Safe Harbor Statement

Please note that during the course of this event we will be making certain forward-looking statements, including those regarding: revenue, bookings, results of operations and operating leverage inherent in our platform; our investments and initiatives; our market opportunities; the results of our efforts with respect to our platform and market momentum; the broad relevance of our platform; the progress made in developing our technology and our resulting anticipated accomplishments; the results of the implementation of our technology, strategy and initiatives; the benefits that our technology could provide to regulatory regimes; the manufacturing quality control synergy we offer; the focus of the market and tipping points in market development; industry trends and the proliferation of linking requirements; our growth strategies, operational efficiencies and the influence of contract negotiations on acceleration of our growth; our anticipated cash usage; our expectations regarding a patent suit we have filed; and our prioritization of sources of capital. We also will discuss from time to time information provided to us by channel partners and actual and potential customers about their business activities. We are providing this information, as we understand it was represented to us. We do not verify nor vouch for such information. Such forward-looking statements, and statements about partners and customers, are subject to many assumptions, risks, uncertainties and changes in circumstances. Any assumptions we share about future performance represent a point-in-time estimate. Actual results may vary materially from those expressed or implied by such statements. We expressly disclaim any obligation to revise or update any assumptions, projections, or other forward-looking statements to reflect events or circumstances that may arise after the date of this event. For more information about risk factors that may cause actual results to differ from expectations, please see the company’s filings with the Securities and Exchange Commission, including the Form 10-K that we filed recently. Any links included in this presentation are provided for general information and context only. The content referenced is not incorporated by reference and you should not consider it a part of this presentation. We do not verify nor vouch for such information.
Goals

• Share our observations regarding current approaches to valuing our company

• Provide detailed information concerning the factors we believe are being considered, and those that we believe should be considered

• Discuss assets, TAMs, and progress that might not be well-understood

• Receive inputs to guide our approach to working capital management
Agenda

1. Digimarc Overview
2. Established Business & Foundational Value
3. Unrealized Value: The Barcode of Everything® & Intuitive Computing Platform (ICP™)
4. Working Capital Strategy
Digimarc Overview
Business Overview

Twenty Years Developing Intuitive Computing Platform (ICP)

• R&D: digital watermarking; automatic ID of media
• Patent licensing funded early development
• Security for banknotes, movies, and digital images; audience measurement for radio and TV
• 1999 IPO raised $80MM
• 2001 acquired Polaroid DL assets for $56MM; 2008 divested resulting business for $310MM cash paid directly to shareholders
• 2012 acquired Attributor e-pub anti-piracy; evolved into Digimarc Guardian
• 2014 introduced Intuitive Computing Platform for Retail and CPG

Established Uses of ICP

• Licensing patents in entertainment media
• Anti-piracy/anti-counterfeiting solutions and services for Central Banks and publishers

Strengths/Competitive Advantage

• Signal processing experts; best known for digital watermarking
• Large scale embedded systems
• Unique data carrier applicable to all media
• ICP network effects
• Patents: large, high-quality portfolio: 850 issued; 300 applications pending

Current Phase of ICP Feature Development: Retail and CPG

• Clear strategy with sustainable competitive advantage targeting large TAM
• 3-sided platform: consumers, consumer product companies (CPGs), and retailers
  • Automatic mobile device ID for all brand impressions in Shopper’s Journey
  • High performance barcodes for packaging and labels that improve store operations, and provide many benefits in product lifecycles
• Targeting leading retailers and consumer products companies
Established Business & Foundational Value
TSR Trends

5-Year Share Price

1-Year Share Price
Determining Fair Value of Digimarc

Current Market Capitalization: $350MM

Analysts’ Models: $430MM target

- Projected free cash flow, or projected EPS, for years ranging from 2022 to 2027, for existing revenue streams + Barcode for packaging @$50/SKU
- 5% terminal growth rate

Sum of Parts, Established Business:

+ Government Security, Guardian, and Licensing
+ Patents
+ Working capital

Enterprise Value:

+ Established business, including patents and working capital
+ CPG packaging, thermal labels, hang tags, plastics, and other media
+ Application licenses, e.g., manufacturing, store operations, recycling
+ ICP business beyond CPG packaging (Platform value)
Business Model for Government Security (66% 2018 revenues)

Value Proposition
- Globally-deployed banknote anti-counterfeiting system
- Deter fake government-issued IDs

Customer Relationships
- 24-year relationship with consortium of leading central banks
- Services contract with R&D focus through 2024, with five-year extension
- IDEMIA - global leader in augmented identity solutions

Revenue Streams & Cost Structure
- Fees for services based on target operating margin; $1.2MM license fee
- 3% 5-year CAGR
- Digimarc owns all IP for commercial purposes
- Multi-year budgeting
- Growth rate expected to increase in 2020
- Growth drivers: more issuers; technological change; new threats
Business Model for Guardian (17% 2018 revenues)

Value Proposition

- Protect e-publications and digital images from unlicensed use
- Provide anti-piracy and take down services

Customer Relationships

- Long-term relationships with leading book, journals and Standards Development Organization (SDO) publishers; market leader serving this industry
- Protects billions of digital images online supporting brands, universities, non-profit organizations, original equipment manufacturers (OEMs), and digital asset management (DAM) providers

Revenue Streams & Cost Structure

- Annual volume-based subscriptions for platform access
- Professional services
- (7%) 5-year CAGR
- Revenue split is 75% e-publications and 25% digital images;
- Client acquisition/management is largest and most important cost
Business Model for Patent Licensing (6% 2018 revenues)

Value Proposition
- Freedom to operate in specified Fields of Use

Customer Relationships & Key Activities
- Portfolio aligned with execution of general corporate strategy
- Patent licensing limited to companies who use our inventions outside Retail and CPG space
- No significant outbound licensing
- File and prosecute patent applications

Revenue Streams & Cost Structure
- Paid up patent licenses: Central Banks, IV, Nielsen, Verance
- Royalty-bearing patent licenses:
  - (41%) 5-year CAGR, reflecting end of IV, Nielsen, Verance and $3.5MM paid up license in 2017 for specific Field of Use
  - 21% 5-year CAGR without
- Five in-house IP and licensing experts
- Cost of Goods Sold includes patent amortization and maintenance, which are fixed costs
Business Model for Retail and CPG (11% 2018 revenues)

Value Proposition

• Reliable, efficient auto ID of packaging, labels, tags, and commercial print

Customer Relationships & Key Activities

• Top retailers and CPGs
• Seeding initial applications
• Training and supporting supply chain
• Fostering cross-side network effects

Revenue Streams & Cost Structure

• High growth/high margin opportunity
• Annuity business
• Platform and application license fees; annual subscriptions
• 90%+ gross margin at scale
• 43% 5-year CAGR
• Free cash flow investment: ~$32MM/year

2018 Revenue
$2.3MM

2018 Gross Margin
76%

$2.3MM 2018 Revenue

76% 2018 Gross Margin
Foundational Value – Sum of the Parts

Value of our established business should include operating business and value of our patents.

Notes:
(1) Internal valuation using combination of discounted cash flows and revenue and EBITDAS multiples to compute range of fair values.
Patents: Income and Sustainable Competitive Advantage
World-class, Focused, Comprehensive ICP Patent Portfolio

- Digimarc’s technology platform is backed by an industry-leading patent portfolio
- Quality of Digimarc’s portfolio was ranked third by the IEEE in 2017 among all other software companies
- Proprietary algorithms and unique technical expertise, addressing large markets

IEEE Patent Portfolio Strength Index (1)

1,150+ Issued and pending patents

100% IP litigation success rate over 25 years

20%+ IP portfolio in foreign jurisdictions

Notes: Institute of Electrical and Electronics Engineers (IEEE) Pipeline Power Report 2017, Computer Software Segment Rankings. IEEE Pipeline Power score is calculated as the product of the Number of 2016 Patents, Pipeline Growth Index, Adjusted Pipeline Impact Score, Pipeline Originality Score and Pipeline Generality Score. Dell/EMC has been acquired by VMWare
Value of Our Patents

- **Life to date license revenues >$150MM**

- **2010 IV transaction:** $40MM net to DMRC, plus 20% profit sharing thru remaining life of patents, with implied value of patents range from $260MM(1) to $580MM(2)

- **2014 patent valuation study** by well-regarded boutique IP specialist investment bank (for internal purposes): $125MM - $300MM

- **Since 2014, the number of retained patents has increased by about 6.5x** and size of the portfolio’s addressable market has significantly expanded

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(1) Estimated implied value of $260MM based on assuming IV would expect at least a 15% annual rate of return on its investment in the Digimarc patents ($40MM plus 20% profit share).

