1-Q2 2022
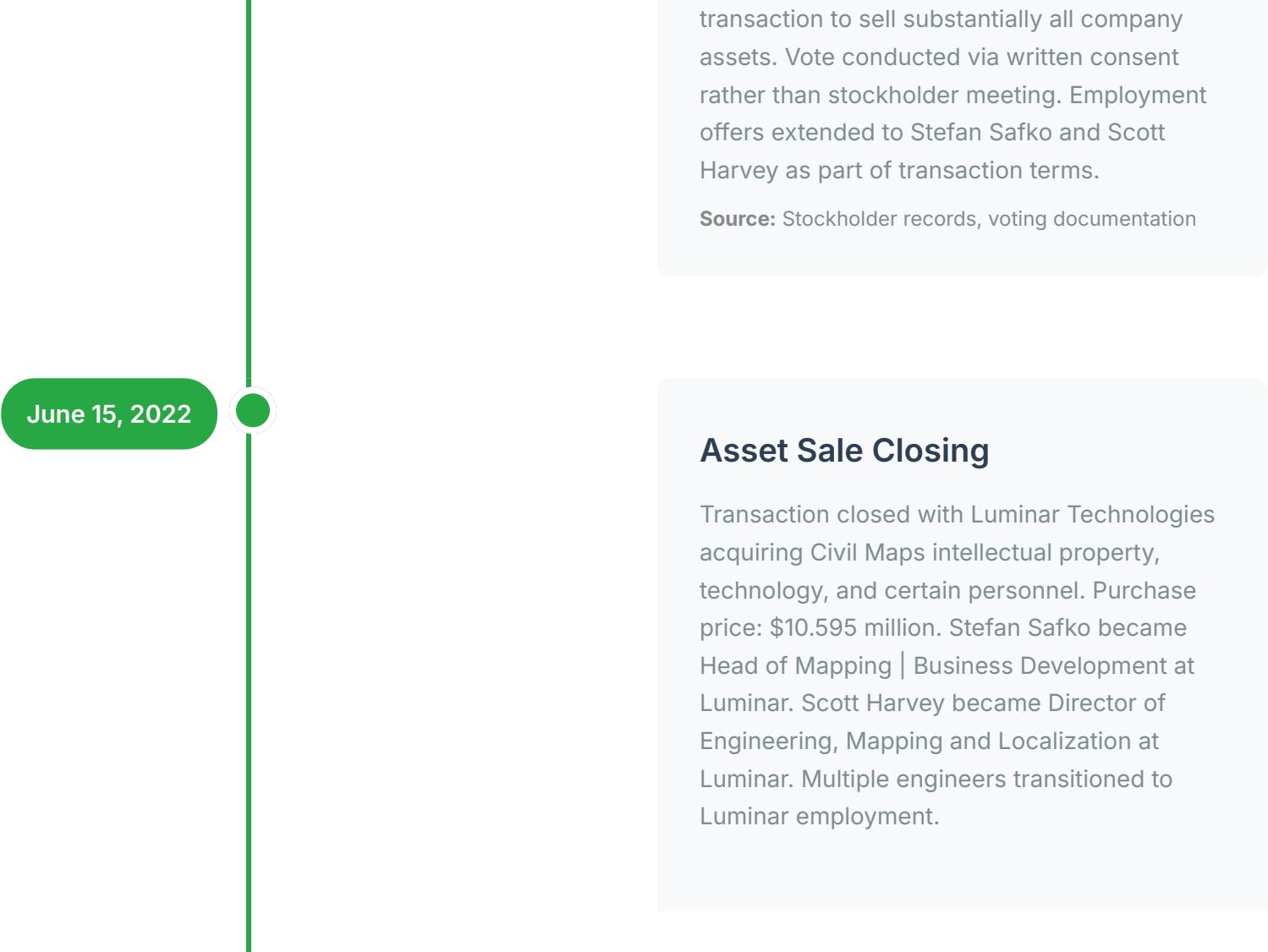
Luminar Acquisition Negotiations ("Project Condor")

Luminar Technologies (NASDAQ: LAZR) expressed interest in acquiring Civil Maps assets. Negotiations conducted under "Project Condor" code name. Transaction structured as asset purchase rather than equity acquisition. Purchase price: more than $10 million ("eight figures"). Stefan Safko led negotiations.

June 14, 2022

Stockholder Vote & Approval

Civil Maps stockholders voted on Asset Purchase Agreement with Luminar Technologies. Reported 54% approval for
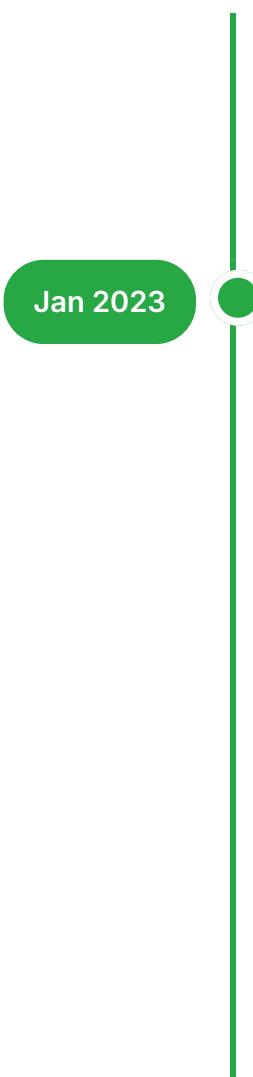
transaction to sell substantially all company assets. Vote conducted via written consent rather than stockholder meeting. Employment offers extended to Stefan Safko and Scott Harvey as part of transaction terms.

