



See what surgery has been missing

Problem, Solution

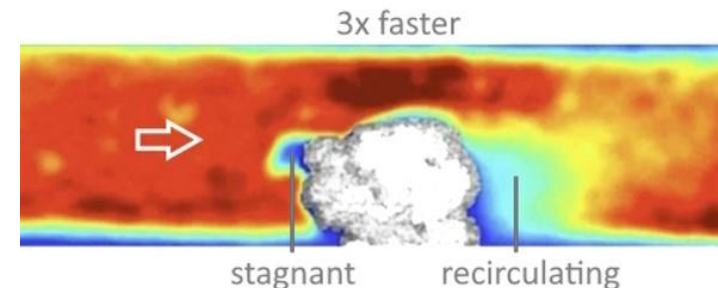
Problem

- 1 in 5 bypass grafts have insufficient blood flow
 - Probes help identify poor graphs but pinch vessels
- 1 in 7 skin flaps fail due to insufficient blood flow
 - Glow dye helps but requires injecting dye



Solution

- Same **value** as dye + probe-- but one device and no contact
- Dye-less ViewFlow camera reveals both problems, on-demand
- Easier, Safer—point-n-click



Market, Traction

Market

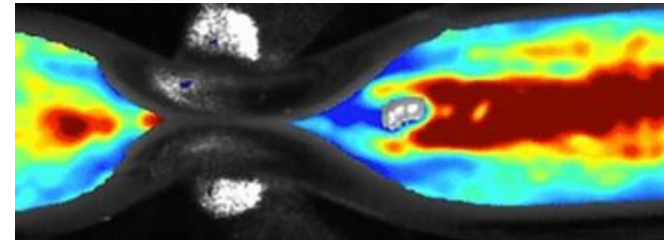


- Modify vessels in open surgery
- Dye (some probe) used in under 1M of 50M US open surgeries
- \$100K subscription + \$300 dye per surgery

Status & Traction



- FDA Surgical Camera
- Trained on 300 porcine hearts
- 35 top innovating heart surgeons want to see viewflow imaging after completing a bypass



Instructional Demo (original model)



[Watch in a browser: viewflow.ai/instructionalvideo](https://viewflow.ai/instructionalvideo)

Traction – National Response



Dr. Randall K. Wolf

“ViewFlow gives quantitative, data-driven verification that the heart bypass procedure was optimal”

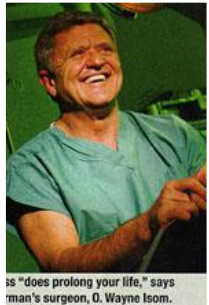
- Prof. of Cardiac, Houston Methodist, DeBakey Heart & Vascular



Dr. Murray Kwon

“Sometimes [after bypass] current devices show insufficient flow through new arteries, yet EKG and other tests show the heart is receiving good flow. Surgeons still might decide not to redo the bypass — they don’t know if they’re doing the right thing.”

- Clinical Prof. of Cardiac Surgery, UCLA



Dr. O. Wayne Isom

“Wait — there’s a device that will allow me to ‘see’ flow in high def? OK, I’d like to test the system when it’s available.”

- Prof. CT Surgery, Weill Cornell
- David Letterman’s Heart Surgeon



Dr. Kenneth Franco

“Flow rates and image of flow would be the gold standard in determining the success of surgery.”

- Former Chief of CT Surgery, Emory University



David A. Theodoro

“After seeing viewflow’s new level of information, it would be difficult to operate without it”

- Chief of Cardiac, St. Dominic

Traction – Likely Homes for 1st Units



Dr. Martyn Knowles

"I am happy to be a potential clinical site at UNC Rex Hospital in Raleigh as I'm the chair of surgery there."

- Chair of Surgery, UNC Rex, Triangle, NC, \$2B



Dr. Detlev Erdmann



- He wants to stop injecting ICG glow dye to judge circulation in skin flaps
- Asked for a machine asap.
- Prof. of Plastic Surgery, Duke Health, \$7B



Dr. Mark Russo



- Saw Dr. Wolf's presentation of ViewFlow at 21CCSS meeting. Called Jim to provide 6 novel clinical values from ViewFlow
- Chief of Heart Surgery, Robert Wood Johnson Barnabas Health, \$11B



Dr. Trevor Ellison



- Interested in larger clinical role
- Requested machine
- Heart Surgeon, Dallas Methodist \$2B

Team behind ViewFlow

Advisors include sales leaders from both competitors: Novadaq (dye) & Medistim (probe)