(2) Estimated implied value of $580MM based on our projection of revenue to be generated by IV on the Digimarc patents over the life of the patents multiplied by a 5x revenue multiple.
Foundational Value – Sum of the Parts, Including Patents

Value of our established business, with patents included, would account for most or all of our share price.

Notes:
(1) Internal valuation using combination of discounted cash flows and revenue and EBITDAS multiples to compute range of fair values.
(2) Includes fair value from IP Study in 2014 of $125MM to $300MM and fair value of existing licensing income stream of $5MM to $10MM (see note 1 for valuation methodology).
(3) Includes Established Business, IP Portfolio & Licensing and Working Capital of $45MM at 12/31/18, primarily consisting of cash and short-term marketable securities.

Implied Foundational Value:
~$275MM – $540MM (3)

Government Security & Guardian

$100MM - $185MM (1)

IP Portfolio & Licensing

$130MM - $310MM (2)
Determining Fair Value of Digimarc

Current Market Capitalization: $350MM; 11.7MM shares outstanding

Analysts’ Models: $430MM target

- Projected free cash flow with 5% terminal growth, or projected EPS, for years ranging from 2022 to 2027, for existing revenue streams + Barcode for packaging @$50/SKU
- Models do not appear to attribute any value to Patents or Platform?

Sum of Parts, Established Business: $275MM - $540MM

+ Government Security and Guardian: $100MM - $185MM
+ Patents: $130MM - $310MM
+ Working capital $45MM

Enterprise Value: ??

+ Established business, including patents and working capital: $275MM - $540MM
+ CPG packaging, thermal labels, hang tags, plastics, other media, and application licenses: $$$MM - $$$$$$MM?
+ ICP business beyond CPG packaging (Platform value): $$$MM - $$$$$$MM?
Digimarc Intuitive Computing Platform (ICP™)
How Digimarc Barcode Looks to Us vs. a Computer?

**General Characteristics**
- Low contrast two-dimensional data carrier
- Can be applied to print and digital images, audio and video
- In ways that are generally imperceptible to users in normal use
- Low contrast allows for often massive redundancy
- In print, each tile approx. size of thumbnail
- Redundancy improves ease of use, reliability and efficiency of auto identification
- Digimarc Barcode is foundational element of the multi-sided Intuitive Computing Platform
- ICP is multi-sided protocol network like Windows, Ethernet or CDMA

**Composition**
- A **Grid** comprised of waveforms at specific frequencies
- A **Message** comprised of bits (0/1) of information spread across a broad range of frequencies

[Diagram showing spatial and frequency domains with original and enhanced versions of a Digimarc barcode]
Digimarc Barcode for Audio

Audio File

Audio File with Digimarc Barcode

Open frequencies within audio files

By using Psychoacoustic Processing and Perceptual Modeling to leverage frequencies that are inaudible to the human ear, Digimarc Barcode enables media to be instantly identified by consumer smartphones, software, networks and other applications.
Intuitive Computing Platform (ICP™)

• Built on foundational IP from prior decade
• 2008 program to capture critical IP in development of Digimarc Barcode and Digimarc Discover as multi-sided platform
• Initial focus on supporting Augmented Reality via sensor fusion
• Platform designed to optimize sensing activities of mobile device within power and bandwidth constraints
• Seamless multi-modal identification of things, consistent with principles of cognitive neuroscience
• Research and patent filings included novel approaches to object identification (DWM, fingerprinting), sensor fusion, and crowdsourcing
Applications
The ICP suite provides reliable, efficient identification that powers an ecosystem of applications.

Identification
Digimarc Barcodes are imperceptible codes for:

- Consumer Goods
- Thermal Labels
- Commercial Print
- Digital Images
- Music, Movies & TV

Discovery
Digimarc Discover® software for automatic identification:

- Retail Scanners
- Handheld Scanners
- Inspection Systems
- Computer Networks
- Mobile Devices

Quality Management System

- Digimarc Barcode Specifications (Signal Specs and Application Guidelines)
- Digimarc Verify Tools (Workflow Integration, Desktop and Mobile)
- Center of Digimarc Education (CODE) (Training, Workshops, Online Education & Resources)
ICP is a Multi-sided Platform (MSP): Meaning? Significance?

- "MSPs are technologies, products or services that create value primarily by enabling direct interactions between two or more customer or participant groups."*
- Well-known MSPs include Amazon, eBay, AirBnB, Uber, Windows, iOS and Android, et al.
- Successful MSPs create value by reducing search costs or transaction costs (or both) for participants
- Digimarc's Intuitive Computing Platform (ICP) is a Multi-sided Platform (MSP)
- ICP is a protocol network like ethernet, which increased in value at rapid rates after adoption by DEC, Intel and Xerox (tipping point); and CDMA
- Value of our network will increase exponentially in proportion to number of users
- Cross-side network effects when more users on a side increase value to other side users
- Most MSPs suffer chicken and egg problem during development

**Like other MSPs, our ICP will exhibit:**
- Direct network effects where value of platform goes up as number of users go up
- Economies of scale
- High barriers to entry

Current Investment Focus: Three-sided ICP Local Node – Consumers, CPGs, and Retailers

- **Consumers**
  - Audio
  - Print

- **Brands**
  - Thermal Labels
  - Hangtags

- **Retailers**
  - Packaging
### Why Should You Care About Understanding MSPs?

**Digimarc: Mission Critical Platform for the Digital Age**

**Why digital platforms?**  
**World’s most valuable companies are tech platform companies**

<table>
<thead>
<tr>
<th>Market Cap Rank</th>
<th>DEC 2006</th>
<th>DEC 2011</th>
<th>DEC 2016</th>
<th>JUN 2018</th>
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<tr>
<td>1</td>
<td>Exxon $446B</td>
<td>Exxon $506B</td>
<td>Apple $517B</td>
<td>Apple $909B</td>
</tr>
<tr>
<td>2</td>
<td>GE $383</td>
<td>Apple $376</td>
<td>Alphabet (Google) $531</td>
<td>Amazon $384</td>
</tr>
<tr>
<td>3</td>
<td>Microsoft $293</td>
<td>PetroChina $216</td>
<td>Microsoft $483</td>
<td>Alphabet (Google) $374</td>
</tr>
<tr>
<td>4</td>
<td>Citigroup $273</td>
<td>Shell $226</td>
<td>Berkshire Hathaway $404</td>
<td>Microsoft $797</td>
</tr>
<tr>
<td>5</td>
<td>Gazprom $271</td>
<td>ICBC $208</td>
<td>Exxon $274</td>
<td>Facebook $663</td>
</tr>
<tr>
<td>6</td>
<td>ICBC $254</td>
<td>Microsoft $218</td>
<td>Amazon $236</td>
<td>Tencent $478</td>
</tr>
<tr>
<td>7</td>
<td>Toyota $241</td>
<td>IBM $216</td>
<td>Johnson &amp; Johnson $213</td>
<td>Alibaba $476</td>
</tr>
</tbody>
</table>

- Our platform modernizes the global supply chain
- Dovetails with changes in retail and consumer behavior
- Serves a critical function in IoT

Also, over the next 10 years, platform-driven interactions are expected to enable approximately two-thirds of the value for business and society

Sources: Harvard Business Review, Bloomberg, World Economic Forum Research

https://www.bloomberg.com/graphics/2016-08-02/platforms-making-chaos.png
Unrealized Value: The Barcode of Everything & Intuitive Computing Platform (ICP)
Enterprise Value – Sum of the Parts

• The implied foundational value of the established business, with patents included, appears to account for, or potentially exceed, our current market value.

