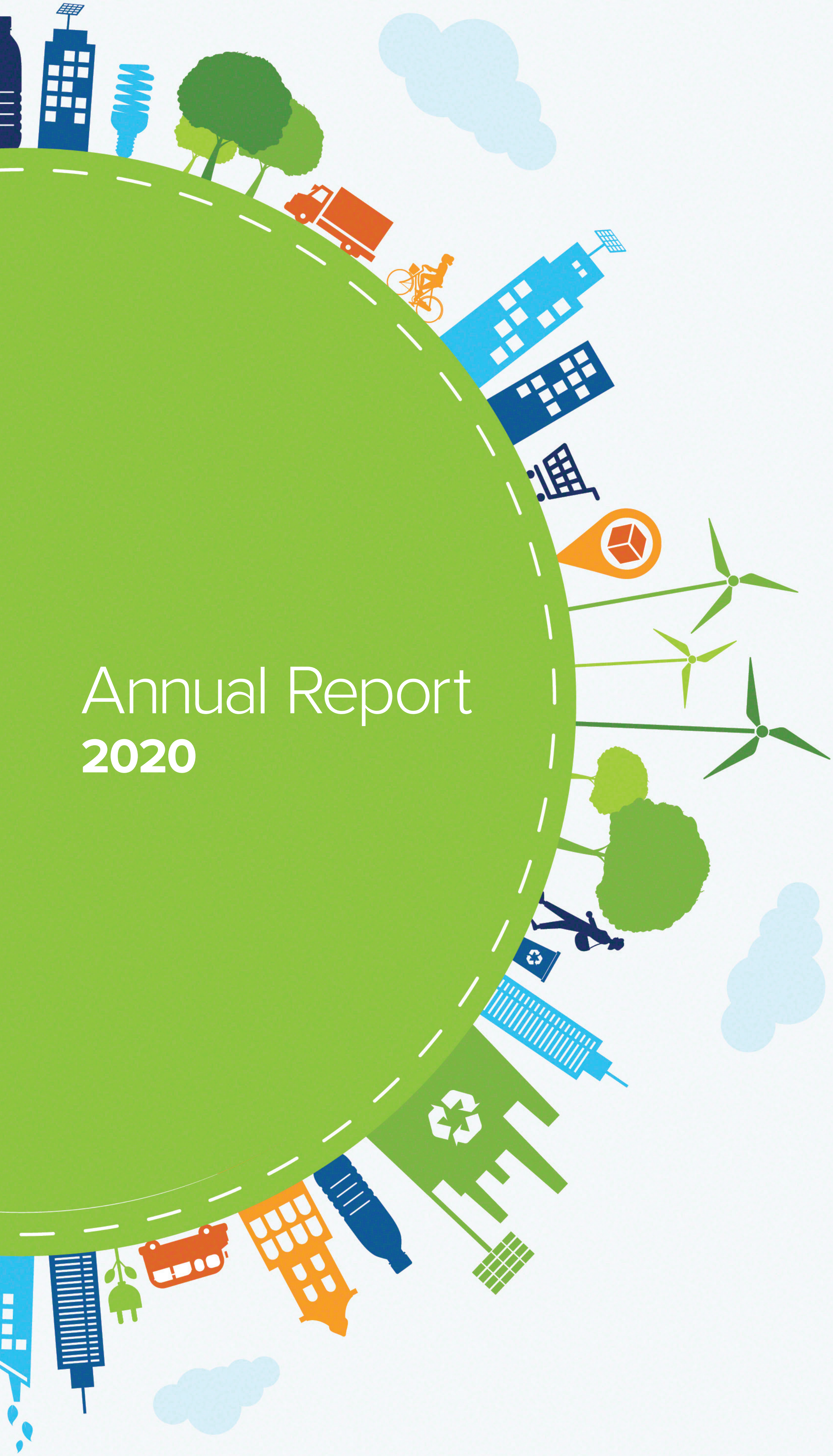
Annual Report
2020



DIGIMARC

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the fiscal year ended December 31, 2020

OR

☐ **Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934**

For the transition period from_____to_____

Commission File Number 001-34108

DIGIMARC CORPORATION

(Exact name of registrant as specified in its charter)

Oregon	**26-2828185**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

9405 SW Gemini Drive, Beaverton, Oregon 97008
(Address of principal executive offices) (Zip Code)

(503) 469-4800
(Registrant’s telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, $0.001 Par Value Per Share	**DMRC**	**The NASDAQ Stock Market LLC**

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company” and “emerging growth company” in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
Emerging growth company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management’s assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

The aggregate market value of common stock, par value $0.001 per share, held by non-affiliates of the registrant, based on the closing price of our common stock on the Nasdaq Global Market on the last business day of the registrant’s most recently completed fiscal second quarter (June 30, 2020), was approximately $196 million. Shares of common stock beneficially held by each officer and director have been excluded from this computation because these persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for any other purposes.

As of February 19, 2021, 16,846,589 shares of the registrant’s common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s proxy statement pursuant to Regulation 14A (the “Proxy Statement”) for its 2021 annual meeting of shareholders are incorporated by reference into Items 10, 11, 12, 13 and 14 of Part III of this Annual Report on Form 10-K. The registrant intends to file the Proxy Statement not later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

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PART I

Unless the context otherwise requires, references in this Annual Report on Form 10-K to "Company," "Digimarc," "we," "our" and "us" refer to Digimarc Corporation.

All dollar amounts are in thousands except per share amounts or unless otherwise noted. The percentages within the tables may not sum to 100% due to rounding.

Digimarc, Digimarc Barcode, The Barcode of Everything, Barcode of Everything, and the circle-d logo are registered trademarks of Digimarc Corporation.

ITEM 1: BUSINESS

The following discussion of Digimarc's business contains forward-looking statements relating to future events or the future financial performance of Digimarc. Our actual results could differ materially from those anticipated in these forward-looking statements. Please see the discussion regarding forward-looking statements included in this Annual Report on Form 10-K in Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations, under the caption "Forward-Looking Statements."

The following discussion of our business should be read in conjunction with our consolidated financial statements and the related notes and other financial information appearing elsewhere in this Annual Report on Form 10-K.

Overview

Digimarc Corporation is the inventor of a platform that enables a more efficient, reliable and economical means of automatic identification. The Digimarc Platform can apply a unique identifier to virtually all media objects—including product packaging, commercial print, audio and video—that can be automatically identified by an enabled ecosystem of industrial scanners, smartphones and other interfaces. These capabilities allow Digimarc and its partners to supply a wide range of solutions for retail and supply chain operations, consumer engagement, media management and security.

The Digimarc Platform features three core capabilities for the identification, discovery and quality management of media. Digimarc Barcode integrates the identification function, which is a novel data carrier encoded into media in ways that are generally imperceptible to people, permitting the carrier to be repeated many times over the surface of the enhanced media. Digimarc Discover represents the discovery function, which is software for computing devices and network interfaces that recognize and decode indicia of the identity of media. These include, but are not limited to, Digimarc Barcodes, Quick Response Codes, Universal Product Codes, certain other Global Standards One ("GS1") approved one-dimensional codes and relevant contextual data. Digimarc Verify incorporates the quality management function, a suite of software tools used to inspect and verify that the identification and discovery of media are both accurate and effective. Together, these core capabilities enable organizations, application developers, and other solution providers to build new and improve existing automatic identification solutions.

The Digimarc Platform enables customers to create digital identities for media objects and provides many benefits for connected media, including:

- **Security:** An imperceptible and indestructible data carrier encoded in the object provides a unique identification, whether in a digital image, video or audio file, or in graphics printed, embossed or etched on paper, cardboard, plastic, metal or other. Among other things, this identification supports strong authentication.
- **Brand Protection:** A unique identifier ("ID") enables fraud deterrence across many use cases, from preventing "barcode swapping" and counterfeiting of currency, media and goods to detection of use or distribution of physical products and digital images and e-publications.
- **Traceability:** The ID can carry serial numbers for easier tracking of individual items or entire lots. This has many uses, from ensuring product legitimacy to preventing product pirating to quickly identifying products for recall based on source provenance and sales destination.