Founder

Jim Sund, CEO (Duke MB/PhD; NASA Doctoral Fellow; Built-licensed cheminformatics platform to Roche/Merck)

Sales & Marketing

Michelle Wellington (VP Sales & Marketing; former Regional Sales Manager, Novadaq 'glow dye')

Taft Seal (NC sales distributor; helped 15 medtechs exit)

Clinical Advisors

Dr. Randall Wolf (Houston Methodist, DeBakey Heart), Dr. Mark Russo (Rutgers Cardiac Chief)

Dr. Trevor Ellison, likely CMO (Heart surgeon, Dallas Methodist)

Regulatory

Dr. Stuart Portnoy (Fractional FDA strategist, ex-FDA Mgr. Cardiovascular devices),

Dr. Kim Steinmann, VP clinical (decades of running studies)

Top Scientists/Engineers

Dr. Heinrich Ziegler (Leads Quality, Automation & IT Architect)

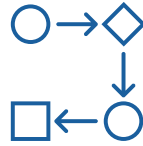
R&D partner: Prof. Dr. Vartan Kurtcuoglu (Computational & Experimental Physiology) U. Zurich

Potential Partners

MPE or One-Service (assembly, upgrades), HealthLink (logistics, tax, training per country), K2 (buys SaaS).

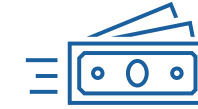
Business Model, Cashflow

Business Model



- Target and replace Spy Elite's \$100K subscription because
- Hospitals get same + more clinical value, same subscription price, but save \$60K/year in dye & reduce re-operations
- Each unit books \$90K annually

Cashflow



New units - mfg. & sales distributors carry costs until sale. Then K2 Capital buys subscription at 90%, which refunds them + profit.

Renewals – pay \$10K to upgrades and sales renewal commission: The balance is an \$80K annuity (80% GM) since device is upgraded over time.

Appendix

Jim Sund, Founder

EARLY RELATED PROJECTS

Jim Sund completed a 3-Year NASA PhD Fellowship at Duke. In his 2nd year, he delivered a biomimicry-based biosensor (potentially implantable) for nitric oxide, which is known for changing vessel size & blood flow. For his 3rd year, he created a non-linear, computer vision algorithm to quantify coverage of functional-molecules on different surfaces. RTI used it to assess applications of new dental glue. This experience fed directly into creating ViewFlow's complex vision algorithm.

COMMERCIALIZATION EXPERIENCE

Jim led the development of a chemistry informatics platform, licensed by Merck & Roche, to enable the creation and tracking of 10,000 unique compounds weekly across molecular design, synthesis, purification, and bioassays.

After the platform and doctoral work, Jim helped companies, e.g., Lenovo, Deutsche Bank, and Cisco, with strategic planning for new tech, products, and markets and helped NASA assess its inventions for commercial value.

RARE OPPORTUNITY DISCOVERED

Jim sought the rare “disruptive product for an existing market.” He discovered that surgeons had limited contact options from the '60s to assess blood flow quality during surgery. So his team created non-contact viewflow by evolving his two PhD projects into high-dimensional algorithms that reveal changes in vessel size & flow.

EDUCATION

Ph.D.	Duke U.	Electrical & Computer Engineering
M.B.A.	Duke U.	Fuqua School of Business
B.S.	U. Florida	Chemistry (Quantum Molecular Dynamics)
B.S.	U. Florida	Biology (organogenesis)