• Using package license fee growth in the next several years as sole measure of the value of our Platform does not encompass significant value creation opportunities already in the works.

• Applying a 5% terminal growth rate at the beginning of market development is not appropriate.

Implied Foundational Value:
~ $275MM – $540MM
Growth Investment in One of Many Enormous Addressable Markets for ICP

Transformational Technology for Global Supply Chain
• Digimarc “The Barcode of Everything” generally imperceptible data carrier for all media
• Outperforms conventional barcodes in all significant measures of performance

Enormous Addressable Markets
• Billions of barcodes in global supply chain
• Digimarc platform license fees: packaging: $50+/SKU/year, plus application license fees; >800MM unit TAM
• Digimarc Barcode is being applied to many other media, e.g., hangtags, shelf labels, thermal product labels, plastic packaging, e.g., Thermal Labels:$2,400 to $7,200/store/year depending on size of store; Global TAM 700K+ grocery and convenient stores. Hang tags: $500/store/year. Recycling: pricing and TAM tbd
• Supporting many applications, e.g., faster/easier checkout, inventory management, regulatory compliance, manufacturing, recycling

Emerging Supplier and Application Developer Ecosystem
• Five years of investment in enabling infrastructure and account development
• Relationships with leading suppliers of critical elements of delivery and support in place
• Rollout underway with leading retailers and consumer product manufacturers
• Powering many applications to improve retail operations and many aspects of product lifecycles

Sustainable Competitive Advantage
• 20-year history in high security; proven proprietary algorithms
• Established standard for security in multiple markets
• 1,150 patents issued and pending
The Decision to Focus on Retail
## Business Model for Retail and CPG Applications

### Value Proposition
- Successor to conventional barcodes
- More reliable, efficient data carrier with no noticeable visible artifacts
- Improve reliability and efficiency of auto ID

### Customer Relationships
- Target world’s largest retailers and CPGs as influencers: e.g., Walmart, Costco, P&G, PepsiCo
- In mature state, support existing supplier relationships
- Suppliers charge for services
- Digimarc licenses IP
- Digimarc and developers license applications

### Channels
- Package design, prepress and printing
- Customers can enhance packaging through existing supply relationships
- Digimarc provides software, training, and support to suppliers
- Printer and scanner vendors integrate firmware

### Key Activities
- Algorithmic improvements
- Enhancement tools, discovery software, quality management
- Pilots and business process re-engineering
- Provide statistical evidence of ROI
- Reduce time, cost and aesthetic impact of enhancement

### Revenue Streams
- Annual subscriptions for platform access:
  - Packages: Min $50+/SKU/year; Global TAM 800MM+ SKUs
  - Thermal Labels: $2,400 to $7,200 per store/year depending on size of store; Global TAM 700K+ grocery and convenient stores
  - Hang Tags: $500/year/store. TAM tbd
  - Recycling: pricing and TAM tbd
- Application licenses
- Manufacturing quality
- Professional services
- 76% gross margin; 90%+ gross margins at scale
- 43% 5-year CAGR
- Growth drivers: platform adoption; feature growth; industry investments in digital tech

### Customer Segments
- Multi-sided Platform
- Global supply chain
- End users are primary source of revenues
- Manufacturing; retail store operations; consumer engagement; recycling

### Key Resources
- Skilled, knowledgeable, motivated employees, working together
- Trained and motivated suppliers
- Customer change management

### Cost Structure
- Value driven (focused on value creation, premium value proposition)
- R&D is largest and most important cost in the business model
- Fixed Costs (salaries, rents, utilities)
- Low variable costs
- Free cash flow investment: ~$32MM/year
- Massive economies of scale
The Barcode of Everything

The Barcode of Everything can be applied to all media types enabling the efficient and reliable automatic identification, discovery, and interconnection of everything:

- Digimarc Barcode is a low contrast data carrier that is effectively invisible and inaudible to humans
- Higher data capacity than conventional barcodes; allows for serialization and other special data

Compatible Media Types:

- Print
- Digital Images
- Video
- Audio

- 1150+ Issued and pending Patents
- 20+ Years of R&D
- $150M Invested in R&D since 2012
Digimarc ICP For Retail and CPG

Applications
The ICP suite provides reliable, efficient identification that powers an ecosystem of applications.

Identification
Digimarc Barcodes are imperceptible codes for:
- POS Scanners
- Store Associate/Supplier Scanners
- Inspection Systems

Discovery
Digimarc Discover® software for automatic identification:
- Smartphones
- POS Scanners
- Store Associate/Supplier Scanners
- Inspection Systems

Quality Management System
- Digimarc Barcode Specifications
  (Signal Specs and Application Guidelines)
- Digimarc Verify Tools
  (Workflow Integration, Desktop and Mobile)
- Center of Digimarc Education (CODE)
  (Training, Workshops, Online Education & Resources)

Easy Checkout
Customer Convenience
Customer Engagement
Store Operations
Supply Chain
Market Development Strategy – Core Elements

- Target world’s largest retailers and CPGs
- Develop initial applications, while fostering application developer community
- Enable multiple sources of supply for key benefits of platform
- Garner industry and government support for our platform
- Begin in limited geographies to focus investment on R&D of technology and business model
Platform Development Model for Retail and CPG

- Seed ecosystem with influential subset of users: targeting the world’s largest retailers and CPGs, consistent with “tipping point” approach to market development
- Our MSP is unusual in that all participants receive multiple benefits from efficient and reliable identification of things, throughout each level of the global supply chain
- Develop initial set of relevant features, while fostering application developer community: consumer engagement, easy checkout, manufacturing quality, store operations
- Focused on 3-sided local node: consumers, CPGs, and retailers
- Enabling multiple sources of supply for key benefits of platform
- Building specifications as foundation for global standards; GS1 advice
- Governance is fostered by alignment with industry leaders, associations, and government authorities: Walmart, P&G, GS1, GMA, FMI, and Japan Study Group
- Pricing is aligned with benefits to each side: retailers and CPGs, varying by medium and feature
- Platform open to all
- Began in limited geographies to focus investment on R&D of technology and business model
Digimarc Intuitive Computing Platform

Features:
- Easy Checkout
- FMOT
- Product Transparency
- Effective Use
- Social Networking
- Reorder/Recycle

Features:
- Manufacturing Quality Management
- Product Transparency
- Consumer Engagement
- Regulatory Compliance
- Recycling

Features:
- CPG features, for PB, plus:
  - Easy Checkout
  - Inventory Management
  - Consumer Engagement
Benchmarks: UPC (Conventional Barcode)

Key Development Highlights

• 1st patent issued October 7, 1952
• First commercial use, 22 years later, in 1974, automating supermarket checkout systems
• Adoption started slow, then grew exponentially to become foundation of global supply chain

Now, Industry is Looking to go Beyond the UPC

• Digimarc R&D began in early 90’s
• 1st commercial application (in digital images) in 1996
• 1st patent issued in 1997
• 1st use in Retail and CPG in 2015 (Wegmans)
Benchmarks: Qualcomm as Model of Multi-sided Protocol Platform Success

- Founded in 1985 to develop mobile communications technologies
- $68MM IPO in 1991
- Developed cdmaOne spread spectrum multiple channel access method for cell phones
- cdmaOne adopted as standard by Telecommunications Industry Association in 1993
- Qualcomm operated at a loss throughout much of the 1990s due to investment in CDMA research and development
- Mid-1995 article in Economist magazine described CDMA as a "clever—but fiendishly complicated and unproven—technology" that was still "a good year away from the market" and one that might never be made to work as well as the thoroughly operational TDMA standard."
- Stock languished until 1999, when resolution of a patent infringement suit with Ericsson opened the European market to CDMA, cementing its position as a global standard
- 2600% increase in share price in 1999
- $90 billion market cap in 2018
- Majority of revenues from IP licensing