- **Sustainability:** The ID can contain information specific to packaging content as an aid to broader and more efficient recycling. For example, a microscopic pattern embossed in plastic packaging can identify the materials used and their composition to aid sorting and recapture. Similarly, enhanced labels for fresh foods can be used to dynamically adjust pricing and thus reduce food waste proactively.
- **Engagement:** Consumers can directly interact with enhanced objects by merely scanning the item with their enabled smartphones. Brands can share additional product information online including recipes, instructions for use and recycling, information about ingredients and sources, how-to videos, coupons and more.
- **Efficiency:** Connected items, reliably scanned by machines and mobile devices, can enhance supply chain efficiencies, from parts matching in manufacturing to faster and more accurate inventory scanning and faster and easier front-of-store checkout experiences.

Our inventions provide a powerful document security element, giving rise to a long-term relationship with a consortium of central banks (the "Central Banks") and many leading companies in the information technology industry. We and our business partners have successfully propagated the use of our technology in music, movies, television broadcasts, digital images, e-publications and printed materials. Digimarc Barcode is used in these applications to improve media rights and asset management, reduce piracy and counterfeiting losses, improve marketing programs, permit more efficient and effective distribution of valuable media content and enhance consumer entertainment and commercial experiences.

Digimarc Barcode can be used to enhance all forms of media and is generally imperceptible to human senses, but quickly detected by computers, networks or other digital devices like smartphones and tablets. Unlike traditional barcodes and tags, our solution does not require content owners to give up valuable visual space on their media content, nor does it affect their media content's overall layout or aesthetics. Digimarc Barcode is generally imperceptible in regular use and does all that visible barcodes do, but performs better. Our Digimarc Discover software delivers a range of rich media experiences to its readers on their smartphones or tablets across multiple media formats, including print, audio and video. Unique to Digimarc Discover is its seamless multi-modal use of various content identification technologies as needed, including Digimarc Barcode, when present.

Banknote counterfeit deterrence was the first commercially successful large-scale use of our technologies. Innovations based on our existing technology and experience have been leveraged to create new products to deter counterfeiting and tampering of driver licenses and other government-issued secure credentials. In parallel, our business partners, under patent or technology licenses from us, are delivering solutions to track and monitor the distribution of music, images, television and movies to consumers.

In April 2019, Digimarc pledged a commitment to improve the reliability and efficiency of sorting plastic waste, most notably signing the Ellen MacArthur Foundation's New Plastics Economy Global Commitment, which is focused on building a circular economy for plastics. Digimarc participated in the Ellen MacArthur Foundation's Pioneer Project HolyGrail, where Digimarc Barcode was shown in testing to overcome many current limitations in plastic sorting technology. Digimarc Barcode proved effective in technical trials in more accurately identifying recyclable plastics that could prevent their unnecessary disposal into landfills or incinerators.

In September 2019, Digimarc announced expanded capabilities of the Digimarc Platform with several leading brands employing Digimarc Barcode for packaging and Digimarc Discover software in high-speed inspection systems to catch mislabeling problems before products ship to consumers. Digimarc Barcode provides data redundancy on product packaging without marring the appearance of the design. Consumer brands that use Digimarc Barcode for packaging, combined with high-speed inspection system scanning equipment from Cognex or Datalogic, can improve matching of front and back labels, cartons and lids, and other multi-component packages.

In November 2019, Digimarc delivered scan technology to Walmart's Toy Catalog, making it easier than ever for customers to buy gifts or create wish lists for family and friends using the Walmart app. The Scan & Shop powered by Digimarc was prominently promoted in 35 million printed catalogs that were direct mailed as well as available in Walmart's nearly 4,800 U.S. stores. In November 2020, we delivered our scan technology again, but with new capabilities, to Walmart's Toy Catalog for the holiday season.

In January 2020, Digimarc announced that NewPoint Media, one of the nation's largest real estate classifieds publishers, is using the Digimarc Platform to add digital connectivity to its publication *Homes & Land*. By integrating an imperceptible Digimarc code into the property photos of over 27 million magazines in 151 markets, NewPoint Media is creating a new print-to-digital experience for both home shoppers and real estate agents and brokers.

In September 2020, Digimarc announced that the Digimarc Platform is a principal technology of the cross-value-chain initiative HolyGrail 2.0 to improve sortation and higher-quality recycling rates for packaging in the European Union. The industry-led initiative is facilitated by the Association des Industries de Marque (“AIM”), the European Brands Association, with its more than 2,500 member organizations. Digimarc’s technology was ultimately put forth at the conclusion of the highly publicized HolyGrail 1.0 initiative under the Ellen MacArthur Foundation’s New Plastics Economy, which included 29 corporations and was led by Procter & Gamble. Now, under HolyGrail 2.0, the leadership team includes world-leading brands Procter & Gamble, Nestle, PepsiCo and Danone. Over 100 cross-industry companies and organizations have signed to be active participants in the next stages of pilots and industrial-scale demonstrations towards commercialization.

In February 2021, rfxcel, the global leader in digital supply chain traceability solutions, and Digimarc announced a partnership to provide a robust digital supply chain solution for track-and-trace, brand protection, personalized consumer engagement, and sustainability. The partnership will leverage the Digimarc Platform, featuring Digimarc Barcode, in support of rfxcel’s signature Traceability System (rTS) and Mobile Traceability app.

Our Commitment

Digimarc is committed to becoming a leader in the Environmental, Social and Governance (ESG) space. We are emphasizing sustainability and social responsibility in our product offerings, internal practices and relationships with the communities where we operate.

The Digimarc Platform features products that contribute to a more sustainable global economy. For example, Digimarc Barcode on fresh food labels can help retail grocers reduce food waste. Digimarc has also joined the HolyGrail 2.0 project, which is focused on how the use of Digimarc Barcode on packaging can improve plastic sorting and help keep post-consumer recycled plastics out of landfills and incinerators.

In 2019, Digimarc launched its “Reduce, Reuse, Recycle Program” to promote sustainability throughout the organization. This employee-led initiative examines our “corporate footprint” and implements a range of initiatives from reducing electricity usage, composting company food waste, reducing the use of single use plastics and encouraging public transit use. Our Oregon facility also uses 100% renewable wind energy. Beyond our environmental initiatives, Digimarc supports employee community engagement by providing volunteer time off. Our teams have volunteered with and contributed to a wide range of local organizations. Finally, Digimarc proudly partners with the Multiple Engineering Cooperative Program to provide real-world work experience to students at Oregon’s engineering universities. We also volunteer with ChickTech, a Portland, Oregon non-profit organization helping young girls discover an interest in science, technology, engineering and math.

More information on our commitment to sustainability and social responsibility can be found at *http://www.digimarc.com/about/company/our-commitment*. The content on any website referred to in this annual report is not incorporated by reference in this annual report unless expressly noted.

Customers and Business Partners

We generate revenue through commercial and government applications of our technology. We service three primary markets: Government, Retail and Media. Government includes the Central Banks and other government customers. Retail includes retailers, brands, their suppliers and related solution providers. Media includes media, entertainment, education, and other customers.

We derive our revenue primarily from software development services, subscriptions for products and related services, and licensing of our patents. During 2020, we generated the majority of our revenue from software development services under a long-term contract with the Central Banks and from subscriptions for our products and related services.

In 2020, revenue from government contracts accounted for 62% of our total revenue. The Central Banks accounted for substantially all revenue generated under our government contracts. Our contract with the Central Banks runs through December 2024, with a 5-year extension option.

Products and Services

We provide automatic identification solutions to commercial and government customers and license our technology and patented inventions to solution providers. Our largest government customer is the Central Banks, with whom we have been developing, deploying, supporting and enhancing a system to deter digital counterfeiting of currency using personal computers and digital reprographics for the last 20 years. We sell our products and related services to commercial customers for use in a wide range of applications providing for improved automatic identification of media. Examples of applications in the retail and consumer goods industry include:

Brand protection - Digimarc delivers sophisticated protection for physical products, packaging and digital images, providing a crucial – and comprehensive – layer that supports anti-counterfeiting strategies to ensure product integrity and preserve brand reputation.

Recycling - As governments and industry groups move toward circular economies for recycling and reusing plastics in consumer packaging, there is a critical need for accurate and reliable automatic identification methods for classifying and sorting various packaging materials during the recycling process. Digimarc can be used in processing environments, on items with and without printed labels, to facilitate more efficient sorting of plastic waste.