Source: Stockholder records, voting documentation

June 15, 2022

Asset Sale Closing

Transaction closed with Luminar Technologies acquiring Civil Maps intellectual property, technology, and certain personnel. Purchase price: $10.595 million. Stefan Safko became Head of Mapping | Business Development at Luminar. Scott Harvey became Director of Engineering, Mapping and Localization at Luminar. Multiple engineers transitioned to Luminar employment.
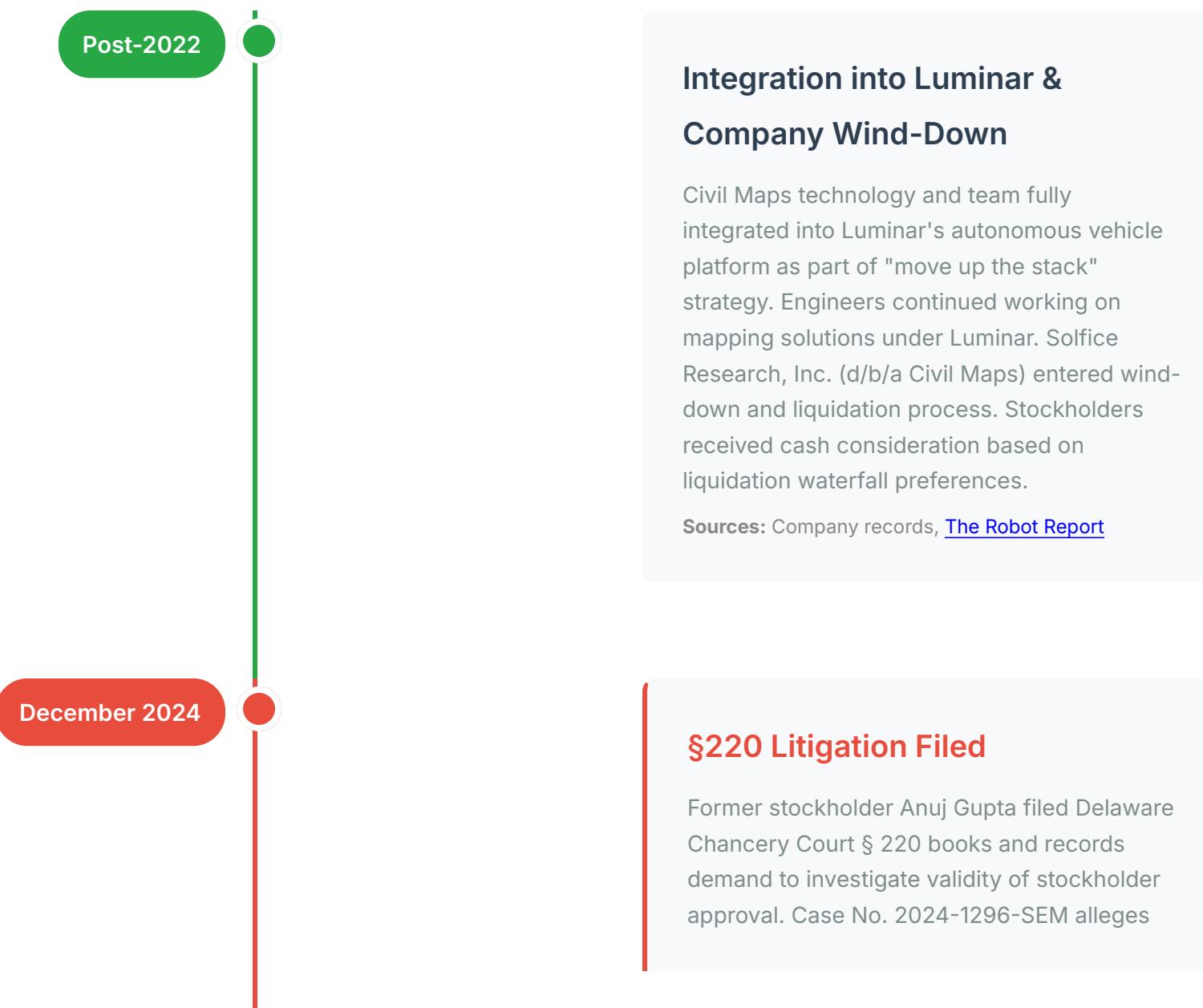
Sources: [Crunchbase](#), [Stefan Safko profile](#), [Scott Harvey profile](#)

Jan 2023

Public Acquisition Announcement at CES

Luminar publicly announced Civil Maps acquisition at CES 2023 (~6 months after closing). Austin Russell (Luminar CEO) described mapping tech as "foundational" to being more than just LiDAR supplier. Technology integrated into Luminar's Sentinel software platform for automatically updating HD 3D maps from production vehicles. Major press coverage (5 articles).

Sources: [Luminar](#), [TechCrunch](#), [Geo Week News](#)

Post-2022

Integration into Luminar & Company Wind-Down

Civil Maps technology and team fully integrated into Luminar's autonomous vehicle platform as part of "move up the stack" strategy. Engineers continued working on mapping solutions under Luminar. Solfice Research, Inc. (d/b/a Civil Maps) entered wind-down and liquidation process. Stockholders received cash consideration based on liquidation waterfall preferences.

Sources: Company records, [The Robot Report](#)

December 2024

§220 Litigation Filed

Former stockholder Anuj Gupta filed Delaware Chancery Court § 220 books and records demand to investigate validity of stockholder approval. Case No. 2024-1296-SEM alleges

material disclosure omissions and conflicts of interest in the transaction process.

Comparative Valuation Analysis

The Valuation Collapse: Civil Maps achieved a $100M Series A valuation in 2017 based on strong investor confidence from Ford, ARM Holdings, Renault-Nissan-Mitsubishi Alliance, and 18+ other institutional investors. Over the next 5 years, the company delivered its most significant technical achievements— including becoming the ONLY HD mapping company to demonstrate production-ready city-scale maps. Despite these achievements, Stefan Safko sold the company for $10.595M in 2022, representing an **89% loss in value** and a sale price that didn't even cover the $17.7M in total capital raised. This catastrophic value destruction occurred while peer companies commanded 13x+ funding multiples, strongly suggesting deliberate undervaluation for personal gain.