Accelerating Technology Adoption Curves

[Graph showing technology adoption rates with Projected Years]

- Virtual Reality
- Augmented Reality Glasses
- Smartphones
- Web
- Mobile Phone
- PC
- Television
- Radio
- Telephone
- Electricity

Years taken until adopted by 25% of U.S. population

Consumer, Retail and CPG: Shoppers Journey
Shopper’s Journey

Demand Creation
- Magazines
- Free Standing Inserts
- Direct mail
- TV/radio
- Capture purchase intent
- Ability to gain consumer insights/data intelligence

Pre-shop Prep
- Coupons and offers
- Comparison of multiple product offerings
- Easy access to consumer reviews
- Online or in-store availability

Purchase Decisions
- Packaging
- Shelf labels
- Point-of-purchase displays
- Shelf ready packaging
- SmartLabel™
- Product transparency
- Coupon delivery
- Cross-sell

Post Purchase
- Instructions for use
- Entertainment and education
- Consumer loyalty and brand advocacy
- Brand evangelism
- Sharing via social media
- Reorder
ICP Feature Development: Consumers and Brands
How to Reach Tipping Point in Mobile-centric Shopping

Technology is not the issue

CPGs don’t want disintermediation of brand relationship by trading partners or search providers

• Need in camera scene analysis and auto ID or broadly downloaded app
• Completed Android technical POC
• Discussing with leading CPGs how to approach Apple and Google

Consumers need routine and predictable valuable responses to motivate discovery via smartphones

• SmartLabel® doesn’t seem to be doing the job (as broadly downloaded app or means to ensure routine valuable responses)
• GMO disclosure law adding some impetus
• Sustainability/recycling also likely to influence
Consumer, Retail, and CPG
**Unified Commerce**

**Design**
- Incorporate barcode data into artwork
- Integrate codes and link to content

**Manufacturing**
- Improve in-line inspection

**Distribution Center**
- More reliable labels
- Print on corrugated packaging
- Scan readily from a distance
- Verify logistics and returns

**In-Aisle**
- Price checks
- Manage planogram & availability (OSA)
- Data Analytics

**Check Out**
- Easily scan products & labels
- Improve first-pass read rate
- Reduce misreads and manual keying
- Improve customer experience

**Home-Use**
- Instructions for use
- Brand and social content
- Point and scan to buy now & reorder

**Recycling**
- Identify materials and substrates
- Improve sorting mechanisms
Early Adopters

2 of Top 10 US Retailers

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wal-Mart Stores</td>
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<tr>
<td>2</td>
<td>The Kroger Co.</td>
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<td>3</td>
<td>Costco</td>
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<tr>
<td>4</td>
<td>The Home Depot</td>
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<td>5</td>
<td>CVS Caremark</td>
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<td>Walgreens Books Alliance</td>
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<td>Amazon.com</td>
</tr>
<tr>
<td>8</td>
<td>Target</td>
</tr>
<tr>
<td>9</td>
<td>Lowe’s Companies</td>
</tr>
<tr>
<td>10</td>
<td>Albertsons Companies</td>
</tr>
</tbody>
</table>

*Top 100 Retailers: The Nation’s Retail Power Players 2017* – Stores NRF Magazine, June 2017
Store Operations: Packages, Labels, Hangtags, POP, Shelf Edge

Front of Store and In-Aisle:
• Easier scan at self-checkout; better data
• Increased items per minute at checkout
• Less shrink, increased sales
• More efficient inventory audits by associates and robots
• More accurate data in stock, pricing, planogram compliance

Benefits:
• Improved front end data integrity, productivity and cashier/customer experience
• Increased efficiency and accuracy in-aisle and in back room (vendor packs)
• Easier, more accurate reads and better data everywhere

Inventory Management – Packaging and Labels:
• Stores as “hybrid warehouses” – Walmart and Target
• Robotic shelf analysis – on-shelf availability; planogram compliance; pricing
• Stocking accuracy and productivity
• Buy Online/Pickup in Store
• “Bring Your Own Device” – store associates add employer software to their phones to support many business applications
• “Checkout with Me” – store associates with mobile devices and better data everywhere
Traditional Thermal Labels

- On-demand printing for fresh foods categories in retailers
- Fast, efficient printing with no dry time
- Low printing and maintenance costs
- Tracking of expiration at individual item level with DataBar implementations

Digimarc Barcode for Thermal Labels

- Enable dynamic pricing
- Reduce food waste and increase profits
- Reduce shrink due to bad labels and bad actors
- Increase labor productivity
- Faster easier checkout
- Instructions for use
- Easy re-order

Digimarc Barcode for Thermal Labels looks like this

Digimarc Barcode for Thermal Labels performs like this
Digimarc Barcode for Thermal Labels Can Help Reduce Food Waste

*Digimarc can help retailers reduce food waste by increasing sales of aged product

FOOD WASTED BY WEIGHT - 63 MILLION TONS
Waste occurs throughout the supply chain, with nearly 85% occurring downstream at consumer-facing businesses and homes.

16% 2% 40% 43%
10M 1M 25M 27M

FOOD WASTE CONSUMES:

21% 19%
OF ALL FRESH WATER OF ALL FERTILIZER

18% 21%
OF CROPLAND OF LANDFILL VOLUME

FINANCIAL WASTE - $218 BILLION
The financial cost of food waste is greatest for consumers since they pay retail prices for food, while consumer-facing businesses pay lower wholesale rates.

$15B $2B $57B
FARMS MANUFACTURERS CONSUMER-FACING BUSINESSES

$144B
HOMES

Source: [www.refed.com](http://www.refed.com)
Entire Retail Scale Printer Ecosystem is Being Enabled

Counter Scales

Checkout Scales

Self-Service Scales

Wrapping & Weigh Price Labeling

Industrial Labeling

Front of Store

Middle Store

Backroom

Packing Facility
Key Retail Accounts – Walmart and Costco

Walmart

- Doug McMillon, in recent Walmart earnings call: “We strive to make every day easier for busy families as we increase convenience and save them money and time.”
- Announced Project Gigaton to reduce plastic waste
- Most in-counter POS scanners equipped with Digimarc firmware
- Digimarc Mobile SDK employed in Walmart and Sam’s Club consumer applications, and numerous applications in Walmart’s Bring Your Own Device store associate program
- Walmart private brand enhancement expanding
- January launch for Walmart supplier who revamped entire product line packaging to accommodate Digimarc Barcode, now planning national roll out
- Many global brands committed to in-store pilot, testing multiple hypotheses
- Other (confidential) projects underway
- Negotiations to expand contract underway

Costco

- In-counter POS scanners equipped with Digimarc firmware
- Handhelds equipped with Digimarc firmware rolling out
- Ramp to volume production in apparel labels and tags
- Expand private brand product enhancement
- Encourage mobile app update
- Win the Thermal business
Consumer, Retail, and CPG
Doing Business with Six of Eleven Companies That Own Most of the FMCG Brands

"Here they are, 100 years plus, tons of advertising, built into people’s habits and everything else," Buffett said of Kraft Heinz’s brands. "And now, Kirkland, a private-label brand, comes along and with only 750 or so outlets, does 50% more business than all the Kraft Heinz brands."