Retail operations - Digimarc helps retailers prioritize sustainability and efficiency throughout their operations, while supporting all store sizes and formats: convenience stores, apparel retailers, lawn and garden centers, large warehouse-format retailers and grocery retailers.

Traceability - Product traceability across the global supply chain is increasingly essential for consumer brands and food manufacturers to promote consumer safety, mitigate risk and gain real-time insight into product locations in warehouses and distribution centers. Digimarc for packaging supports these business needs with batch-lot and item-level traceability by applying serialized or custom identifiers and additional data, to product packaging.

In the publishing industry, we provide solutions that reduce piracy of e-publications, images and other materials. We also license our technology and inventions to providers of identification solutions to the media and entertainment industries. Many movie studios, record labels, broadcasters, creative professionals and other customers rely on our technology as a cost-effective means to:

- deter piracy and illegal use of movies, music and other media;
- protect entertainment content from copyright infringement;
- track and monitor entertainment content for rights usage and licensing compliance;
- monitor advertisements to verify ad placement and measure return on investment;
- enhance information access, search and provide marketing capabilities related to media content; and
- enable authorized use of content by consumers.

Technology and Intellectual Property

We seek patent protection for our inventions to differentiate our products and technologies, mitigate infringement risks, and develop opportunities for licensing. Our broad patent portfolio covers a wide range of methods, applications, system architectures and processes.

Our intellectual property contains many innovations in digital watermarking, content and object recognition, digital rights management and related fields. To protect our inventions, we have implemented an extensive intellectual property protection program that relies on a combination of patent, copyright, trademark and trade secret laws, and nondisclosure agreements and other contracts. As a result, we believe we have one of the world's most extensive patent portfolios in digital watermarking and related fields, with over 1,000 U.S. and foreign patents granted and applications pending as of December 31, 2020. The patents in our portfolio each have a life of approximately 20 years from the patent's effective filing date.

Our current patent licensees include, among others, AlpVision SA, Intellectual Ventures, Kantar SAS, NexGuard Labs B.V., Nielsen, OverDrive, Inc., Signum Technologies, Teletrax B.V., U-NICA Systems AG and Verance Corporation.

The market for patent licensing has become more challenging in recent years. As a result, we have shifted our focus from direct monetization through enforcement and licensing to facilitating progress toward the realization of our vision to enrich everyday living via pervasive, intuitive computing by:

- encouraging large scale adoption of our technologies by industry leaders;
- increasing the scale and rate of growth of our products and services business; and
- laying a foundation for continuous innovation.

For a discussion of activities and costs related to our research and development in the last two years, see "Research, development and engineering" under Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Markets

Our patented inventions are used in various media identification and management products and solutions supporting a variety of media objects, from movies and music to banknotes, secure credentials and consumer packaged goods. Each media object enabled by our inventions creates the potential for several applications, such as:

- retail point of sale transaction processing;
- track and trace of products within the supply chain;
- quality control in manufacturing processes;
- inventory management and planogram compliance;
- sorting of consumer packaged goods in recycling streams;
- counterfeiting and piracy deterrence;
- online e-publication piracy protection;
- content identification and media management;
- authentication and monitoring;
- linking to networks and providing access to information; and
- enhanced services in support of mobile commerce.

We believe the market for most of these applications is in the early stages of development and that existing solutions represent only a small portion of the potential market for our products, services and technology.

Competition

No single competitor or small number of competitors dominate our market. Our competitors vary depending on the application of our products and services. We generally compete with non-digital watermarking technologies for the security or marketing budgets of the producers and distributors of media objects, documents, products and advertising. These alternatives include, among other things, encryption-based security systems and technologies and solutions based on fingerprinting, pattern recognition, and traditional barcodes. Our competitive position in digital watermarking applications is strong because of our large, high-quality, sophisticated patent portfolio and our substantial and growing amount of intellectual property in related media security and management innovations that span basic technologies, applications, system designs and business processes. Our intellectual property portfolio allows us to use proprietary technologies that are well-regarded by our customers and partners, and not available to our competitors without a license. We compete based on the variety of features we offer and a traditional cost/benefit analysis against alternative technologies and solutions. We anticipate that our competitive position within some markets may be affected by factors such as reluctance to adopt new technologies and by changes in government regulations.

Backlog

Based on projected commitments we have for the periods under contract with our respective customers, we anticipate our current contracts as of December 31, 2020 will generate a minimum of $31 million in revenue, compared to $31 million as of December 31, 2019. We expect approximately $17 million of the $31 million to be recognized as revenue during 2021.

Some factors that lead to increased backlog include:

- contracts with new customers;
- renewals with current customers;
- add-on orders with customers; and
- contracts with longer contractual periods replacing contracts with shorter contractual periods.

Some factors that lead to decreased backlog include:

- recognition of revenue associated with existing backlog;
- contracts with shorter contractual periods replacing contracts with longer contractual periods;
- modifications to existing contracts;
- contract minimum payments ending; and
- expiration of contracts with existing customers.

The mix of these factors, among others, dictates whether our backlog increases or decreases for any given period. Our backlog may not result in actual revenue in any particular period, because the orders, awards and contracts included in our backlog may be subject to modification, cancellation or suspension. We may not realize revenue on certain contracts, orders or awards included in our backlog, or the timing of any realization may change.

Human Capital Resources and Management

Employees and Labor Relations

At December 31, 2020, we had 203 full-time employees, including 78 in sales, marketing, operations and customer support; 86 in research, development and engineering; and 39 in finance, administration, information technology, intellectual property and legal.

Our employees are not covered by any collective bargaining agreement, and we have never experienced a work stoppage. We believe that our relations with our employees are good. Voluntary employee turnover was 3.9% and 5.3% for the years ended December 31, 2020 and 2019, respectively.

Values

Culture is critically important to Digimarc's success. We incorporate our core values in daily interactions among colleagues, customers and vendors. Our core values include innovation, caring, loyalty, integrity, commitment, and knowledge. We invest in our highly-skilled workforce by seeking to create a diverse, inclusive and safe work environment where our employees can learn, innovate, and perform at their best.

To aid and support our employees during the coronavirus 2019 (“COVID-19”) pandemic, we implemented a work from home initiative for the majority of our staff. Essential on-site staff benefited from enhanced safety procedures and limited employees on-site. We provided assistance to help employees who work from home to improve their workspaces, and we increased flexibility in our paid leave programs to support employees caring for children and others.

Diversity and Inclusion

We strive to create an environment where innovative ideas can flourish by demonstrating respect for each other and valuing the diverse opinions, background and viewpoints of our employees. As a company committed to innovation and representing diversity in a myriad of ways, including race, ethnicity, age, background, perspectives, tenure, work style, and sexual orientation, we believe that diversity is a competitive asset. We believe that diversity in our teams leads to new ideas, helps us solve problems and allows us to better connect with our global customer base.

We have taken specific actions to foster inclusion and diversity into our culture. Learning resources have been implemented to support greater awareness and understanding of the behaviors expected from our employees.

Compensation and Benefits

Our compensation guiding principles are to structure compensation that is simple, aligned and balanced. We believe that these principles are strongly aligned with the strategic priorities of our business and our objective to deliver value for our shareholders. We are committed to fair pay and strive to be externally competitive while ensuring internal equity across our organization. We conduct pay equity assessments and compensation reviews, and when necessary, we take action to address areas of concern. Our total compensation package includes market-competitive pay, stock grants, healthcare and retirement benefits, paid time off and family leave and flexible work schedules.

We also implemented enhanced efforts to support our communities during COVID-19, including focused outreach and support through our community outreach matching program, which matches donations made by our employees to their charities of choice. Year-over-year, the program usage doubled as employees continue to support their communities.

Growth and Development

We invest resources to develop the talent needed to remain at the forefront of innovation. We have a performance management system to support continuous learning and development. Through our regular employee engagement surveys, employees can voice their perceptions of the Company and their work experience, including learning and development opportunities. We have strong participation in our surveys and engage our managers to respond to areas that employees have identified as needing improvement or low scores.

We support training and development programs for our employees through tuition reimbursement, online training programs such as LinkedIn Learning, conferences, seminars, on-the-job training, and skill certifications. We also encourage and foster onsite training programs and mentoring.

