

ACQUISITION OPPORTUNITY: DENTAVATIONS, INC.

The Future of Dentistry: Quiet, Virtually Painless, Precision Cavity Prep

Executive Summary

The purpose of this document is to introduce the WaterJet technology and present the business case for the acquisition of its Intellectual Property (IP). Dentavations, Inc. offers a disruptive opportunity for dental product OEMs and IP commercialization funds to own the next standard in restorative dentistry.

Unlike traditional abrasive drills, air abrasion, or hard tissue lasers, the WaterJet is a revolutionary handpiece that uses a fluid stream for cavity preparation. It is whisper-quiet, substantially faster, and eliminates the need for patient pain mitigation. The long-promised goal of fluid-based cutting has finally been solved—and it is ready to disrupt the global dental handpiece market. Critically, it does so at a fraction of the cost and complexity of hard-tissue lasers, discussed in detail below.

THE TECHNOLOGY: The WaterJet

Water jet cutting is the standard for precision in the industrial world, specifically for materials where heat and vibration—side effects of grinding—damage the substrate. Dentavations has successfully adapted this technology for safe, effective use in dentistry.

How It Works

Our proprietary abrasive fluid stream reduces pressure to levels that safely remove enamel and dentin at a rate comparable to current burs, without the risks of soft tissue damage.

- **Safety:** The design offers greater depth control than existing technologies. Crucially, the system offers an unparalleled safety window; unlike a bur or laser, the WaterJet does not damage soft tissue upon accidental contact.
- **Longevity:** Heat and vibration from traditional drills cause micro-cracks where bacteria hide, leading to recurrent decay. The WaterJet is a “cold cutting” process, eliminating the heat-affected zone and micro-fractures.
- **Finish:** The stream creates a matte/etched finish, eliminating a procedural step and providing the perfect surface for longer-lasting composite or CAD/CAM restorations.

Development Status

Dentavations is the sole owner of the core IP, originally developed at Brigham Young University.

- **Engineering:** Working pre-production system that has been demonstrated to over 50 dentists
- **Validation:** Validation with a top-five global dental manufacturer and a leading educational institution, including a Heat Study (no measurable heat from use), Removal Rate testing (comparable to current burr technology), and Bonding testing (matte finish, no smear layer).
- **Regulatory:** Pre-Submission meeting with the FDA to verify a 510(k) process
- **Patents:** Granted: US 7326054, Appl. No. 13/938385, Appl. No. PCT/US14/46019. Patents issued in China, USA, Europe, Korea, Australia, and India. Additional patents in drafting.

VALUE PROPOSITION

We have validated the following technical advantages and patient benefits through our partnership with Dr. Smith (retired Dean) at the Midwestern University School of Dentistry, who independently scored WaterJet at 8.50 out of 10 overall — the highest rating across all 14 criteria evaluated, ahead of lasers (7.21), drills (6.57), and air abrasion (5.36).

For the Patient

- **Pain-Free Experience:** Potential to perform most procedures without anesthesia (shots)
- **Reduced Anxiety:** “Super Quiet” operation—the unit cannot be heard over standard suction. No drill whine, no vibration, and no heat.

- **Better Outcomes:** Minimally invasive conservation of healthy tooth structure and reduced post-op sensitivity

For the Clinician — WaterJet vs. Hard-Tissue Lasers

Independent scoring by Midwestern University confirms WaterJet outperforms hard-tissue lasers on the criteria that matter most in daily practice, while costing a fraction of the price:

Criteria	Drill/Burr	Laser	Air Abrasion	WaterJet
Lower Need for Anesthesia	3	8	4	8
Noise Level	1	8	5	9
Patient Comfort	3	8	7	9
Ease of Use	10	6	7	9
Equipment Price	10	2	5	8
Overall (10-pt Scale)	6.57	7.21	5.36	8.50

- **Superior Efficiency & Affordability:** At a \$7,500 price point, WaterJet is up to 13x cheaper than hard-tissue lasers (\$60K–\$130K), without the mess, large footprint, complexity, or capital outlay of laser units.
- **Faster Adoption, No New Modality:** The WaterJet feels like a standard handpiece because it is one—existing muscle memory transfers directly, and transition time is under 5 minutes. Lasers require learning an entirely new modality.
- **Zero Workflow Disruption:** Nothing is replaced — the drill stays in the operatory and WaterJet adds capability rather than asking the dentist to abandon existing tools or workflow. In a typical morning of 8 patients, WaterJet is suitable for roughly 6 of 8 procedures.
- **Enhanced Capability:** Effective white spot removal (Ortho), efficient Zirconia removal, and rounded interior prep angles for better restoration success.
- **Implantology:** Safely detoxifies Peri-implantitis with no heat zone.
- **Practice Integration:** Wireless foot pedal, easy desktop/cart installation, ergonomically comparable handpiece.