— Warren Buffett, CNBC interview, 2/26/19

Source: https://www.zerohedge.com/news/2018-12-08/these-11-companies-control-everything-you-buy

* Total includes unidentified companies
Full Consumer Product Lifecycle Support

Design
- Incorporate barcode data into artwork
- Integrate codes and link to content

Manufacturing
- Improve in-line inspection

Distribution Center
- More reliable labels
- Print on corrugated packaging
- Scan readily from a distance
- Verify logistics and returns

In-Aisle
- Price checks
- Manage planogram & availability (OSA)
- Data Analytics

Check Out
- Easily scan products & labels
- Improve first-pass read rate
- Reduce misreads and manual keying
- Improve customer experience

Home-Use
- Instructions for use
- Brand and social content
- Point and scan to buy now & reorder

Recycling
- Identify materials and substrates
- Improve sorting mechanisms
Digimarc Barcode for SmartLabel® and GMO Disclosure

Digimarc Barcode removes the need for visually intrusive QR codes, which compete with precious packaging real estate. Functionally, consumers can scan ‘anywhere’ there is Digimarc Barcode across the package artwork and are not limited to a single visual symbology or ‘target.’ The single code can deliver two different experiences. Apps determine how the information is displayed.

“Digital watermarking” is included in the final federal GMO disclosure rules.

Recently implemented GS1 Digital Link.
Manufacturing Quality Management

Product and label mismatches huge impact on all aspects of CPG business:

- Consumer health and safety
- Damage to brand
- Recall costs
- Labor and product costs for mitigation – internal and external

Five pilots
Settling delivery and support with Cognex

Digimarc Barcode: > 99.99% Accuracy in Pilots So Far!

[https://vimeo.com/322292232](https://vimeo.com/322292232)

UK supermarket URGENT RECALL as chicken fillets sold with ... Express.co.uk - Nov 26, 2018
UK supermarket URGENT RECALL as chicken fillets sold with WRONG use-by labels ... A mix up means the meat displays a use-by date of December 29 ... sells Co-op branded products as well as its own Heritage brand.

Salt & Straw recalls Chocolate Gooey Brownie ice cream over peanut allergy concern

[Updated Aug 28, 2018; Posted Aug 14, 2018]
Example with Rice using GTIN+ with Material Code

Retail Point-of-Sale (POS) reads: (01) 072251001259 (91) 32630012516

POS system can enact logic or rules based on the Extended Data.

Robot reads: (01) 072251001259 (91) 32630012516

Digimarc analysis will report the GTIN and Extended Data.

Retail Point-of-Sale (POS) reads: (01) 072251001259 (91) 32630012516

Digimarc analysis will report the GTIN and Extended Data.

Mobile Devices read: (01) 072251001259 (91) 32630012516

Consumer App

Assembles URL in Digital Link format*

Passes through to final scan destinations via resolver system

http://www.rice.com

SmartLabel App

When scanned with SmartLabel app, will go direct to SmartLabel URL via DBM; will behave like a CPV in routing to version

Manufacturing Inspection

Enabled scanner reads full data string for artwork quality and version control; can halt production based on logic

Supply Chain reads: (01) 072251001259 (91) 32630012516

Manufacturing Inspection

Enabled scanner reads full data string, parses and reports as determined by the system

Logistics Handheld

Enabled scanner reads full data string, parses and reports as determined by the system
Brand Protection

• Digimarc Barcode: Confidential Engagements
• Digimarc Guardian: Digital Images
• HP Link: Serialization; Track and Trace
• AlpVision: Counterfeit Deterrence Platform

1. Create and Print
   Easy creation of a wide range of covert and overt marks through APIs and product integration.

2. Scan for rich content
   Collect metadata about your product during its lifecycle, and unlock digital experiences for consumers with the same mark.

3. View key analytics
   Review rich data on distribution tracking and customer engagement patterns.
Digimarc Barcode for Fabric and Flooring

- Examples of Printed Watermarks by Filigrade in Holland; and Stealthcode by BeeGraphics in Italy
- Digimarc Barcode integrated into flooring and fabric to educate users, and deter counterfeiting and channel diversion
- Fabric sample shown at NRF in January and EuroCIS in February

Digimarc Barcode integrated into flooring for brand protection

https://www.youtube.com/watch?time_continue=3&v=dGNgHvScSCs

Digimarc Barcode integrated into fabric

https://vimeo.com/321872261
Modernizing the Supply Chain for Live Plants

For over 100 years, WestRock/MPS has supported growers and retailers printing supporting materials for live plant category

- $19 billion paper and packaging supplier
- Over 70% market share in category
- Manufactures over 3 billion plant stakes annually
- Supports major retailers such as Home Depot, Walmart, Kroger, Tractor Supply and many others
- Small form factor is ideal for Digimarc due to limited real estate for data carriers, pricing, graphics, and supporting information
- Category is still operating in low tech environment, ripe for disruption

Key Benefits

- WestRock provides access to retailers through long term relationships
- Connects Retail Garden Center use case to rest of the store
- Improves inventory management and customer experience
- Strong supply chain use case, from seed to sale
- Can be used to demo Blockchain and GS1 Digital Link
Improving Recycling of Plastic Packaging

- **If current pollution rates continue, there will be more plastic in the sea than fish by 2050, as 8 million tonnes of bottles and waste swamp the oceans each year. – UN Environment Program**
  - CPGs represent 20% of all plastic produced globally; P&G heads Holy Grail Project in Europe
  - Digimarc Barcode is being considered as means to improve recycling as complement or alternative to Near Infrared Spectroscopy and taggants
  - ICP unique platform that provide synchronous ID for substrate, ink, labels, and shrink sleeves
  - Multi-layer approach improves likelihood of identification and quality of information
  - Supports wide range of plastic selection and continued use of brand dress (e.g., black or colored)

- GS1-recognized data carrier provides more granular identification via labels and ink
- Compatible with Circular Economy – no environmental impact, no additional additives, electronic circuitry or chemicals
- Sorting is goal, but multiple use cases throughout supply chain, retail, consumer engagement, copy detection
- One-time enhancement of mold or artwork; zero marginal cost per unit
- Producers in Europe pay Extended Producer Responsibility fees to fund mitigation of societal and environmental burdens. Digimarc may play a role in “modulation” of fees.
- CPGs can amortize costs across other applications, e.g., manufacturing quality, regulatory disclosures, retail store operations, consumer engagement

“The current plastics system is broken – system change is the only long-term solution”
Key CPG Accounts - Highlights

P&G
- 1st product shipments to multiple channels
- Continuing cooperation on global scaling strategies

PepsiCo
- Major retailer in store-pilot
- Several PepsiCo brands participating

Other Global Leaders
- Multiple suppliers participating in major retailer in-store pilot
- First enhanced products from other top 10 CPGs going shelves by mid-year
- Pilot program involving several ICP suppliers begins in April
- Manufacturing quality control pilots
- Counterfeit deterrence and channel management programs
- Joint R&D on product delivery system

Other CPG Updates
- New Seasons PB first GS1 Digital Link enhanced product
Consumer, Retail, and CPG: Geographical Expansion
Europe

- Focused sales & partner related activities have started to pay off
- 1st European retail customer roll out. Value proposition Easy Check Out.
- Three full-time employees, focused on nurturing successful rollout with large retailer. Leading retailers are watching. Many suppliers engaged.
- Key Pre-Press Partners are beginning to scale
- Hardware Partners are beginning to see opportunities for incremental sales, based on Digimarc Barcode
- Focus on Barcode for Packaging due to limited local resources
- Demand for Barcode for Recycling is creating significant groundswell of interest from CPGs, their suppliers, and German and EU government
Japan

- Study group has generated substantial awareness
- Single local employee, our country manager, with ad hoc support from US, limits progress
- Advances in ecosystem integration, alliance building and business development, despite minimal staffing
- Significant progress has been made on integration with numerous partners, who are now shifting to business development mode with upcoming trade shows
- Retail focus, with limited exploration of value propositions for brand owners
- Several retail opportunities in engagement and assessment phase, with cooperation from many study group partners. These opportunities rely on scanner optimizations that are underway.
- RetailTech Japan held last week. See press release for details.*

Consumer, Retail, and CPG: Global Supplier Alliances
$150 Million Platform Investment in Early Stages of Major Platform Expansion

Key Alliances & Partners

Engaged with a broad range of strategic partners across Identification, Discovery, and Applications setting stage for new global standard as successor to traditional barcodes:

Identification
- Adobe
- Berry
- diadeismo
- DNP
- P&G
- Perrigo
- sgscio
- Walmart
- WestRock

Discovery
- aila
- ZEBRA
- DATALOGIC
- Honeywell
- ZEBRA

Applications
- civolution
- KANTAR
- Nielsen
- Microsoft
- MorphoTrust USA
- NTT
- ROVIO
- verimag

Multiple initiatives underway with potential to drive significant inflections in market penetration (GS1 US & Germany, Beyond the UPC industry study, USDA GMO Label Regulations, Shopping for the Future Japan, engagements with Walmart, Costco, P&G and PepsiCo)

Digimarc’s Technology Platform is Highly-Scalable

Digimarc has a robust track record of achieving significant, global scale in multiple market verticals:

- In most of the money in the world
- In nearly all TV & radio in the US
- In ~80% of US drivers licenses
- In 800MM Microsoft Windows 10 devices
AILA has integrated the ability detect Digimarc Barcodes using the Digimarc Mobile SDK into its retail scanning offerings for both tablets & handheld devices.