Health, Safety and Wellness

We are committed to a safe and drug-free workplace. We continually invest in programs designed to improve physical, mental, and social well-being. We provide access to a variety of innovative, flexible, and convenient health and wellness programs, which were increasingly critical this year for our essential workers who have worked on site since the start of the COVID-19 pandemic. Throughout our response to the COVID-19 pandemic, our priority has remained protecting the health and safety of our employees while preserving business continuity.

Available Information

We make available free of charge through our website at *http://www.digimarc.com/about/investors* our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, and amendments to these and other reports filed or furnished by us pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after we file these materials with the Securities and Exchange Commission (the “SEC”).

ITEM 1A: RISK FACTORS

Our business, financial condition, results of operations and cash flows may be affected by a number of factors. The following risk factors identify risks of which we are aware and that we consider to be material to our business. If any of the following risks and uncertainties develops into actual events, our business, financial condition, results of operations or cash flows could be materially adversely affected. In that case, the trading price of our common stock could decline.

RISKS RELATED TO OUR BUSINESS

(1) As a purveyor of disruptive technology, if our partners and potential customers defer or delay adopting and implementing our technology, or if competitors or other market participants successfully engage in campaigns to discredit our technology, our revenues will be negatively affected.

While the Company’s business in the Government and Media markets remains strong and predictable, our primary source of revenue growth—the Retail market—is subject to the market forces and adoption curves common to other disruptive technologies. The Retail market is in its early stages of development. Our revenue model anticipates annual subscriptions will be the primary source of our income. If widespread adoption of the Digimarc Platform in the Retail market takes longer than anticipated, we will continue to experience operating losses.

We expect companies marketing competing technologies to compete vigorously in the marketplace, and to seek to preserve their market share. To the extent these companies succeed in defending their market position, our ability to achieve profitable operations will be impeded.

With respect to anticipated sales growth and prospects for the Retail market, our three major avenues for revenue generation include direct sales, web sales, and partners. Our growing direct sales force is relatively new, with an average tenure of less than three years with the Company. The redesign of our website to facilitate web-based sales is evolving. Most of our partners are relatively new to our products. Thus, the anticipated sources of revenue growth for the Retail market is unproven. We are executing strategies intended to make each of these means of revenue generation more effective, but we provide no assurance that we will execute these strategies successfully.

(2) Our future growth will depend to a material extent on the successful advocacy of our technology by our partners to their members and customers, and implementation of our technology in solutions propagated by our partners and provided by third parties.

Our business has long relied on the success of business partners. Our continuing success is largely dependent on a new generation of business partners supporting the Digimarc Platform in the Retail market. We have entered into agreements with numerous partners to propagate and support the Digimarc Platform, including brand deployment and pre-media service providers and consumer packaging solutions companies, all of which offer Digimarc Barcode enhancement services to national and store brand owners and consumer products suppliers. We have also entered into agreements with numerous scanner manufacturers to enable their devices to read Digimarc Barcode as well as scale manufacturers to enable their devices to print Digimarc Barcode on thermal labels. Digimarc and GS1 US, the U.S. operation of the organization that maintains the global standards for barcodes, are collaborating to help the industries served by GS1 to make effective use of Digimarc Barcode. GS1 US educates, trains and provides access to services to their 300,000 member businesses. Among other things, Digimarc and GS1 US are working to improve product identification for retailers and consumers with brand-certified, accurate product information via Digimarc Barcodes. Digimarc has also entered into a similar collaboration with GS1 Germany. We provide no assurance that these collaborations will successfully generate revenue for our business.

If our partners are not successful in advocating and deploying our technology, we may not be able to achieve and sustain profitable operations. If other business partners who include our technology in their products or otherwise license our intellectual property for use in their products cease to do so, or we fail to successfully collaborate with third parties or to obtain other partners who will incorporate, embed, integrate or bundle our technology, or these partners are unsuccessful in their efforts, expanding deployment of our technology will be adversely affected. Consequently, our ability to increase revenue could be adversely affected and we may suffer other adverse effects to our business. In addition, if our technology does not perform according to market expectations, our future sales would suffer as customers seek and employ alternative technologies.

(3) If leading companies in the retail and consumer products industries or standard-setting bodies or institutions downplay, minimize or reject the use of our technology, our product deployment may be slowed and we may be unable to achieve profitable operations.

Many of our business endeavors, including the Digimarc Platform in the Retail market, can be impeded or frustrated by larger, more influential companies or by standard-setting bodies or institutions downplaying, minimizing or rejecting the value or use of our technology. A negative position by such companies, bodies or institutions could result in obstacles for us that we would be incapable of overcoming and may block or impede the adoption of our technology. In addition, potential customers may delay or reject initiatives that relate to deployment of our technology. Such developments would make the achievement of our business objectives in this market difficult or impossible.

(4) We are subject to risks encountered by companies developing and relying upon new technologies, products and services to achieve and sustain profitable operations.

Our business and prospects must be considered in light of the risks and uncertainties to which companies with new and rapidly evolving technology, products and services are exposed. These risks include the following:

- we may be unable to develop sources of new revenue or sustainable growth in revenue because our current and anticipated technologies, products and services may be inadequate or may be unable to attract or retain customers;
- intense competition from existing and new technologies and rapid technological change could adversely affect the market's acceptance of our existing and new products and services;
- we may be unable to develop and maintain new technologies upon which our existing and new products and services are dependent, which may cause our products and services to be less sustainable and competitive or which could make it harder for us to expand our revenue and business; and
- our licensees may not be able to successfully enter new markets or grow their businesses, limiting royalties paid to us.

Some key technologies and solutions of our patent or technology licensees are in the development stage. Consequently, products incorporating our technology and solutions are undergoing technological change and are in the early stages of introduction in the marketplace. Delays in the adoption of these products or adverse competitive developments may result in delays in the development of new revenue sources or the growth in our existing revenue streams. We may be required to incur unanticipated expenditures if product changes or improvements are required. Moreover, new industry standards might redefine the products that we or our licensees are able to sell, especially if these products are only in the prototype stage of development. If product changes or improvements are required, success in marketing these products by us or our licensees and achieving or sustaining profitability from these products could be delayed or halted.

(5) A significant portion of our current and potential future revenue is subject to commercial and government contracts and development of new markets that may involve unpredictable delays and other unexpected changes. Such volatility and uncertainty might limit our actual revenue in any given quarter or year.

We derive a significant portion of our revenue from contracts tied to development schedules or development of new markets, which could shift for months, quarters or years as the needs of our customers and the markets in which they participate change. Government agencies and commercial customers also face budget pressures that introduce added uncertainty. Any shift in development schedules, the markets in which we or our partners participate, or customer procurement processes, which are outside our control and may not be predictable, could result in delays in bookings/revenues forecasted for any particular period, could affect the predictability of our quarterly and annual results, and might limit our actual revenue recognized in any given quarter or year, resulting in reduced and less predictable revenue and adversely affecting profitability.

We are expanding into new markets, which involve inherent risk and unpredictability. With the proliferation of smartphones and increased consumer demands for product information, we have investigated other technologies that may provide attractive future opportunities. These generally include technologies that leverage our strength in signal processing and support our vision for intuitive, pervasive computing. As we seek to expand outside our areas of historical expertise, we lack the history and insight that benefited us in the digital watermarking field. Although we have extensive experience in the commercial application of digital watermarking, we are investing in but may not be as well-positioned in these other opportunities. Accordingly, it may be difficult for us to achieve success in other technologies we might pursue.

(6) A small number of customers account for a substantial portion of our revenue, and the loss of any large contract could materially disrupt our business.

Historically, we have derived a significant portion of our revenue from a limited number of customers. Five customers represented approximately 77% of our revenue for the year ended December 31, 2020. Most of our revenue comes from our contract with the Central Banks, which expires in 2024 with the possibility of a five-year extension. Other contracts we enter into may contain termination for convenience provisions. If we were to lose any such contract for any reason, or if our relationship with these customers or the Central Banks were materially modified, our financial results would be adversely affected.

We expect to continue to depend upon a small number of customers for a significant portion of our revenue for the foreseeable future. The loss of, or decline in, orders or backlog from one or more major customers could reduce our revenue and have a material adverse effect on our financial results.