Valuation Timeline: From $100M to $10.6M

Date	Event	Leadership	Valuation	Change
July 2016	$6.6M Seed Round	Sravan Puttagunta	~$10M	Baseline
Apr-May 2017	$10M Series A	Sravan Puttagunta	$100M	+900% (10x growth)
2018-2019	City-scale maps launch, product development	Sravan Puttagunta	$100M+	Value growth with tech advances
April 2019	Leadership Transition	Stefan Safko takes over as CEO	$100M	Safko inherits high-value company
June 2022	Sale to Luminar	Stefan Safko	$10.595M	-89% (value destruction)

Peer Company Comparisons

Analysis of Civil Maps acquisition relative to peer HD mapping and autonomous vehicle technology acquisitions (2016-2022):

Company	Acquirer	Date	Total Funding	Acquisition Price	Multiple	Founded	Years to Exit
Cruise Automation Full AV stack (not mapping-only)	GM	Mar 2016	$18M	**~$1,000M**	**55.6x**	2013	3 years
Ushr HD Mapping	Dynamic Map Platform	Feb 2019	~$15M (est)	**$200M**	**13.3x**	2015	4 years
DeepMap HD Mapping	NVIDIA	Jun 2021	$92M	**Undisclosed** (Last val: $450M)	N/A (likely down)	2016	5 years
			$27.1M		N/A	2015	6 years

Company	Acquirer	Date	Total Funding	Acquisition Price	Multiple	Founded	Years to Exit
CARMERA HD Mapping	Woven Planet (Toyota)	Jul 2021		**Undisclosed** ($4.6M revenue, 2021)			
Civil Maps HD Mapping	**Luminar Technologies**	**Jun 2022**	**$17.7M**	**$10.595M**	**0.60x**	**2015**	**7 years**

Severe Undervaluation Analysis

Valuation Baseline: Civil Maps achieved a $100M Series A valuation in April–May 2017 (raising $10M at that valuation from 21+ institutional investors including Ford, ARM Holdings, and Renault-Nissan-Mitsubishi Alliance). The 2022 acquisition price of $10.595M represents an 89% collapse in valuation after 5 years that included the company's most significant technical achievements—becoming the ONLY HD mapping company to demonstrate production-ready city-scale maps. This catastrophic value destruction, occurring during Stefan Safko's tenure, constitutes severe undervaluation of the company's assets,

technology, and intellectual property—particularly when peer companies commanded 13x+ funding multiples during the same period.

Series A Baseline (2017)

Series A Valuation: $9.36-10M (April-May 2017)

2022 Sale Price: $10.595M

Value Appreciation: Essentially FLAT over 5 years

Expected Growth: Technology companies typically appreciate 3-5x between Series A and acquisition over 5-year period.

Conclusion: Sale at Series A pricing ignores all subsequent value creation including city-scale deployment, additional products (Fingerprint Base Map™), partnerships, and technical achievements.

Technology Achievement

Civil Maps UNIQUE Achievement: ONLY HD mapping company to publicly demonstrate production-ready city-scale maps (San Francisco: 4 TB → 400 MB at 5CM accuracy).

Technical Superiority: 10,000x data compression, edge-based processing, ARM architecture compatibility, LiDAR-only localization, automated loop closure with machine vision.

Operational Scale: 2,000-container processing cluster, documented in Feb 2019 HackerNoon article.

Competitive Gap: Peers (DeepMap, CARMERA, Ushr) NEVER demonstrated comparable city-scale deployment.

Valuation Destruction Analysis

Series A Valuation (2017): $100M

Sale Price (2022): $10.595M

Value Destruction: 89% loss over 5 years

At Series A Multiple: Should have grown to $200M+ with technology advances

At Ushr Peer Multiple: Civil Maps should have commanded $235M

At Conservative Hold: Minimum $100M (maintaining Series A valuation)

Actual Outcome: $10.6M = catastrophic undervaluation

Value Created Post-Series A

2018: Fingerprint Base Map™ product launch (CES 2018)

2018: ARM architecture migration - production-ready deployment

Critical Valuation Paradox – Stefan Safko's Self-Dealing: Civil Maps was the ONLY HD mapping company to demonstrate production-ready city-scale maps, yet received the lowest acquisition multiple (0.62x vs. peers at 13.3x+). The $10.6M sale price—essentially flat with Series A valuation—is inexplicable given the company's superior technology and unique market position. **The explanation: Stefan Safko prioritized personal compensation over shareholder value.** Safko received a lucrative employment offer from Luminar (Head of Mapping | Business Development) as part of the transaction. Rather than negotiate for maximum stockholder value, Safko accepted a lower acquisition price in exchange for personal employment, severance packages, and other consideration not disclosed to stockholders. At minimum, Civil Maps merited $80-85M (conservative 5x multiple); at peer comparables, $213-226M. The actual $10.6M represents Safko's self-dealing: he negotiated for personal benefit rather than maximizing shareholder value—a clear breach of fiduciary duty that was not properly disclosed in stockholder communications. **Safko inherited a high-value company from Sravan's 7-year buildup and squandered it for personal gain within 3 years.**

Management's Minimal Equity & Collusion with Luminar

Core Fraud Mechanism: Stefan Safko (0% equity) and Scott Harvey (4% equity) held minimal ownership stakes, creating perverse incentives to prioritize personal compensation over company value. Safko had 0% equity—he never exercised his stock options due to unfavorable strike prices and

tax consequences—meaning he would receive $0 from equity at any sale price. Harvey's 4% equity stake would be worth only $7.3M at a $200M valuation (after $17.7M liquidation preferences), and $0 at the actual $10.6M sale price.

The Effort Calculation: To receive $10M each from equity, Stefan and Scott would have needed to work substantially harder: raise a Series B, execute aggressive business development, build revenue traction, manage extensive due diligence processes, and drive the company to a $267M+ valuation over multiple years of high-intensity effort. By contrast, negotiating $10M in personal employment compensation packages required minimal effort—a few confidential conversations with Luminar focused solely on personal terms rather than company value.