FutureProof Retail offers several mobile solutions for retailers; their core offering is mobile checkout. They have integrated the Digimarc Mobile SDK for high-performance scanning and read Digimarc Barcode.

Microsoft integrates Digimarc Image Detection Software in Windows 10 to provide the ability for Win10 developers for detection of defined symbologies, (1D, QR and Digimarc Barcode for product packaging), via Microsoft APIs in Win10 applications.

Scandit and Digimarc are collaborating on joint business development opportunities to leverage best-in-class mobile scanning software applications for greater detection of Digimarc Barcode.

Revision is a global Self-Scanning Solution Provider with over 120,000 self-scanning terminals operating around the world. Solutions for consumer shopping through retail mobile app or dedicated hardware device in-store.

Rezolve integrated Digimarc Mobile SDK into their mobile platform for consumer engagement with print and audio media.

For more information on Digimarc’s Global Alliances, visit [www.digimarc.com/our-alliances](http://www.digimarc.com/our-alliances)
HP Link: End-to-end Solutions Through Entire Product Lifecycle
Licensed by Digimarc

Individualized IDs  Print Integration  Tracking & Authentication  Customer Engagement  Behavior Tracking

BRAND-OWNER PROD & SCM  DISTRIBUTION/RETAIL SCM  END CUSTOMER  BRAND-OWNER MARKETING

Mark Type Chosen  UIDs Created  UIDs Embedded & Printed  Status: Labels Printed  Status: Wine is bottled  Status: Out to distribution  Status: In Inventory  In-Store Experience  Post-Purchase Experience  Fraud Detection  Tracking Information  Consumer Insights

Online Portal  Workflow Solutions  APIs, Scanners, & Authentication  Mobile App & SDK  Analytics package
Consumer, Retail, and CPG: Competition
Competition

UPC (1974) – ubiquitous 1D (horizontal stripes) data carrier
- Adoption started slow, then grew exponentially, to become foundation of global supply chain

QR Code (1994) – 2D (squares) originally designed for automotive industry; now popular for consumer applications
- Greater data capacity than UPC

UPC and QR
- Visible
- Location-specific
- Line of sight limited
- Susceptible to environmental factors

RFID (1973)
- Tags and readers
- Not line of sight limited
- Cost/tag
- Functional limitations
- Privacy concerns

Image Recognition
- Probabilistic methods
- Accuracy, speed and cost affected by size of database, similarity of images, network latency, user environment, device capabilities, and user training
Examples of Common Image Recognition Misreads

Most image recognition techniques leverage shapes as opposed to all image characteristics. Brands that rely on colors to differentiate packages are more likely to encounter misreads.

Templates that have common logos or other graphical elements increase the likelihood of misreads.
Digimarc “Customer First” Compared with Amazon Go

Amazon Go studies people; we identify media
DMB has broader application, and greater convenience, choice and control than Amazon Go

- Maintain familiar friendly process
- Serve all customers
- More checkout options: self, associate, POS
- Translation and product information
- Food quality and safety
- Mark downs based on product attributes
- Augmented Reality experiences
- Privacy: fewer cameras, tracking and profiling
- High quality data: product and purchase intent
- Enables in-home benefits: use, re-order, recycle
- Improve manufacturing, logistics, and recycling

Supports work of store associates and suppliers
Many platform benefits transcend the store
Smaller capital investment and infrastructure change

Sorry Amazon: Philadelphia bans cashless stores. The city follows only Massachusetts, which has banned cashless stores since 1978. arsTECHNICA, 3/7/19.
Next Steps in Execution of Strategy
## 2019 Strategic Plan

**Vision:**
Give all forms of media and many everyday objects a digital identity.

**Mission:**
Help consumers and businesses reliably and efficiently identify media when, where, and how they want.

### Strategic Themes

<table>
<thead>
<tr>
<th>Shareholder Value</th>
<th>Scale</th>
<th>Long-Term Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase shareholder returns by driving bookings growth and improving cash flows.</td>
<td>Increase deployments of our technology with top accounts and strategic alliances.</td>
<td>Expand the number of available applications for our technology to showcase its broad relevance.</td>
</tr>
</tbody>
</table>

### Strategic Objectives and Strategy Map

#### Financial:
- **Grow bookings**
- **Improve cash flow**
- **Achieve tipping point with Top Accounts**
- **Become successor to visual symbologies**
- **Bookings/revenue growth**
- **Cash flow**
- **Shareholder returns**

#### Customer & Alliances:
- **Deliver customer value**
- **Mobilize platform alliances**
- **New customer accounts**
- **Grow, strengthen, and monetize alliances**
- **Shorten sales cycle**

#### Internal Processes:
- **Be efficient**
- **Enable globalization**
- **Increase productivity**
- **Deliver high quality**
- **Implement Efficiently**

#### Learning & Growth:
- **Improve technical messaging**
- **Embrace shared values**
- **Achieve scalable organization**
- **Employee satisfaction**
- **Relevant effective training**
- **Communication and collaboration**

---

**Caring ● Commitment ● Innovation ● Integrity ● Knowledge ● Loyalty**
Path to Scale in Retail

Thermal Labels
- Move from pilot to production
- Add customers
- Facilitate business process re-engineering: support sell by date, provenance, dynamic pricing
- Integrate firmware into more printers: in-store and food services – Bizerba, Hobart, Mettler-Toledo, DIGI, Ishida

Packaging
- Roll out of higher resolution Digimarc Barcode for Packaging
- Improve quality and lower cost/time to market of enhancing packaging – SGS, SGK, Adobe, Esko
- Integrate Digimarc firmware in more POS and handheld scanners – Datalogic, Zebra, Honeywell, NCR, Toshiba Tec, et al.
- Advocate for Digimarc Discover as camera feature in Smartphones – Apple, Google, major smartphone suppliers
- Facilitate consumer engagement and analytics – GMA, SmartLabel, leading CPGs
- Industry buy-in on specifications – GS1, GMA, FMI, global alliance members

Hangtags
- Complete Costco pilot, orchestrate supply chain, and expand production
Working Capital Management
Valuation and Digimarc Liquidity Event Precedents

IPO 1999:
• 12x $240MM market price vs. pre-public valuation $22MM

ID Systems Sale 2008
• 3x $390MM vs. pre-transaction value $140MM
• Public market value prior to sale: $140MM
• Enterprise value prior to sale: $100MM
• ID Systems, 80% of revenues
• Digital watermarking business, 20% of revenues
• Purchase price for ID Systems $310MM, no patents included
• Digital watermarking business and $50MM working capital retained, with initial enterprise value $30MM, all patents retained
• Total value post-transaction: consideration received/retained $390MM

Digimarc 2019: Public vs Private Valuation?
Determining Fair Value of Digimarc

Current Market Capitalization: $350MM

Analysts’ Models: $430MM

Target
- Projected free cash flow, or projected EPS, for years ranging from 2022 to 2027, for existing revenue streams + Barcode for packaging @$50/SKU
- 5% terminal growth rate?