How Viewflow Works

Scatter light

blood cells scatter
light pulses into
flicker patterns

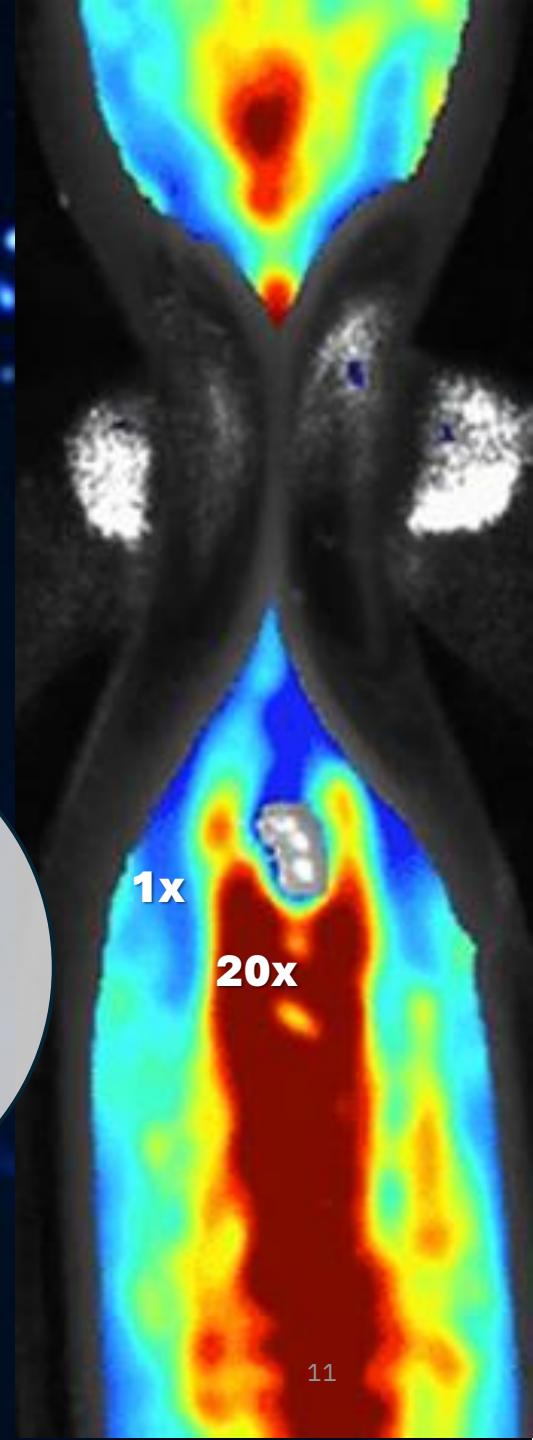
Map to flows

Propriety algorithms
maps light flicker
patterns to vessel
flow



e.g., Watch

high pressure
flow through
pinched
opening



Revenue Build

ViewFlow Revenue Projection



Target value to Hospitals' Value Analysis Committee (VAC)

Role & Concern	How ViewFlow Addresses It	Evidence
Nurse Manager Workflow disruption, training burden, OR turnover.	Point-and-see camera. No injection step, no probe sterilization — the same workflow surgeons know from ICG imaging, without dye prep, IV access, or the circulation/clearance wait.	✓ 30-sec imaging window ✓ No dye, probe, or disposables ✓ One device replaces three setups
Materials Manager Per-case cost, SKU count, vendor sprawl.	Eliminates the dye stack (vial, mixing, IV admin, light-protected storage, disposal) and the probe lifecycle (reprocessing, expiration replacement). One device replaces dye + flow probe + ultrasound imaging.	✓ No dye mixing or injection ✓ No probe reprocessing cycle ✓ 3 device categories → 1
Finance Manager Cash leakage, DRG bundle erosion, capital vs. op-ex.	Dye and probe modalities carry visible and hidden costs (pharmacy mixing, light-protected inventory, IV admin, circulation wait, disposal, reprocessing) — all absorbed from the DRG bundle. ViewFlow replaces it with a fixed SaaS subscription.	✓ ~\$400/case dye workflow (illustrative) ✓ Predictable op-ex (SaaS) ✓ Catches reoperations in-OR
Legal / Risk Malpractice exposure, documentation, FDA status.	Every case captures live flow data — objective intraoperative evidence that the surgeon verified adequate flow before closing. Reduces “did surgeon know?” ambiguity that drives flow-related litigation.	✓ Auditable per-case record ✓ FDA-Listed Surgical Camera ✓ Validated (30 pig hearts)
Chief Medical Officer Quality metrics, evidence base, value-based care.	Addresses two of the most-cited intraoperative quality gaps: bypass graft flow adequacy and reconstructive flap viability. Hemodynamic data enables outcome-share contracting as CMS shifts toward value-based reimbursement.	✓ 1 in 5 grafts · 1 in 7 flaps ✓ Advisors: Rutgers, Methodist, Duke ✓ Featured: Dr. Wolf, Houston Methodist

Clinical innovation: sell now, add in stages

Sold today as a surgical camera. Each new clinical capability widens the market.