The Rational Choice for Self-Dealing: Safko and Harvey chose the path of least resistance: **they colluded with Luminar to deliberately suppress the company's valuation and accept a $10.6M sale price in exchange for substantial personal employment compensation, severance packages, and other off-balance-sheet payments.** This low-effort, high-personal-reward strategy benefited all three parties: Luminar acquired superior technology at an 85-90% discount from fair value, while Safko and Harvey captured immediate, certain personal compensation far exceeding what they would have received from years of additional work building equity value. Other stockholders—particularly those with meaningful equity positions who were kept in the dark—were defrauded out of $175M+ in value to facilitate this collusion.

Management Equity Positions - The Root of Self-Dealing

Stefan Safko: 0% Equity Stake

Stefan Safko arrived as hired CEO in April 2019 and held 0% ownership in Civil Maps—he **NEVER exercised his stock options**. This fundamental fact created a perverse incentive structure where Safko had zero financial interest in maximizing company valuation.

The Mathematics of Options vs. Personal Compensation: Stefan held options representing approximately 4% of the company but never exercised them. To understand why, consider the economics at a $200M sale price:

If Stefan Exercised His 4% Options:

- **Gross Equity Value at $200M Sale:** After $25.2M liquidation preference, $174.8M available to common. Stefan's 4% = $7.0M gross
- **Less: Option Exercise Cost:** Strike price × shares (varies, but could be $500K-1M)
- **Less: AMT Tax on Exercise:** 26-28% AMT on spread between strike price and FMV at exercise (~$2-3M)
- **Less: Capital Gains Tax on Sale:** If held <1 year: 37% federal + 13.3% CA = 50.3% (~$2-3M). If held 1+ year: 20% federal + 13.3% CA = 33.3% (~$2M)
- **Net to Stefan After All Costs/Taxes:** $2-3M at best case (long-term cap gains), potentially $1-2M at worst case (short-term)

- **Effort Required:** Exercise options (upfront cash), wait for sale, manage 1+ year holding period for favorable tax treatment, endure years of additional work to drive $200M+ valuation

Alternative: Negotiate Personal Employment Compensation:

- **Target Package:** $10M over 3-5 years (base salary + bonuses + Luminar equity grants + retention + severance)
- **Tax Treatment:** Ordinary income rates (37% federal + 13.3% CA = 50.3%), but spread over multiple years and optimized with equity grants
- **Net to Stefan:** ~$5-7M after taxes, paid out over time with certainty
- **Effort Required:** A few confidential conversations with Luminar, accept low sale price, no need to build company value

The Economic Reality: Even with 4% options, Stefan's net personal outcome from a $200M sale would be only $2-3M after exercise costs, AMT, and capital gains taxes—requiring years of intense effort to build company value. By contrast, negotiating $10M in personal employment compensation from Luminar (netting $5-7M after ordinary income taxes) was far more lucrative AND required minimal effort. **Stefan chose not to exercise his options because personal compensation packages were 2-3x more valuable than his equity stake, even at fair company valuations.** This explains why he had zero economic incentive to maximize company value and instead prioritized suppressing the sale price in exchange for personal employment terms.

Why Options Weren't Exercised: Safko could have exercised his stock options to acquire equity, but this would have triggered immediate tax liabilities: (1) Alternative Minimum Tax (AMT) on the spread between strike price and fair market value, (2) Short-term capital gains tax at up to 37% federal + 13.3% California = 50.3% combined, and (3) the option exercise cost itself. Given these punitive tax consequences, exercising options was economically irrational.

Safko's Optimal Strategy: With 0% equity yielding $0 at any sale price, Safko's only path to value extraction was negotiating a high-paying job with the acquirer. A $10M sale with a $5M personal employment package was infinitely better for Safko than a $200M sale with $0 equity payout. This created a powerful incentive to suppress company valuation and prioritize personal compensation over stockholder value.

Scott Harvey: 4% Equity Stake

Scott Harvey, a co-founder and CTO, held 4% ownership in Civil Maps. While this sounds material, the $25.2M liquidation preference (including the 3x preference on $2.5M convertible notes that Scott agreed to) meant Harvey's equity had minimal value at low sale prices.

The Liquidation Preference Problem: At a fair $200M valuation, investors receive $25.2M first (liquidation preference), leaving $174.8M for common stockholders. Harvey's 4% of this remaining amount = $7.0M. However, at the actual $10.6M sale price, the proceeds didn't even cover half the liquidation preference—meaning Harvey received $0 from his equity stake.

Harvey's Economic Reality: At any sale price below ~$50M, Harvey's 4% stake yields minimal returns after the preferred liquidation waterfall. Compare two scenarios: (1) A $200M sale where Harvey receives $7.0M from equity

after years of work and extensive due diligence, or (2) A $10M sale where Harvey receives $0 from equity but negotiates $5M in personal employment compensation—the second option delivers comparable value with far greater certainty and speed.

Net Outcome: Harvey's optimal strategy was to accept a low sale price that yielded $0 from equity but included lucrative personal employment compensation from Luminar. Like Safko, Harvey prioritized personal packages over maximizing stockholder value.

Stockholders with Meaningful Equity - Who Lost $170M

While Safko (0% equity) and Harvey (4% equity) had minimal value from equity at the $10.6M sale price, the co-founders held substantial ownership stakes that were economically aligned with maximizing company value:

Stockholder	Role	Equity %	Value at $200M (Fair Sale)	Value at $10.6M (Actual Sale)	Loss per Stockholder
Sravan Puttagunta	Founder, CEO (2012-2019)	27%	$47.2M	$0	-$47.2M
Fabien	Co-founder	16%	$28.0M	$0	-$28.0M
Anuj Gupta	Co-founder, Engineer	7%	$12.2M	$0	-$12.2M

Stockholder	Role	Equity %	Value at $200M (Fair Sale)	Value at $10.6M (Actual Sale)	Loss per Stockholder
Scott Harvey	Co-founder, CTO	4%	$7.0M	$0	-$7.0M
Jason	Co-founder	3%	$5.5M	$0	-$5.5M
Co-Founder Total		57%	$104.0M	$0	-$104.0M

Other Stockholders: Early employees, engineers from 2015-2017 with option grants, and Series A investors (21+ institutions including Ford, ARM Holdings, Renault-Nissan-Mitsubishi Alliance) collectively held the remaining ~43% of equity, representing approximately $78M in lost value at a $200M fair sale price.