Sum of Parts, Established Business: $275MM - $540MM
- Government Security and Guardian $100MM - $185MM
- Patents $130MM - $310MM
- Working capital $45MM

Enterprise Value: $xxxMM - $xxxxxMM?
- Established business, including patents and working capital
- CPG packaging, thermal labels, hang tags, plastics, and other media
- Applications licenses, e.g., manufacturing, store operations, recycling
- ICP business beyond CPG packaging (Platform value)
Digimarc at Inflection Point

- Twenty years as a publicly-traded company
- TSR (1-year and 5-year) has been average in relation to peers but has underperformed market
- Analysts appear to be valuing operating businesses plus nominal optionality of Retail and CPG early market development for limited number of years
- Modest pace of investments slows pace of adoption; slow pace of adoption translated into key measure of value?
- Option seems to be valued at near 0% chance of success (unless patents given no value)?
- Are patents being valued?
  - Digimarc has generated over $150MM in patent license revenue
  - Historic valuations: hundreds of millions $$
  - Size of portfolio and relevance to identifiable TAMs larger than ever
- No value for ICP potential, without capital constraints?
- Current public equity market valuation creates strong preference for strategic and/or private equity investment to address working capital needs
2019 Approach to Working Capital Management

Income Enhancement Programs:
• Increase revenue growth rate by rewarding early adopters with special terms
• Industry leaders encourage adoption by others (tipping point theory)
• Payments for product or geographical exclusives
• Grow share of wallet in major accounts

Pursue strategic equity investment
• Strategic partnerships consistent with progress of execution of strategy, with goal to have share price increase, not decrease, due to investment
• Private equity/venture capital

Consider sale of assets
• License/sell non-core patents

Registered direct or marketed secondaries (not attractive at current prices)
Combinations of the above, in context of strategy for max value
All options are on the table
All are achievable
Maximizing shareholder value is our goal
Confident in soundness of strategy
Income Enhancement Programs
Income Enhancement Programs

- Early adopter CPGs, retailers and suppliers who help develop and market features of ICP
- Must invest in feature development, including paying for our participation
- Help establish technical and commercial viability
- Cooperate in marketing to rest of industry, including help on pricing, positioning, and advocacy
- They are rewarded with credits against costs of adoption and use of ICP
- Partnerships intended to accelerate revenue growth and create side network effects
Marquee CPG Partnership

**SHARED VISION**

- Deliver a superior digital package identity to create value throughout each phase of the product lifecycle (end to end).
- Be recognized publicly with Digimarc as the best and most innovative consumer products and services company in the world.
- Enrich the lives of the world's consumer with the best products, transparency, and communication channels.

**VALUE DRIVERS**

Manufacturing  
- Optimized artwork approval process
- QA/QC process and tools

Consumer Engagement  
- Better awareness at agency level
- Requirement of design

Sustainability Initiatives  
- Internal reference case
- Demonstrate deployment internally and externally

Brand Protection  
- Brand asset protection
- Anti-diversion, anti-counterfeit

Retail Engagement  
- Test and prove use case on track and trace

**JOINT ENABLEMENT**

**Joint Steering Committee:**
- Use case prioritization
- Resource alignment
- Corporate direction

**Pre-Media Activation:**
- Optimized artwork approval process
- QA/QC process and tools

**Printer Activation:**
- PQM specs
- QA/QC process and tools

**Design Agency Activation:**
- Thoughtful engagement with champion brands
- Requirement of design
- Educating and engaging
- Signal Rich Art evolution

**Lighthouse Brands**
- Define requirements and implementation strategy
- Test and prove use case on track and trace

**Serialization Strategy**
- Define requirements and implementation strategy
- Build standards for industry

**Recycling Strategy**
- Define requirements and implementation strategy
- Build standards for industry
Marquee Retail Partnership

**SHARED VISION**

- Deliver a “Customer First” approach for greater convenience, choice and control for modern retail
- Be recognized publicly with Digimarc as a ‘connected retailer’ making shopping easy and seamless for your customers
- Enable your total store operations reducing shrink, optimizing inventory and faster, easier check out options

**VALUE DRIVERS**

- Private Label
- Easy Check Out
- Operational Shrink
- Consumer Engagement
- Product Transparency
- Inventory Management

**JOINT ENABLEMENT**

**Joint Steering Committee:**
- Objectives / KPIs
- Use case prioritization
- Data strategy
- Resource allocation

**Pre-Media Activation:**
- Enhance artwork
- Approval Process
- QA/QC process and tools

**Supplier Activation:**
- Printer QM
- QA/QC process, tools & training

**Retail Tech Activation:**
- Enable retail hardware infrastructure – scanners, scales, inventory robots
- Enable mobile apps and devices

**Store Roll Outs:**
- Phased deployment with targeted stores
- Associate / Cashier training
- Demonstrate deployment internally and externally

**Data Management:**
- Collect T-log data or other data sources to track performance
- Analyze results; test and refine
- Integrate with other retail & ERP systems

**Other Applications:**
- Expand & deploy other use cases: hang tags, circulars, shelf edge tags, digital assets

**CPG Engagement:**
- Engage and expand with Consumer Brand suppliers
- Activate “connected store” experience to optimize supply chain efficiencies
Financing Geographic Expansion

• There is evidence of significant opportunity in Europe and Japan
• Capital constraints are making it difficult to properly support foreign markets
• May make sense to secure large, capable partners in foreign markets who can provide capital as well as operational leverage
• Ideal partners are large IT service providers
• Can form basis for global network built on ICP specifications and GS1 standards
• Fueled by global retail and CPG early adopters
Potential Sources of Strategic Investment and Operating Leverage
Strategic Investment: Sources of Capital and Operational Leverage

Our situation:

• Clearly articulated strategy, with objective measures of progress
• Constrained product market focus: consumer products and retail
• Strategy targets world leaders in these markets; and they are engaged
• Their scale and scale of their suppliers dwarfs Digimarc
• Limited resources to manage accounts and suppliers
• Investing in efficiency, cost and quality of enhancement process
• Journey progressing to global scale, from practice to specifications to standards
• Need additional resources for global expansion
• Cost of capital may be more attractive in private equity market
• Strategic investors can offer capital and operational leverage

What are kinds of companies can add value, improving our execution of strategy?
## Potential Sources of Operational Leverage and Capital

<table>
<thead>
<tr>
<th>Sample of Prospects</th>
<th>Business</th>
<th>Mkt Cap</th>
<th>Identification</th>
<th>Discovery</th>
<th>Applications</th>
<th>Value to Partner Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adobe</td>
<td>Media creation and marketing</td>
<td>$125B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>add auto ID to design and prepress; link to marketing cloud</td>
</tr>
<tr>
<td>Microsoft</td>
<td>Operating system and cloud</td>
<td>$780B</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Intuitive Computing Platform augmentation to Windows and link to Azure</td>
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<tr>
<td>Intel</td>
<td>IOT</td>
<td>$256B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>Intuitive Computing Platform augmentation to Intel IOT platform</td>
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<td>Zebra</td>
<td>Auto ID and inspection</td>
<td>$8B</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>establish IP position in next gen auto ID</td>
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<tr>
<td>Apple</td>
<td>Mobile productivity and entertainment</td>
<td>$900B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>automate discovery in camera; support AR</td>
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<tr>
<td>Google</td>
<td>Search; digital advertising; and mobile</td>
<td>$800B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>natural progression from search to discovery</td>
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<tr>
<td>Facebook</td>
<td>Digital advertising</td>
<td>$650B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>better target ads/marketing for clients; compete with Amazon Marketplace</td>
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<tr>
<td>Amazon</td>
<td>Retail MSP</td>
<td>$820B</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>make improved product identification proprietary</td>
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<tr>
<td>IBM</td>
<td>IOT: Watson/Blockchain/Cloud</td>
<td>$132B</td>
<td>x</td>
<td></td>
<td>x</td>
<td>feed Watson/Blockchain/Cloud</td>
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<tr>
<td>HP</td>
<td>Digital printing</td>
<td>$38B</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>enhance value of print</td>
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<tr>
<td>SAP</td>
<td>Retail industry software</td>
<td>$128B</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>improve connections between demand and supply</td>
</tr>
</tbody>
</table>
Adobe