(7) Consolidation of consumer product companies and/or retailers, or other concentration of market share among a few consumer products companies and/or retailers, may reduce the number of potential customers for our technology and put pressure on our pricing structure.

The consumer products and retailer markets in some geographic regions are dominated by a few large companies. These companies have in the past increased their market share and may continue to do so in the future by expanding through acquisitions. In the future, if significant acquisitions were to occur there may be fewer potential customers for our technology. Additionally, larger companies have strengthened purchasing power, which could force a decline in our pricing structure and decrease the margins we can realize.

(8) The market for our products is highly competitive, and alternative technologies or larger companies that compete with us may be more successful than us in gaining market share, which would decrease our revenue and profits.

The markets in which we compete for business are intensely competitive and rapidly evolving. We expect competition to continue from both existing competitors and new market entrants. We face competition from other companies and from alternative technologies, including some of our customers, partners, and licensees. We also may face competition from unexpected sources.

Alternative technologies that may directly or indirectly compete with particular applications of our watermarking technologies include:

- Traditional anti-counterfeiting technologies—a number of solutions used by many government agencies (that compete for budgetary outlays) designed to deter counterfeiting, including optically sensitive ink, magnetic threads and other materials used in the printing of currencies;
- Object and image recognition—one or several pre-specified or learned objects or object classes that can be recognized, usually together with their two-dimensional positions in the image or three-dimensional poses in the scene;
- Radio frequency tags—embedding a chip that emits a signal when in close proximity with a receiver, used in some photo identification credentials, labels and tags;
- Internet technologies—numerous existing and potential Internet access and search methods are competitive with Digimarc Discover;
- Digital fingerprints and signatures—a metric, or metrics, computed solely from a source image or audio or video track, that can be used to identify an image or track, or authenticate the image or track; and
- Barcodes or Quick Response codes—data-carrying codes, typically visible in nature (but may be invisible if printed in ultraviolet or infrared-responsive inks).

In the competitive environments in which we operate, product generation, development and marketing processes relating to technology are uncertain and complex, and require accurate prediction of demand as well as successful management of various risks inherent in technology development. In light of these uncertainties, it is possible that our failure to successfully accommodate future changes in technologies related to our technology could have a long-term negative effect on our growth and results of operations.

As we work to achieve market acceptance of our products and services, new developments are expected to continue, and discoveries by others, including current and potential competitors, could render our services and products uncompetitive. Moreover, because of rapid technological changes, we may be required to expend greater amounts of time and money than anticipated to develop new products and services, which in turn may require greater revenue streams from those products and services to cover developmental costs. Many of the companies that compete with us for some of our business, as well as other companies with whom we may compete in the future, are larger and may have stronger brand recognition and greater technical, financial, marketing and political resources than we do. These attributes could enable these companies to have more success in the market than we have, either by providing better products or better pricing than we can provide. We may be unable to compete successfully against current or future participants in our market or against alternative technologies, and the competitive pressures we face may have a materially adverse effect on our financial position, results of operations or cash flows.

(9) An increase in our operations outside of the U.S. subjects us to risks additional to those to which we are exposed in our domestic operations.

We believe that revenue from sales of products and services to commercial customers outside the U.S. could represent a growing percentage of our total revenue in the future. The Digimarc Platform is not bounded geographically, and we believe it will see global deployment. As such, certain contracts may be made and performed, in whole or in part, outside of the U.S. International operations are subject to a number of risks that can adversely affect our sales of products and services to customers outside of the U.S., or expose us to additional expense or liabilities, including the following:

- difficulties and costs of staffing, developing and managing foreign operations as a result of distance, language and cultural differences;
- the effect of laws governing our business, employee and contractor relationships, and the existence of workers' councils and labor unions in some jurisdictions;
- changes in foreign government regulations and security requirements;
- export license requirements, tariffs, retaliatory trade measures and domestic or foreign taxes;
- trade barriers;
- difficulty in protecting intellectual property;
- longer payment cycles than those for customers in the U.S.;

- difficulty in collecting accounts receivable;
- currency fluctuations; and
- political and economic uncertainty or instability.

We do not have an extensive operational infrastructure for international business. We generally depend on local or international business partners and subcontractors for performance of substantial portions of our business. If we fail to comply with the many international laws and regulations to which we may be subject, we may be subject to significant fines, penalties or liabilities for noncompliance. These factors may result in greater risk of performance problems or of reduced profitability with respect to our international programs in these markets. In addition, if foreign customers, in particular foreign government authorities, terminate or delay the implementation of our products and services, it may be difficult for us, or we may not be able, to recover our potential losses.

(10) We depend on our management and key employees for our future success. If we are not able to retain, hire or integrate these employees, we may not be able to meet our commitments.

Our success depends to a significant extent on the performance and continued service of our management and our intellectual property team. The loss of the services of any of these employees could limit our growth or undermine customer relationships.

Due to the high level of technical expertise that our industry requires, our ability to successfully develop, market, sell, license and support our products, services, and intellectual property depends to a significant degree upon the continued contributions of our key personnel in engineering, sales, marketing, operations, legal and licensing, many of whom would be difficult to replace. We believe our future success will depend in large part upon our ability to retain our current key employees and our ability to attract, integrate and retain new personnel in the future. It may not be practical for us to match the compensation some of our employees could be offered by other employers. In addition, we may encounter difficulties in hiring and retaining employees because of concerns related to our financial performance or operating results. These circumstances may have a negative effect on the market price of our common stock, and employees and prospective employees may factor in the uncertainties relating to our stability and the value of any equity-based incentives in their decisions regarding employment opportunities and decide to leave our employ or decline employment offers. Moreover, our business is based in large part on patented technology, that is a unique and sophisticated signal processing technology. New employees require substantial training, involving significant resources and management attention. Competition for experienced personnel in our business can be intense. If we do not succeed in attracting new, qualified personnel or in integrating, retaining and motivating our current personnel, our growth and ability to deliver products and services that our customers require may be hampered. Although our employees generally have executed agreements containing non-competition clauses, we do not assure you that a court would enforce all of the terms of these clauses or the agreements generally. If these clauses were not fully enforced, our employees could freely join our competitors. Although we generally attempt to control access to and distribution of our proprietary information by our employees, we do not assure you that the confidential nature of our proprietary information will be maintained in the course of such future employment. Any of these events could have a material adverse effect on our financial position, results of operations or cash flows.

(11) We may acquire or invest in other companies or technologies in the future, which could divert management's attention, result in additional dilution to our shareholders, increase expenses, disrupt our operations and harm our operating results.

We acquired Attributor Corporation in December 2012, and we may in the future acquire or invest in businesses, products or technologies that we believe could complement or expand our current product and service offerings, enhance our technical capabilities, expand our operations into new markets or otherwise offer growth opportunities. The pursuit of potential acquisitions or other strategic transactions may divert the attention of management and cause us to incur various expenses related to identifying, investigating and pursuing suitable acquisitions or strategic transactions, whether or not they are consummated.

There are inherent risks in integrating and managing acquisitions. We may not be able to assimilate or integrate the acquired personnel, operations and technologies successfully or effectively manage the combined business following an acquisition. We also may not achieve the anticipated benefits from an acquired business due to a number of factors, including:

- unanticipated costs or liabilities associated with the acquisition;
- incurrence of acquisition-related costs;

- inability to generate sufficient revenue to offset acquisition or investment costs;
- the inability to maintain relationships with customers and partners of the acquired business;
- the need to implement additional controls, procedures and policies;
- entry into geographic markets in which we have little or no prior experience, and challenges caused by distance, language and cultural differences;
- differences in foreign labor and employment laws, including classification of employees and contractors;
- disruption of our ongoing business;
- the potential loss of key employees; and
- use of substantial portions of our available cash to consummate the acquisition.

Acquisitions could also result in dilutive issuances of equity securities or the incurrence of debt, which could adversely affect our financial position. In addition, if an acquired business fails to meet our expectations, our operating results, business and financial condition may suffer.

(12) If our revenue models and pricing structures relating to products and services that are under development do not gain market acceptance, the products and services may fail to attract or retain customers and we may not be able to generate new revenue or sustain existing revenue.