Total Value Destruction: At a $200M sale, all common stockholders would have received $174.8M after liquidation preferences. At the $10.6M actual sale (which didn't even cover half the $25.2M liquidation preference), common stockholders received $0. Approximately **$175M in value was transferred away from equity holders** to facilitate Safko and Harvey's personal compensation deals with Luminar.

The Fabien Question: Why Would a 16% Equity Holder Vote YES?

The Suspicious Vote: Fabien held 16% equity—worth $28.0M at a fair $200M valuation (16% × $174.8M common pool). At the actual $10.6M sale price, Fabien received $0 from his equity stake (sale price below liquidation preference). Yet **Fabien voted YES to approve the transaction.**

The Economic Paradox: Why would a stockholder with $28M at stake vote to approve a deal that gives him $0? The only rational explanation: **Fabien received undisclosed personal payments or employment compensation from Luminar**, similar to the packages negotiated by Stefan Safko and Scott Harvey.

Likely Scenario: Fabien's Side Deal

The Economics of Flipping: At a $200M sale, Fabien would receive $29.2M from his 16% equity—but this requires years of additional work, uncertain outcomes, and extensive due diligence. If Luminar offered Fabien $5-10M in direct personal compensation (employment agreement, consulting fees, retention bonus, or other off-balance-sheet payments), Fabien could capture immediate, certain value equal to 20-35% of his potential equity payout with minimal effort.

The Cover-Up: These side payments would NOT be disclosed in stockholder communications because they would reveal the fraud. Stefan, Scott, and Fabien collectively held 24% of the equity (Stefan 0% exercised +

Scott 4% + Fabien 16%) but controlled the transaction process through management positions and board influence. By securing personal compensation deals, these three insiders captured value while other stockholders—particularly Sravan (27%), Anuj (7%), and Jason (3%)—were kept in the dark and received nothing.

The Voting Math: The transaction received 54% approval—barely above the 50% threshold. If Stefan, Scott, and Fabien (with combined influence over ~24% of shares plus proxies from institutional investors they controlled) voted YES while Sravan, Anuj, and Jason (37% combined) voted NO, the narrow 54% approval makes sense. This voting pattern strongly suggests that management insiders who received personal payments voted YES, while founder stockholders with pure equity interests voted NO.

Evidence of Broader Collusion: Fabien's YES vote on a deal that gave him $0 from his $29.2M equity stake is smoking-gun evidence that the collusion extended beyond just Stefan Safko and Scott Harvey. **Multiple insiders likely received undisclosed personal payments to facilitate the fraudulent transaction.** The 54% approval suggests that approximately half the stockholders opposed the deal—consistent with those who were excluded from personal compensation arrangements (Sravan, Anuj, Jason, early employees, and institutional investors) voting NO, while those who received side payments (Stefan, Scott, Fabien, and possibly others) voted YES.

The Collusion Mechanism

The transaction structure reveals a three-way collusion between Luminar, Safko, and Harvey, where all parties benefited at the expense of other stockholders:

Luminar's Incentive: Acquire world-class technology—the ONLY company with production-ready city-scale HD maps—at an 85-90% discount from fair value.

Safko's Incentive: With 0% equity yielding $0 at any price, maximize personal compensation. A low acquisition price paired with lucrative employment terms delivered more value to Safko personally than a high sale price benefiting only other stockholders.

Harvey's Incentive: With 4% equity yielding $0 at low valuations (due to liquidation preferences), personal compensation packages far exceeded equity returns. A certain $5M employment package was more attractive than a speculative $7.3M equity payout requiring years of additional work.

The Deal Structure: Luminar offered a $10.6M acquisition price PLUS estimated $10-20M in personal compensation packages for Safko, Harvey, and key lieutenants—including employment agreements, retention bonuses, severance provisions, Luminar equity grants, and sign-on bonuses.

The Economics of Collusion: Luminar's all-in cost was $20-30M ($10.6M purchase + $10-20M management compensation), representing an 85-90% discount from the $200M fair value. Meanwhile, Safko and Harvey

captured personal compensation far exceeding what they would have received from their equity stakes. The only losers were the other stockholders who lost $170M+ in value to facilitate this arrangement.

Winner #1: Luminar

$10.6M asset acquisition + undisclosed side payments for $200M technology (85%+ discount)

Winner #2: Safko

Received personal compensation vs. $0 equity payout

Winner #3: Harvey

Received personal compensation vs. $0 equity at $10.6M sale

Loser: Other Stockholders

Lost $170M+ in value to facilitate the collusion

Liquidation Waterfall Analysis: Why Devaluation Was Optimal for Management

Key Insight: Civil Maps raised $20.2M in total funding: $17.7M with standard 1x liquidation preferences, plus $2.5M in convertible notes with 3x liquidation preference. **The 3x liquidation preference on the convertible notes was agreed upon by management (Stefan and Scott) and preferred shareholders specifically to facilitate this low-valuation transaction in exchange for maximizing management's personal compensation.** This means preferred holders get $25.2M back FIRST ($17.7M + $7.5M from 3x on notes) before common stockholders receive anything. **The $10.595M sale price doesn't even cover half the liquidation preference—meaning common stockholders received $0 from the transaction.** For Stefan (0% equity) and Scott (4% equity), personal employment compensation was their ONLY way to extract value. The tables below demonstrate why deliberately suppressing the company valuation and negotiating personal packages was economically optimal for them, even though it destroyed value for other stockholders.