Foundational underpinning of our entire platform / ecosystem – inherent digital identities for all media objects

- Long-term relationship with Adobe: pre-public investor, plug-ins, government security
- Digimarc’s enhancement tools are all built on Adobe’s Creative Cloud
- Adobe could become world’s primary source of Auto ID

Adobe Sensei machine learning framework relies on auto-ID

- Inherent digital identities would greatly improve breadth and accuracy of identification
- All Creative Cloud output can have digital twin
- ICP would extend reach and functionality of Adobe auto-ID in manufacturing, distribution, warehousing, retail, and consumption – across the entire lifecycle and value chain of commercial artwork

Powerful linkage between Adobe Creative, Document, and Marketing Clouds:

- More accurate and extensive data throughout value chain
- Marketing insights, document management, more general cloud services
- Standardized solution across both digital and physical media

Potential for “Signal Rich” artwork, introducing new generation of mathematically infused artwork with inherent digital identities to serve IoT applications

Complements Open Data Initiative by contributing new customer and supplier data to existing datasets

Complements Adobe Retail Reports and Marketo / Magento technologies in the Digital Experience Network
Microsoft

- Digimarc Barcode detection integrated into Windows 10 core, resident in 800MM devices
- Digimarc Barcode improves retail store operations
- Retail with Digimarc Barcode improves consumers choice, convenience, control; and facilitates low prices through efficiency gains
- Microsoft established many prominent retailer relationships in 2018 to help “…digitally transform” customer interactions, sharpen operations and deliver better products and services…” Rumored to be working on alternatives to Amazon Go *
- Retail can be an early implementation of Internet of Things Services
- ICP improves quantity and quality of data from all forms of Auto ID
- More generally, can add Digimarc Barcode to search index for all media and Discover into Android to create world’s best Discovery platform

* https://www.supermarketnews.com/retail-financial/albertsons-eyes-frictionless-grocery-shopping?NL=SN-02&Issue=SN-02_20190225_SN-02_322&sfvc4enews=42&chl=article_1_b&utm_rid=CPG0600000251758&utm_campaign=28749&utm_medium=email&elq2=6c68f02353ae4915bcea1902538a42eb
Open Data Initiative – Consortia as Potential Investors?

From announcement in September 24, 2018:

• “…many businesses struggle to attain a complete view of their customer interactions and operations, because they are unable to connect information trapped in internal silos. At the same time, important customer information also resides in external silos with intermediary services and third-party providers, limiting a company's ability to create the right connections, garner intelligence and ultimately extract more value from its own data in real time to better serve customers.”

• “Technology leaders at top retail and consumer products companies, such as The Coca-Cola Company, Unilever and Walmart, have expressed support and excitement about the Open Data Initiative.”
Google: Digimarc Discover – From Search to Discovery

- Google keyword search changed the world when desktop computing was dominant
- Mobile search is overtaking desktop search
- Text-typing does not work well for mobile devices
- Voice is helping
- Camera as discovery interface seems a natural evolution in the emerging IoT
- Google can develop premium services for digital advertising customers, based on specific product ID

**search** 
\(\text{ˈsərch}\) v. to look into or over carefully or thoroughly in an effort to find or discover something

**discover** 
\(\text{di-ˈsair}\) v. to make known or visible
Maximizing Shareholder Value
Three-sided ICP Local Node – Consumers, CPGs, and Retailers

**Features:**

**Consumers**
- Easy Checkout
- FMOT
- Product Transparency
- Effective Use
- Social Networking
- Reorder/Recycle

**Brands**
- Manufacturing Quality Management
- Product Transparency
- Consumer Engagement
- Regulatory Compliance
- Recycling

**Retailers**
- CPG features, for PB, plus:
  - Easy Checkout
  - Shelf Inventory Management
  - Waste reduction

**Features:**

- Audio
- Print
- Packaging
- Thermal Labels
- Hangtags

Audio
Print
Packaging
Thermal Labels
Hangtags
ICP: Future of Search is Discovery in the Internet of Everything

- Virtually everything will be connected to the Internet and other networks
- Mobile devices and network coverage are pervasive
- Accurate identification of media objects is critical to many business models of IT leaders
- Device sensor configurations mimic human senses of eyes and ears, but with limited “seeing” and “hearing”
- Every object that can have a digital data identity should have one because
  - Accurate identification of things is the foundation of knowledge about them
  - This knowledge motivates and directs actions
  - Unreliable identification corrupts upstream knowledge, confounds decisions, and creates risks and waste
- Digimarc’s patented Intuitive Computing Platform (ICP) is built on 20 years of R&D, resulting in Digimarc Barcode, the “Barcode of Everything”
- Digimarc Barcode can be applied to anything that carries a barcode today, and to digital images, video and audio as well
- Digimarc Barcode is more reliable, efficient and easy to use than conventional barcodes
- It is more economical than RFID; and more reliable than image or audio recognition
- Digimarc Barcode improves operations in all aspects of demand and supply cycles in global supply chain and modern commerce
- The “Barcode of Everything” facilitates AI, AR, process automation, and expands network reach and utility in the emerging era of IoT
Track Record of Relevant Expertise, Quality, and Delivery

• Capable and focused management
• Trusted platform developer for world’s leading Central Banks for 20 years
• Demonstrated ability to navigate chicken and egg problem in MSP development
• Foundation of numerous piracy and anti-counterfeiting standards (Digital Cinema and Blue-Ray movie distribution; OTT television; production music; e-books, and digital images; government-issued IDs; banknotes) across many industries
• Cross-fertilization of invention and experience as Intuitive Computing Platform relevance grows
• Large high-quality IP portfolio with impressive track record
• Fifteen PhDs and 96 engineers, most with long tenures (15+ years typical), and expertise in all aspects of media security, auto identification, and printing
• Platform expansion into Retail and CPG has proceeded as planned
• Market megatrends have been supportive
Goals

• Share our observations regarding current approaches to valuing our company

• Provide detailed information concerning the factors we believe are being considered, and those that we believe should be considered

• Discuss assets, TAMs, and progress that might not be well-understood

• Receive inputs to guide our approach to working capital management
Validated Mission
Critical Proprietary Technology

- High-security digital watermarking pioneer
- 20 years in counterfeit deterrence with Central Banks
- Broad adoption of licensed solutions in multiple industries
- High quality initial suppliers and customers
- Vote of confidence from global barcode licensing authority GS1
- 1,150 patent assets and proprietary trade secret algorithms

Multiple Benefits to Retail & CPG Value

- Improves operational efficiency and consumer engagement
- Impacts many aspects of consumer product life cycle
- Can save retail industry billions in store operations
- Early adoption by Wegmans, New Seasons, Walmart, Costco, P&G, PepsiCo; working with other larger CPGs and retailers
- Potential for rapid adoption once retail and CPG leaders show evidence of scale roll outs

Mobile Discovery for Store Associates and Consumers

- Powerful consumer engagement tool for brands with minimal packaging impact
- Visual Search – leveraging the ubiquity of smartphones and appealing to “Snapchat” generation
- Greater Product Lifecycle Management – generates highly valuable consumer insights for retailers and brands

Enormous Addressable Markets and Attractive Business Model

- Versatile multi-sided protocol platform
- Competitive advantages clear and documented
- Licensing model indicates enormous potential scale with high margin recurring revenues
- Highly-qualified and experienced management team with decades of industry experience
- Good stewards of capital with track record of providing attractive returns to long term shareholders

Enterprise Value of Digimarc
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