Our revenues result from a combination of software development services, subscriptions for products and related services, and licensing of our patents. We have not fully developed our revenue models for some applications in the Retail market. Because some of our products and services are not yet well-established in the marketplace, and because some of these products and services will not directly displace existing solutions, we cannot be certain that the pricing structure for these products and services will gain market acceptance or be sustainable over time or that the marketing for these products and services will be effective.

(13) If we are unable to respond to regulatory or industry standards effectively, or if we are unable to develop and integrate new technologies effectively, our growth and the development of our products and services could be delayed or limited.

Our future success will depend in part on our ability to enhance and improve the responsiveness, functionality and features of our products and services, and those of our business partners, in accordance with regulatory or industry standards. Our ability to remain competitive will depend in part on our ability to influence and respond to emerging industry and governmental standards in a timely and cost-effective manner. If we are unable to influence these or other standards or respond to these standards effectively, our growth and the development of various products and services could be delayed or limited.

Our market is characterized by new and evolving technologies. The success of our business will depend on our ability to develop and integrate new technologies effectively and address the increasingly sophisticated technological needs of our customers in a timely and cost-effective manner. Our ability to compete in our markets will depend in part on our ability to:

- enhance and improve the responsiveness, functionality and other features of the products and services we offer or plan to offer;
- continue to develop our technical expertise; and
- develop and introduce new services, applications and technologies to meet changing customer needs and preferences and to integrate new technologies.

We do not assure you that we will be successful in responding to these technological and industry challenges in a timely and cost-effective manner. If we are unable to develop or integrate new technologies effectively or respond to these changing needs, our margins could decrease, and our release of new products and services and the deployment of our technology could be adversely affected.

(14) We may need to retain additional employees or contract labor in the future in order to take advantage of new business opportunities arising from increased demand, which could increase costs and impede our ability to achieve or sustain profitability in the short term.

We have staffed our company with the intent of accelerating our product development and sales growth initiatives while also focusing on achieving and sustaining profitability. Our current staffing levels could affect our ability to respond to increased demand for our services. In addition, to meet any increased demand and take advantage of new business opportunities in the future, we may need to increase our workforce through additional employees or contract labor. Although we believe that increasing our workforce would potentially support anticipated growth and profitability, it would increase our costs. If we experience such an increase in costs, we may not succeed in achieving or sustaining profitability in the short term.

(15) Products deploying our technology could have unknown defects or errors, which may give rise to claims against us, divert application of our resources from other purposes or increase our project implementation and support costs.

Products and services as complex as those we offer or develop may contain undetected defects or errors. Furthermore, we often provide complex implementation, integration, customization, consulting and other technical services in connection with the implementation and ongoing maintenance of our products. Despite testing, defects or errors in our products and services may occur, which could result in delays in the development and implementation of products and systems, inability to meet customer requirements or expectations in a timely manner, loss of revenue or market share, increased implementation and support costs, failure to achieve market acceptance, diversion of development resources, injury to our reputation, increased insurance costs, increased service and warranty costs and warranty or breach of contract claims. Although we attempt to reduce the risk of losses resulting from warranty or breach of contract claims through warranty disclaimers and liability limitation clauses in our sales agreements when we can, these contractual provisions are sometimes limited and may not be enforceable in every instance. If a court refuses to enforce the liability limiting provisions of our contracts for any reason, or if liabilities arise that were not contractually limited or adequately covered by insurance, the expense associated with defending these actions or paying the resultant claims could be significant.

(16) An unfavorable assessment of digital watermarking technology by members of the HolyGrail 2.0 initiative could discourage adoption of our technology for all product packaging applications.

In September 2020, AIM, the European Brands Association, in conjunction with over 85 companies and organizations including many of Europe's largest consumer brands companies, launched the HolyGrail 2.0 initiative. The purpose of the initiative is to assess whether digital watermarking technology can improve waste sorting and recycling rates for product packaging in the European Union. Digimarc is a technology provider for this ongoing assessment.

Due to the collective nature of the HolyGrail 2.0 initiative and the perceived desire for an industry-wide solution to the plastic pollution crisis, an unfavorable assessment of digital watermarking technology generally, or of Digimarc's digital watermarking technology particularly, could cause its members *en masse* to consider alternative technologies. This outcome could dissuade HolyGrail 2.0 members and others following its lead from adopting digital watermarking technology not only for sortation and recycling but also for other product packaging-related applications central to our business, such as faster checkout in retail and parts matching in manufacturing. This in turn could have a materially adverse effect on our ability to grow adoption of our technology within the consumer-packaged goods industry and related industries and increase revenue.

(17) The technological viability and economic attractiveness of competing technologies could cause the consumer-packaged goods industry and related industries to adopt a technology other than digital watermarking to support its waste sortation and recycling initiatives.

We have identified two technologies that could out-perform or be available on more economically favorable terms than Digimarc's digital watermarking technology for waste sortation and recycling: chemical tracers and artificial intelligence. Adoption of any of these technologies would require substantial changes to product design, manufacturing, and waste processing infrastructure and workflows, and necessitate cross-industry cooperation among consumer products companies, product manufacturers, waste sortation device manufacturers, and materials recovery facility operators. Therefore, we anticipate that the consumer-packaged goods industry is assessing these technologies' fitness for improving waste sortation and recycling rates on a winner-take-all basis.

Industry leaders in a position to influence the industry at large could determine that either chemical tracers or artificial intelligence represent a more technologically viable or economically attractive solution, including due to the greater number of potential suppliers, which in turn could increase pricing competition, and lower barriers to entry. Such a determination could result in the devaluation of digital watermarking technology's ability to support the product packaging lifecycle and negatively affect our revenue growth prospects.

(18) COVID-19 Pandemic

The emergence of the COVID-19 pandemic around the world, and particularly in the United States, presents significant risks to the Company, not all of which we are able to fully evaluate or foresee. Some of the effects that could directly or indirectly result from the COVID-19 pandemic include, without limitation, possible impacts on the health of the Company's management and employees, impairment of the Company's administrative, research, and development operations, disruption in supplier and customer relationships, changes in demand for our services and subscriptions, and the collectability of accounts receivables. Some of our projects with retail customers and partners have been delayed as a result of the COVID-19 pandemic, thereby potentially affecting our ability to fund our business through near-term revenue growth. The scope and nature of these impacts, most of which are beyond our control, continue to evolve and the outcomes remain uncertain.

These short-term effects may change over the long term depending on the duration and severity of the COVID-19 pandemic, the length of time before normal economic and operating conditions resume, the additional governmental actions that may be taken, the extensions of social restrictions that have been imposed to date, and many other factors that can vary materially by geography. Due to the above circumstances, the Company's results of operations for the year ended December 31, 2020 are not necessarily indicative of the results to be expected for subsequent years.

RISKS RELATED TO FINANCIAL REPORTING

(19) Changes to financial accounting standards may affect our results of operations and could cause us to change our business practices.

We prepare our consolidated financial statements to conform to generally accepted accounting principles in the United States. These accounting principles are subject to interpretation by the American Institute of Certified Public Accountants, the Securities and Exchange Commission and various bodies formed to interpret and create accounting rules and regulations. Changes in these rules, or guidance relating to interpretation and adoption of these rules, could have a significant effect on our financial results and could affect portions of our business differently.

(20) We were not profitable in 2020 or 2019 and may not be able to return to or sustain profitability in the future, particularly if we were to lose large contracts or fail in our new market development initiatives. Sustained lack of profitability could cause us to incur asset impairment charges for long-lived assets and/or record valuation allowance against our deferred tax assets.

We incurred net losses in 2020 and 2019 largely due to increased levels of investments in our business to support product development and sales growth initiatives.

Returning to and maintaining profitability in the future will depend upon a variety of factors, including our ability to maintain and obtain more significant partnerships like we have with the Central Banks, and to acquire new commercial customers. Profitability will also depend on our efficiency in executing our business strategy and capitalizing on new opportunities. Various adverse developments, including the loss of large contracts or cost overruns on our existing contracts, could adversely affect our revenue, margins and profitability.