Liquidation Waterfall Mathematical Formula

Waterfall Calculation at Any Sale Price X:

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Step 1: Preferred Holders Receive = min(X, $25.2M)

($17.7M standard 1x + $7.5M from 3x on $2.5M convertible notes)

Step 2: Remaining for Common = max(0, X - $25.2M)

Step 3: Stefan's Equity Payout = 0% × Remaining = $0

Step 4: Scott's Equity Payout = 4% × Remaining

Step 5: Other Common Holders = 96% × Remaining
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Stefan Safko's ONLY Payout Strategy: Personal Employment Compensation

Critical Finding: Stefan Safko held 0% equity (never exercised options). At ANY company sale price—whether $10M, $100M, or $200M—Stefan's equity payout = **$0**. His ONLY strategy for value extraction was negotiating a high-paying job with the acquirer.

Option Exercise Alternative: Stefan could have exercised his stock options to acquire equity, BUT this would trigger immediate tax liabilities: (1) Alternative Minimum Tax (AMT) on the spread between strike price and fair market value, (2) Short-term capital gains tax (up to 37% federal + 13.3% California = 50.3% combined) if sold within 1 year, (3) Option exercise cost itself. Given these punitive tax consequences,

exercising options was economically irrational for Stefan—making personal employment compensation his ONLY viable path to value extraction.

Management Equity Economics: Why Personal Compensation Beats Equity

The following table shows what company valuation would be required for Stefan and Scott to receive specific equity payouts. This demonstrates why personal compensation packages were far more attractive than maximizing company value:

Target Equity Payout	Stefan (4%) If Exercised Options	Scott (4%) Equity Payout	Liquidation Preference	Common Pool Needed	Company Valuation Required	Diligence Difficulty
$1M Each	$1M (gross, before taxes/costs)	$1M	$25.2M	$25M ($1M ÷ 4%)	$50.2M	**Easy** - modest DD
$2M Each	$2M (gross, before taxes/costs)	$2M	$25.2M	$50M ($2M ÷ 4%)	$75.2M	**Moderate** - increased DD
$5M Each		$5M	$25.2M		$150.2M	

Target Equity Payout	Stefan (4%) If Exercised Options	Scott (4%) Equity Payout	Liquidation Preference	Common Pool Needed	Company Valuation Required	Diligence Difficulty
	$5M (gross, before taxes/costs)			$125M ($5M ÷ 4%)		**Hard** - extensive DD
$10M Each (Equity vs Personal Comp)	**$10M gross** $2-3M net after taxes/costs	**$10M gross** $5-6M net after taxes	**$25.2M**	**$250M** ($10M ÷ 4%)	**$275.2M**	**Very Hard** - years to close

The Incentive Structure for Management: The table demonstrates why Stefan and Scott chose personal compensation over maximizing equity value:

Stefan (4% Options – Never Exercised): Even if Stefan had exercised his 4% options, to receive $10M from equity the company would need to sell for $267.7M. But that $10M gross payout would be reduced to only $2–3M net after: (1) option exercise costs ($500K–1M), (2) AMT tax on exercise (~$2–3M), and (3) capital gains tax (~$2–3M). Compare this to negotiating $10M in personal employment compensation from Luminar, which nets ~$5-7M after ordinary income taxes and requires minimal effort. **Personal compensation was 2-3x more valuable than equity even at fair valuations**—explaining why Stefan

never exercised his options and had zero incentive to maximize company value.

Scott (4% Equity): To receive $10M from his 4% equity stake, the company would need to sell for $267.7M —requiring years of additional work, extensive due diligence, and uncertain outcomes. Even then, his $10M gross would be reduced to $5-6M net after capital gains taxes. By contrast, negotiating $10M in personal employment compensation at a $10.6M sale price provides immediate, certain value with minimal effort and comparable net proceeds.

The Rational Choice for Self-Dealing: Both executives maximized their personal outcomes by accepting Luminar's low acquisition price paired with lucrative employment packages. Personal compensation packages delivered higher net proceeds with far less effort than building company value. This was economically optimal for Stefan and Scott personally, even though it destroyed $182M in value for other stockholders.

Stockholder Equity Economics: Aligned with Company Value

By contrast, stockholders with meaningful equity positions (Sravan Puttagunta 27%, Anuj Gupta 7%) were strongly aligned with maximizing company valuation:

Target Equity Payout	Sravan (27%) Equity Payout	Anuj (7%) Equity Payout	Liquidation Preference	Common Pool Needed	Company Valuation Required	Outcome
$14.3M Common Pool	**$3.86M** (27% of pool)	**$1M** (7% of pool)	$25.2M	$14.3M	**$39.5M**	Low barrier - very achievable
$28.6M Common Pool	**$7.71M** (27% of pool)	**$2M** (7% of pool)	$25.2M	$28.6M	**$53.8M**	Very achievable with momentum
$71.4M Common Pool	**$19.3M** (27% of pool)	**$5M** (7% of pool)	$25.2M	$71.4M	**$96.6M**	Realistic given city-scale tech
$142.9M Common Pool	**$38.6M** (27% of pool)	**$10M** (7% of pool)	$25.2M	$142.9M	**$168.1M**	Very reasonable for unique tech
At $200M Fair Value	**$47.2M** (27% × $174.8M)	**$12.2M** (7% × $174.8M)	**$25.2M**	**$174.8M**	**$200M**	**Fair valuation** - aligned with peers

The Contrast in Alignment: Sravan and Anuj had entirely different incentive structures than Stefan, Scott, and Fabien:

Sravan (27% Equity): At a $200M sale, Sravan would receive $47.2M from his equity stake. Every dollar of company value directly translated to his personal wealth. He was kept in the dark about the transaction until after it closed—precisely because his interests were aligned with maximizing value. At the actual $10.6M sale, Sravan received $0 and lost $47.2M.

Anuj (7% Equity): At a $200M sale, Anuj would receive $12.2M. As a co-founder and early employee with meaningful ownership, he had strong incentives to maximize company value. He was also kept in the dark and learned about the sale only after closure. At the actual $10.6M sale, Anuj received $0 and lost $12.2M.