For the Acquirer

- **Recurring Revenue:** The system utilizes a patented abrasive mixture, ensuring a long-tail consumable revenue stream that is protected in a way laser service contracts are not (laser service margin is typically 3rd-party competed).
- **Market Disrupting Technology:** Addresses the root cause of restoration failure (drill damage) rather than just treating symptoms, positioning the owner as the leader in “The Future of Dentistry.”

WATERJET VS. HARD-TISSUE LASERS: THE BUSINESS CASE

WaterJet's low price point and drop-in usability translate directly into a larger addressable market and a faster, more durable revenue ramp for an acquirer than a comparable hard-tissue laser platform:

Metric	WaterJet	Hard-Tissue Laser	Why It Matters
Equipment Price	\$7,500	\$60,000–\$130,000	WaterJet is up to 13x cheaper per unit
Addressable US Dentists	~100,000 (~50%)	~16,000 (~5–8%)	WaterJet reaches roughly 6x more of the market
Learning Curve	< 5 min — feels like a standard handpiece	New modality — significant training required	No workflow disruption; existing muscle memory transfers directly
Annual Consumable Revenue	\$3,750 (patented)	\$0	Recurring, IP-protected margin on every use

Metric	WaterJet	Hard-Tissue Laser	Why It Matters
Annual Service Revenue	\$0	\$3,000–\$8,000 (3rd-party)	Laser service margin is not proprietary to the OEM
5-Year Revenue / Dentist	\$26,250	\$85,000–\$170,000	Higher per-unit laser revenue, but far fewer dentists can buy in
Total US Market Opportunity	\$2.6B	\$1.4B–\$2.7B	Comparable total opportunity, reached through a much larger, lower-friction install base

Of roughly 200,000 active US dentists, WaterJet's \$7,500 price point and near-zero learning curve open the door to 100,000+ dentists (about 50% of the market), while hard-tissue lasers remain structurally capped at approximately 16,000 dentists (5–8%) due to a \$60K–\$130K price barrier and a steeper learning curve.

Modeled over a 5-year period with the same acquirer and sales force, WaterJet generates an estimated \$166M in total revenue (47% recurring, patent-protected) across roughly 11,600 dentists, compared to an estimated \$107M for a comparably positioned laser program (11% recurring, third-party competed) across roughly 950 dentists. By Year 5, WaterJet's recurring consumable revenue (\$36M) is projected to exceed its equipment revenue (\$29M)—the business shifts to majority-recurring, patent-protected income that a laser program cannot match given its lower, non-proprietary service margin.

MARKET OPPORTUNITY

The global dental handpiece market represents a multi-billion-dollar industry dominated by antiquated technology. The current standard—the pneumatic or electric drill—has reached its innovation ceiling.

The WaterJet is positioned to capture a projected 30% market share by displacing not only standard high-speed handpieces but also niche air abrasion and laser units.

- **Target Market:** General Dentists, and Pediatric Dentists (high value for needle and noise-free procedures)
- **Adoption Drivers:** Patient demand for pain-free dentistry and clinician demand for recurring revenue, a lower price point than lasers, and an efficient workflow that requires no relearning of technique.

(Note: We invite interested parties to review our revenue proforma, which forecasts adoption rates and revenue projections based on a 30% capture of the addressable market as supported by other emerging technologies.)

NEXT STEPS

Dentavations is undertaking a competitive bid process to transfer its IP and technology to a firm capable of manufacturing and distributing this breakthrough technology globally.

We invite qualified OEMs and funds to schedule an in-person meeting and live demonstration of the WaterJet system.

ADDITIONAL RESOURCES

To see The WaterJet in action and review our technical validation, please access the following:

- **Video Introduction:** <https://youtu.be/kysrmElJybY>
- **Website:** <http://dentavations.com>
- **Clinical Validation Data:** Heat Study Document
- **Cutting Demonstration:** <https://youtu.be/zEQUUw6N-DM>

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