If we continue to incur operating losses, an impairment to the carrying value of our long-lived assets, including goodwill, acquired intangible assets, patent assets and property and equipment could result. We test for impairment of our long-lived assets when a triggering event occurs that would indicate that the carrying value may not be recoverable. Our methodology for assessing impairment may require management to make judgments and assumptions regarding future cash flows. Our projections of future cash flows are largely based on historical experience, and these projections may not be achieved. Changes to these financial projections used in our impairment analysis could lead to an impairment of all or a portion of our long-lived assets. Any such impairment charge could adversely affect our results of operations and our stock price. We evaluated our long-lived assets for impairment as of December 31, 2020 and 2019 and concluded there was no impairment for either period. We cannot guarantee, however, that our long-lived assets will not become impaired in the future.

We record valuation allowances on our deferred tax assets if, based on available evidence, it is more-likely-than-not that all or some portion of the assets will not be realized. The determination of whether our deferred tax assets are realizable requires management to identify and weigh all available positive and negative evidence. Management considers recent financial performance, projected future taxable income, scheduled reversals of deferred tax liabilities, tax planning strategies and other evidence in assessing the realizability of our deferred tax assets. Adjustments to our deferred tax assets could adversely affect our results of operations and our stock price. In 2014, we recorded a full valuation allowance against our deferred tax assets largely due to the cumulative loss we had incurred over the previous three years, which is considered a significant piece of negative evidence in assessing the realizability of deferred tax assets. As of December 31, 2020 and 2019, we determined a full valuation allowance was still appropriate given continued losses. We will not record tax benefits on any future losses until it is determined that those tax benefits will be realized.

(21) We may be adversely affected by variability of contracted arrangements.

We periodically agree to modify the terms of contractual arrangements with our customers, partners and licensees in response to changes in circumstances underlying the original contractual arrangements, and it is likely that we will do so in the future. As a result of this practice, the terms of our contractual arrangements with our customers, partners and licensees may vary over time and, depending on the particular modification, could have a material adverse effect on our financial position, results of operations or cash flows.

Some of our customers and licensees report royalties to us based on their revenue and their interpretation and allocation of contracted royalty obligations. It is possible that we may not agree with the judgments of our customers on such matters, and such disagreement may lead to potential disputes and reduced revenue to us. These disputes could result in a distraction to our management and may not result in increased revenues to us but may nevertheless result in friction between us and our customers, and potentially the loss of customers, which may ultimately be harmful to our business.

(22) Paycheck Protection Program Note

On April 16, 2020, we entered into a Promissory Note with Stearns Bank, N.A. in an aggregate principal amount of $5.0 million (the “Note”) pursuant to the Paycheck Protection Program (“PPP”), under the Coronavirus Aid, Relief, and Economic Security Act. On April 23, 2020, the Small Business Administration (“SBA”) issued new guidance that questioned whether a public company with substantial market value and access to capital markets would qualify to participate in the PPP. Subsequently, on April 28, 2020 the Secretary of the Treasury and Small Business Administrator announced that the government will review all PPP loans of more than $2 million for which the borrower applies for forgiveness. Should we be audited or reviewed by the U.S. Department of the Treasury or SBA as a result of filing an application for forgiveness or otherwise, such audit or review could result in the diversion of management’s time and attention and legal and reputational costs. If we were to be audited and receive an adverse finding in such audit, we could be required to return the full amount of the Note, which could reduce our liquidity and potentially subject us to fines and penalties.

On June 29, 2020, we were notified by Stearns Bank, N.A. that the Note was transferred to The Loan Source, Inc., (the “Lender”) who will be responsible for servicing the Note going forward, including administering loan forgiveness.

On September 15, 2020, we filed our application for 100% forgiveness of the Note. Our application was reviewed by the Lender and submitted to the SBA for approval on December 17, 2020. The SBA will, subject to any review of our loan or application, remit payment of the appropriate forgiveness amount to the Lender within 90 days following the date the Lender submitted its decision to the SBA. If the SBA reviews our loan or application, then it may take longer than 90 days for any determination to be made as to whether the Note will be forgiven in whole, in part or at all.

RISKS RELATED TO INTELLECTUAL PROPERTY AND LEGAL

(23) (a) We may not be able to adequately secure patent or other protection for our technologies.

Our business depends in part on securing protection for our proprietary technology and successfully licensing our technology to third parties. To protect our intellectual property portfolio, we rely on a combination of patent, copyright, trademark and trade secret rights, confidentiality procedures and licensing arrangements. Although we regularly apply for patents to protect our intellectual property, there is no guarantee that we will secure patent protection for any particular technology we develop.

Changes in the U.S. and foreign patent laws, or in the interpretation of existing laws, may adversely affect our ability to secure or enforce patents. For example, the U.S. Supreme Court issued a decision in 2014 limiting patent eligibility of computer implemented inventions. The Leahy-Smith America Invents Act of 2011 (the "America Invents Act") also codifies several changes to the U.S. patent laws, including the creation of a post-grant *inter partes* review process to challenge patents after they have issued. The America Invents Act allows third parties to petition the U.S. Patent and Trademark Office or comparable government authorities in other jurisdictions to review and reconsider the patentability of any of our inventions claimed in our issued patents. Any such proceeding may result in one or more of our patent claims becoming limited, or being invalidated altogether. Additionally, certain foreign jurisdictions may not recognize or enforce our patents in those jurisdictions. A limitation or invalidation of our patent claims could adversely affect our financial position and our operating results.

Patents have finite lives, and our ability to continue to commercially exploit our patents is limited to the term of the patents. Our earliest patents began expiring in July 2012, and the patents in our portfolio expire at various times between 2021 and 2039. The size and strength of our portfolio depends on the number of patents that have been granted, offset by the number of patents that expire, in any given year. We continue to develop our patent portfolio, but we do not assure you that we will be able to exploit newer patents to the extent that we have exploited our earlier patents.

As part of our confidentiality procedures, we generally enter into non-disclosure agreements with our employees, directors, consultants and corporate partners, and attempt to control access to and distribution of our technology, solutions, documentation and other proprietary information. Despite these procedures, third parties could copy or otherwise obtain and make unauthorized use of our technology, solutions or other proprietary information or independently develop similar technologies, solutions or information. The steps that we have taken to prevent misappropriation of our solutions, technology or other proprietary information may not succeed.

We do not assure you that the protection of our proprietary rights will be adequate or that our competitors will not independently develop similar technologies, duplicate our services or design around any of our patents or other intellectual property rights.

(b) We may not be successful in enforcing our intellectual property rights against third parties.

Unlicensed copying and use of our intellectual property or infringement of our intellectual property rights may result in the loss of revenue to us and cause us other harm. If we encounter a company that we believe is infringing our intellectual property rights, we may try to negotiate a license arrangement with such party. If we try and are unable to negotiate a license or secure the agreement of such alleged infringing party to cease its activities, we must make decisions as to how best to enforce our intellectual property rights, which may result in additional costs.

The process of negotiating a license with a third party can be lengthy, and may take months or even years in some circumstances. It is possible that third parties who we believe are infringing our intellectual property rights are unwilling to license our intellectual property from us on terms we can accept, or at all.

If we cannot persuade a third party who we believe is infringing our technology to enter into a license with us, we may be required to consider other alternatives to enforce our rights, including commencing litigation. The decision to commence litigation over infringement of a patent is complex and may lead to several risks to us, including the following, among others:

- the time, significant expense and distraction to management of managing such litigation;
- the uncertainty of litigation and its potential outcomes;
- the possibility that in the course of such litigation, the defendant may challenge the validity of our patents, which could result in a re-examination or post grant review of our patents and the possibility that the claims in our patents may be limited in scope or invalidated altogether;
- the potential that the defendant may successfully persuade a court that their technology or products do not infringe our intellectual property rights;
- the impact of such litigation on other licensing relationships we have or seek to establish, including the timing of renewing or entering into such relationships, as applicable, as well as the terms of such relationships; and
- adverse publicity to us or harm to relationships we have with customers or others.

Also, enforcement of patent protection throughout the world is generally established on a country-by-country basis and we may not be able to enforce our patents in foreign jurisdictions.

If we fail to protect our intellectual property rights adequately, if there are adverse changes in applicable laws, or if we become involved in litigation relating to our intellectual property rights or the intellectual property rights of others, our business could be seriously harmed. In such cases, the value ascribed to our intellectual property could diminish, we may incur significant legal expenses that could harm our results of operations and our patents or other intellectual property rights may be limited or invalidated. Any of the foregoing could have a negative effect on the value of our common stock.