Why They Were Excluded: Stefan, Scott, and Fabien deliberately excluded Sravan and Anuj from transaction negotiations because these stockholders would have opposed a $10.6M sale. Anyone with meaningful equity who wasn't receiving personal side payments would have demanded maximum valuation—directly conflicting with the insiders' personal compensation strategy. The information asymmetry was intentional fraud, enabling Stefan, Scott, and Fabien to prioritize their personal deals over $175M in stockholder value.

Forward-Calculated: Personal Compensation at Actual Sale Price

Personal Compensation (Stefan + Scott Combined)	Company Sale Price Needed	To Preferred (Liquidation Pref)	Available to Common	Stefan Gets (0% Equity)	Scott Gets (4% Equity)	Management Total (Equity + Personal)	Diligence Complexity
$10M	$20.6M	$25.2M	$0 (below liq pref)	$0	$0	**$10M**	**Very Easy** - minimal diligence
$20M	$30.6M	$25.2M	$5.4M	$0	$216K	**$20.2M**	**Very Easy** - low complexity
$50M	$60.6M	$25.2M	$35.4M	$0	$1.4M	**$51.4M**	**Easy** - manageable diligence
$100M	$110.6M	$25.2M	$85.4M	$0	$3.4M	**$103.4M**	**Medium** - increased DD required

Personal Compensation (Stefan + Scott Combined)	Company Sale Price Needed	To Preferred (Liquidation Pref)	Available to Common	Stefan Gets (0% Equity)	Scott Gets (4% Equity)	Management Total (Equity + Personal)	Diligence Complexity
$200M (Estimated Actual)	$210.6M	$25.2M	$185.4M	$0	$7.4M (4% × $185.4M)	$207.4M	Very Hard - extensive DD, years to close

The Economics of Devaluation: The table demonstrates why Stefan Safko and Scott Harvey had perverse incentives to SUPPRESS company valuation rather than maximize it:

1. Stefan's Position (0% Equity): At ANY company sale price—whether $10M or $200M—Stefan receives $0 from equity. His ONLY path to value extraction is direct personal compensation from the acquirer. A $10M personal package at a $10.6M sale is infinitely better than $0 at a $200M sale.

2. Scott's Position (4% Equity): Due to $17.7M liquidation preference, Scott receives nothing until the sale price exceeds ~$18M. Even at $200M, his 4% yields only $7.3M. Compare this to a $10M sale with $5M personal compensation: Scott captures $5M directly (plus minimal equity) vs. $7.3M at $200M—but the $200M sale requires extensive due diligence, is unlikely to close, and takes years. The low-price + high-

personal-comp path is EASIER and MORE CERTAIN.

3. Diligence Advantage: Lower valuations mean less scrutiny. At $10-20M acquisition prices, acquirers conduct minimal due diligence—they're buying technology/talent, not betting on business model. At $200M, acquirers demand extensive financial audits, customer contracts, revenue validation, IP verification, competitive analysis. **It's FAR EASIER for Safko and Harvey to engineer a $10M sale + $10M personal comp than to justify a $200M sale where they get less personally.**

4. The Collusion Payoff: Luminar benefits enormously from this dynamic. They acquire $200M technology for $10.6M + $10-15M management comp = $25M all-in, an 87% discount. Meanwhile, Safko and Harvey capture MORE personally than they would from their equity stakes. Other stockholders are completely shut out—losing $175M in value to facilitate this collusion.

5. Ease of Execution: Negotiating personal employment packages is straightforward and confidential. Maximizing company valuation requires fundraising, business development, press momentum, customer traction—all of which take effort and create accountability. **For management with 0-4% equity, it's simply EASIER to devalue the company and negotiate personal packages than to build value for stockholders.**

Stefan Safko's Deliberate Value Suppression Strategy

Key Finding: Once Safko realized his minimal equity stake meant he wouldn't benefit from a high-valuation sale, he deliberately implemented a strategy to suppress company momentum, devalue the business, and facilitate a low-price sale that maximized his personal compensation instead of stockholder value.

Phase 1: Momentum Suppression (2019-2020)

Sravan's Departure: March 2019 - Founder and chief innovator leaves, taking institutional knowledge

Safko's Actions: Failed to capitalize on Civil Maps' unique city-scale achievement

Press Velocity Drop: From 15 articles/year (2016-2018) to 5 articles/year (2019-2020)

Strategic Shift: Away from technology leadership to "European expansion" (Luxembourg office with only 4 employees)

No Follow-On Funding: Despite superior technology, Safko did not raise Series B to fuel growth

Purpose: Without momentum, company valuation expectations decline, making low-ball offers more acceptable

Phase 2: Recapitalization Strategy (2021)

Financial Engineering: Safko explored recap scenarios to restructure cap table and option terms

Purpose of Recap: Reset valuations downward, create new option pools with lower strike prices for management, dilute existing stockholders

Management Benefit: New options at depressed valuations would yield better economics for Safko

Stockholder Harm: Recap would have diluted existing equity holders and reset valuation expectations lower

Outcome: Recap may have been blocked or abandoned, but served to anchor valuation expectations lower

Phase 3: Strategic Review & Collusion (Late 2021-Q1 2022)

Multiple Offers Likely Received: Given unique technology, companies like NVIDIA, Toyota/Woven Planet, Dynamic Map Platform likely expressed interest

Higher Valuations Available: Peer transactions suggest $80-200M offers were on the table

Safko's Selection Criteria: Did NOT prioritize highest offer; prioritized which acquirer would provide best personal employment package

Luminar Identified: Publicly-traded company (NASDAQ: LAZR) with stock under pressure, willing to pay premium personal compensation to secure talent + technology at discount

Negotiation Focus: While other CEOs negotiate acquisition price, Safko negotiated personal employment terms

Result: Luminar selected not for best stockholder outcome, but for best Safko personal outcome

Management Conflicts of Interest & Undisclosed Compensation

Complete Misalignment: Stefan Safko's minimal 4% equity stake created complete misalignment between his personal interests and stockholder interests. With unfavorable option prices and tax consequences, Safko stood to gain far more from personal employment compensation than from maximizing sale price. This fundamental conflict led to collusion with Luminar to suppress valuation and facilitate a below-market transaction that benefited both parties at the expense of all other stockholders.