NOW Surgical camera	NEXT 6 qualitative	LATER Quantitative	FUTURE Diagnostic + AI
FDA Class I listed, ready to ship Relative speed image only: cm/s and ml/min are computed but withheld on first units. Surgeons use it for Dr. Mark Russo's six uses while we work with them for several months.	1. Obscured vessels 2. Identify artery 3. Occlusions & anastomotic targets 4. Patency of each graft before harvest 5. Flow through graft into artery & destination 6. Compare before & after Each: pig labs + surgeon white papers	7. Blood speed (cm/s) and volume flow (ml/min) 8. Flow physics: pressure drop, shear stress, vorticity, turbulence Numbers and units on screen from here.	9. Diagnostic: red / yellow / green status for each key vessel, before and after vessel modifications 10. AI surgical guidance: which interventions, with probability and degree of success; graft insertion distance and angle; graft size that restores adequate flow; likelihood of undiscovered occlusions after the planned bypasses

Evidence: pig hearts, the accepted model for cardiovascular devices (Stuart Portnoy, MD, former FDA cardiovascular device manager). Hundreds of pig coronaries imaged; the next \$50K funds 10–20 pig hearts on the new camera.

Target value to Big MedTech & ICG dye Users

Big MedTech acquirer: pull-through

- **The device is the key, the bag is the prize.** Beyond ViewFlow's large market and 80%+ gross margin, the buyer captures pull-through: problems revealed live in the OR that its own products fix.

Open-surgery product line	How ViewFlow helps	Incremental
Tissue & valves	Accuracy, flow speed, issue ID	\$100M
Annuloplasty	Pinpoint accuracy + blockage ID	\$75M
Cardiopulmonary	Lung-tissue revascularization & flow	\$40M
Cannulae	Target problem points + OR efficiency	\$30M
Electrosurgical	Pinpoint accuracy + blockage ID	\$30M
Blood & coag diagnostics	Real-time speed & blockage monitoring	\$20M
Pediatric perfusion	Perfusion speed, blockage, spasm	\$15M
Total, 7 open-surgery lines	on \$2.5B current revenue (+12%)	\$310M

Figures are only illustrative (Medtronic portfolio). Open-surgery lines only: ViewFlow is cart + arm over the open field today, handheld next; no scope version planned, so catheter, endoscopic and pipeline lines are excluded. Analysis by Chad Miller — ViewFlow Advisor and former Medtronic VP; full table in Appendix.

ICG dye users: same workflow, no dye

“I can look, and look again — without anesthesia and ICG.”

— Transplant pulmonologist, Duke

- **In plain terms:** with dye, each look costs an IV injection by anesthesia and a wait for the dye to clear.
- **ViewFlow is a camera:** see flow now, after the next stitch, and before closing — no injection, no wait, no ~\$300 of dye per case.
- **Same \$100K/yr budget, same surgeons:** flaps, bypass grafts, transplants, bowel connections.

Why it matters: flap perfusion-related reoperations 14% → 6% · \$100K+ per emergency revision avoided.

Market: open surgery vs dye & probe use

Open surgery

Open = not done through a scope or catheter.

- **US:** 65M surgeries, 50M open
- **All high-income countries:** 250M surgeries, 165M open
- **All lower-income countries:** 300M surgeries, 255M open

50M

US: open surgeries a year

420M

World: open surgeries a year

Dye or probe use today

	Open surgeries	Dye or probe
US	50M	<1M (probe 0.1M, mostly CABG; dye 0.2–0.5M)
World	420M	<2M

Annual growth: dye about 4% (US market revenue forecast); probe about 5.5% (US case counts, 2021–2024).

Dye and probes reach under 2% of US open surgeries and under 0.5% worldwide. The rest is open market for a camera that needs no dye and no probe.

Global surgeries (approx.): 550M a year, growing about 4% a year (234M in 2004, 313M in 2012, est. 550M in 2026). US: 55M a year, 2.4x the world rate per person, plus about 10M in doctors' offices. Sources: Weiser et al., Lancet 2008 and 2015; WHO 2016 — see the citation document.

Subscription model: still matches market

	Our model (unchanged)	What we heard and found (Oct 2026)
Subscription price	\$100K per unit per year	Incumbent ICG dye imaging in open reconstruction: about \$100K a year per site, as a subscription or a dye-kit minimum of that size
Dye cost the hospital stops paying	about \$300 per case	\$350–\$650 per dye kit, depending on the GPO contract — more than we have been claiming
Buyer of our subscription agreements	finance partner at about 90%	Dext Capital (tentative agreement) is growing: healthcare equipment financing \$306M (2023) → \$489M (2025) in securitized deals
Hospital appetite	1-year subscription	A subscription of 12 months or less can stay off a hospital's balance sheet and be paid from the operating budget