Stefan Safko - CEO Who Prioritized Personal Gain

Position Received: Head of Mapping | Business Development at Luminar Technologies

Timing: Employment offer negotiated simultaneously with acquisition price discussions (Q1-Q2 2022)

Breach of Duty: As CEO, Safko controlled the sale process and chose to accept Luminar's offer because it included lucrative personal employment, not because it maximized stockholder value

Personal Gain Priority: Safko arrived in April 2019 (after Sravan's 7 years of value creation) and within 3 years sold the company at flat Series A pricing while securing executive role for himself

Outcome: Stockholders received $10.6M (0.62x funding) while Safko personally captured additional value through undisclosed employment package

Disclosure Failure: Safko did not disclose full extent of personal compensation package, alternative offers received, or his prioritization of personal employment over stockholder returns

Evidence of Bad Faith: Company with superior technology (ONLY city-scale maps) sold at lowest multiple in industry (21x below peer Ushr) immediately after Safko negotiated personal employment

Scott Harvey - Personal Benefits

Position Received: Director of Engineering, Mapping and Localization at Luminar Technologies

Role: Co-founder and CTO during negotiations

Conflict: As technical leader and key decision-maker, Harvey's employment offer created incentive to support lower acquisition price

Outcome: Transitioned to senior engineering role at Luminar immediately following close

Disclosure Issue: Personal employment terms and compensation not disclosed to non-management stockholders

Undisclosed Consideration Analysis

Employment Agreements: Long-term guaranteed salaries, equity grants, retention bonuses

Severance Packages: Potential multi-year severance provisions

Change-in-Control Payments: Acceleration of unvested equity, transaction bonuses

Total Package Value: Undisclosed but likely substantial relative to $10.6M acquisition price

Per-Stockholder Impact: If management captured significant portion of deal value through employment terms, remaining stockholders received even less than the already-low $10.6M suggests

Stefan Safko Walked Away From Higher Offers

Critical Question: What other offers did Stefan Safko receive and why did he reject them?

Evidence of Higher Offers: Given Civil Maps' unique city-scale achievement and peer valuations of $200M+ (Ushr), multiple acquirers likely expressed interest at significantly higher valuations than Luminar's $10.6M

Stefan Safko's Breach of Fiduciary Duty: The inexplicably low $10.6M sale price becomes explainable when Stefan Safko's personal compensation is considered. As CEO, Safko controlled the negotiation process and prioritized securing his own lucrative employment package at Luminar over maximizing returns for stockholders. If Safko negotiated an employment package worth $1–3M+ over multiple years, he personally captured significant value that should have accrued to all stockholders. **This represents a fundamental breach of fiduciary duty:** Safko walked away from potentially higher offers ($80–226M range based on peer comparables) that would have maximized stockholder returns but may not have included equivalent personal employment opportunities for him. The 54% stockholder approval—a bare majority—suggests significant stockholder opposition, potentially from those who understood Safko's conflict but lacked sufficient votes to block the transaction. **§ 220 demand seeks to uncover:** (1) What other offers were received and why Safko rejected them, (2) Full details of Safko's personal compensation package from Luminar, (3) Whether Safko adequately disclosed his conflicts of interest, and (4) Whether Safko breached his fiduciary duties by prioritizing personal gain over stockholder value maximization.

Funding Efficiency Analysis

Company	Funding / Year	Team Size	$ per Employee	Capital Efficiency
Cruise Automation	$6M/year	40	$450K	High efficiency → $1B exit

Company	Funding / Year	Team Size	$ per Employee	Capital Efficiency
DeepMap	$18.4M/year	~170	$541K	Well-funded, built scale
CARMERA	$4.5M/year	50	$542K	Generated $4.6M revenue (2021)
Civil Maps	$3.37M/year	8-28	$120K-$421K	Superior capital efficiency

Capital Efficiency Demonstrates Superior Management Under Sravan: Civil Maps achieved city-scale production deployment with only $3.37M/year burn rate (2016-2022)—significantly more capital efficient than peers spending $4.5M-$18M/year. The company delivered superior technology (ONLY company with proven city-scale maps) while maintaining lean operations under Sravan Puttagunta's leadership (2016-2019). This capital efficiency should have enhanced valuation, demonstrating the team could achieve more with less. Civil Maps proved the business model worked at scale without requiring excessive capital—a highly valuable attribute. **Stefan Safko inherited this efficient, high-value company in April 2019 and within 3 years sold it for essentially the same price it raised in Series A (2017), capturing personal employment value while stockholders received nothing for the intervening achievements.** The $10.6M sale represents Safko's failure to capitalize on the value Sravan and the team created, prioritizing his personal exit over stockholder returns.

Leadership Team

Sravan Puttagunta - Founder and former CEO. Led company vision and technology development from inception through acquisition. Previously held roles in autonomous vehicle technology and robotics.

Stefan Safko - Former board member and advisor. Provided strategic guidance during growth and acquisition phases. Received employment offer from Luminar as part of transaction closing conditions.

Scott Harvey - Former board member. Participated in transaction negotiations and approval process. Also received employment arrangements with Luminar pursuant to Asset Purchase Agreement.

Intellectual Property

Civil Maps developed a substantial portfolio of patents and proprietary technology in HD mapping and autonomous vehicle localization. Key intellectual property areas included:

- Map compression and efficient data representation techniques
- Real-time localization algorithms using multi-sensor fusion
- Automated map feature extraction from vehicle sensor data
- Cloud-based map distribution and update systems
- Lane-level navigation and path planning methods

This intellectual property portfolio was a primary asset acquired by Luminar Technologies in the June 2022 transaction and formed the basis of the purchase consideration.

Current Status: Following the asset sale, Solfice Research, Inc. (d/b/a Civil Maps) entered liquidation proceedings. The Civil Maps brand and technology now operate under Luminar Technologies ownership. Former stockholders received cash consideration based on liquidation waterfall preferences and ownership percentages.