(c) We may be subject to infringement claims and other litigation, which could adversely affect our business.

As more companies engage in business activities relating to digital watermarking, and develop corresponding intellectual property rights, it is increasingly likely that claims may arise which assert that some of our products or services infringe upon other parties' intellectual property rights. These claims could subject us to costly litigation and divert management resources. These claims may require us to pay significant damages, cease production of infringing products, terminate our use of infringing technology or develop non-infringing technologies. In these circumstances, continued use of our technology may require that we acquire licenses to the intellectual property that is the subject of the alleged infringement, and we might not be able to obtain these licenses on commercially reasonable terms or at all. Our use of protected technology may result in liability that threatens our continuing operation.

Some of our contracts include indemnity and similar provisions regarding our non-infringement of third-party intellectual property rights. As deployment of our technology increases, and more companies enter our markets, the likelihood of a third party lawsuit resulting from these provisions increases. If an infringement arose in a context governed by such a contract, we may have to refund to our customer amounts already paid to us or pay significant damages, or we may be sued by the party whose intellectual property has allegedly been infringed upon.

(24) We are periodically involved in the ordinary course of business in litigation, and an adverse resolution of such litigation may adversely affect our business, financial condition, results of operations, and cash flows.

From time to time, in our normal course of business, we are a party to various legal claims, actions and complaints. For example, as part of our patent licensing program, we may bring claims or counterclaims of patent infringement to enforce our patent rights. Given the uncertain nature of litigation, we are not able to estimate the amount or range of gain or loss that could result from an outcome of litigation. Litigation can be expensive, lengthy, and disruptive to normal business operations. The results of complex legal proceedings are often uncertain and difficult to predict. We could incur costs in excess of any established accruals and, to the extent available, excess liability insurance. An unfavorable outcome in any legal proceedings could have a material adverse effect on our business, financial condition, results of operations, and cash flows.

(25) The terms and conditions of our contracts could subject us to damages, losses and other expenses if we fail to meet delivery and other performance requirements.

Our service contracts typically include provisions imposing:

- development, delivery and installation schedules;
- customer acceptance and testing requirements; and
- other performance requirements.

To the extent these provisions involve performance over extended periods of time, risks of noncompliance may increase. From time to time we have experienced delays in system implementation, timely acceptance of programs, concerns regarding program performance and other contractual disputes. If we fail to meet contractual performance requirements as promised, or to successfully resolve customer disputes, we could incur liability for damages, as well as increased costs, lower margins, or compensatory obligations in addition to other losses, such as harm to our reputation. Any unexpected increases in costs to meet our contractual obligations or any other requirements necessary to address claims and damages with regard to our customer contracts could have a material adverse effect on our business and financial results.

RISKS RELATED TO INFORMATION SECURITY

(26) The security systems used in our business and our product and service offerings may be circumvented or sabotaged by third parties, which could result in the disclosure of sensitive information or private personal information or cause other business interruptions that could damage our reputation and disrupt our business.

Our business relies on computers and other information technologies, both internal and external. The protective measures that we use may not prevent all security breaches, and failure to prevent security breaches may disrupt our business, damage our reputation, and expose us to litigation and liability. A party who is able to circumvent security measures could misappropriate sensitive or proprietary information or materials or cause interruptions or otherwise damage our products, services and reputation, and the property of our customers. If unintended parties obtain sensitive data and information, or create bugs or viruses or otherwise sabotage the functionality of our systems, we may receive negative publicity, incur liability to our customers or lose the confidence of our customers, any of which may cause the termination or modification of our contracts. Further, our insurance coverage may be insufficient to cover losses and liabilities that may result from these events.

In addition, we may be required to expend significant capital and other resources to protect ourselves against the threat of security breaches or to alleviate problems caused by these breaches. Any protection or remedial measures may not be available at a reasonable price or at all, or may not be entirely effective if commenced.

(27) We may experience outages and disruptions of our infrastructure that may harm our business, prospects, financial condition and results of operations.

We may be subject to outages or disruptions of our infrastructure, including information technology system failures and network disruptions. Substantially all of our owned computer and communications hardware is located at a single facility. We also use third-party cloud service providers, which are also susceptible to outages and disruptions. System redundancy may be ineffective or inadequate, and our disaster recovery planning may not be sufficient for all eventualities.

If a natural disaster, cyber incident, weather event, power disruption, telecommunications failure, act of terrorism or other event occurred that prevented us from using all or a significant portion of our facility and/or damaged critical infrastructure, it could harm our ability to conduct normal business operations.

(28) Data breaches and cyber-attacks or cyber-fraud could compromise our intellectual property or other sensitive information or result in losses.

We maintain sensitive data on our networks and the networks of our business partners and third-party providers, including proprietary and confidential information relating to our intellectual property, personnel, and business, and that of our customers and third-party providers. We believe that companies have been increasingly subject to a wide variety of security incidents, cyber-attacks, hacking, phishing, and other attempts to gain unauthorized access or engage in fraudulent behavior. Our policies and security measures cannot guarantee security, and our information technology infrastructure, including our networks and systems, may be vulnerable to data breaches, cyber-attacks or fraud. Third parties may attempt to penetrate and/or infect our network and systems with malicious software and phishing attacks in an effort to gain access to our network and systems. We may be subject to the risk of third parties falsifying invoices and similar fraud, frequently by obtaining unauthorized access to our vendors' and business partners' networks.

In some circumstances, we may partner with third-party providers and provide them with certain sensitive data. If these third parties fail to adopt or adhere to adequate data security practices, or in the event of a breach of their networks, this sensitive data may be improperly accessed, used or disclosed. These data breaches and any unauthorized access or disclosure of sensitive data could compromise our intellectual property, expose sensitive business information and subject us to liability.

The increase in cyber-attacks has resulted in an increased focus on cybersecurity by various government agencies. Cyber-attacks or any investigation or enforcement action related to cybersecurity could cause us to incur significant remediation costs, disrupt key business operations, and divert attention of management and key information technology resources. We may incur losses as a result of cyber-fraud, such as those experienced by companies making unauthorized payments, irrespective of robust internal controls. Our reputation, brand, and business could be harmed, and we could be subject to third-party claims in the event of such a security breach.

RISKS RELATED TO OUR CAPITAL STOCK

(29) Our common stock price may be volatile, and you could lose all or part of your investment in shares of our common stock.

The price of shares of our common stock may fluctuate as a result of changes in our operating performance or prospects and other factors. Some specific factors that may have a significant effect on the price of shares of our common stock include:

- the public's reaction to our public disclosures;
- actual or anticipated changes in our operating results or future prospects;
- potential unfavorable changes from originally reported royalties by customers resulting from an audit performed by us or a third party, or self-corrected by the customer;
- strategic actions by us or our competitors, such as acquisitions or restructurings;
- impact of acquisitions on our liquidity and financial performance;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidance, interpretations or principles applicable to us;
- conditions of the industry as a result of changes in financial markets or general economic or political conditions;
- the failure of securities analysts to cover our common stock in the future, or changes in financial estimates by analysts;
- changes in analyst recommendations or earnings estimates regarding us, other comparable companies or the industry generally, and our ability to meet those estimates;
- changes in the amount of dividends paid, if any;
- changes in our financing strategy or capital structure;
- future issuances of our common stock or the perception that future sales could occur; and
- volatility in the equity securities market.

(30) Our common stock price may increase or decrease on material news or developments.

As a thinly-traded Small Cap company, volatility in the equity securities market may disproportionately cause swings in our stock price, upward and downward, on positive and negative developments or based on market fluctuations. We believe that computerized trading exacerbates fluctuations in our stock price.

(31) Our corporate governance documents and Oregon law may delay or prevent an acquisition of us that shareholders may consider favorable, which could decrease the value of your shares.

Our articles of incorporation, bylaws and Oregon law contain provisions that could make it more difficult for a third party to acquire us without the consent of our Board of Directors. These provisions include supermajority voting requirements for shareholders to amend our organizational documents and limitations on actions by our shareholders by written consent. In addition, our Board of Directors has the right to issue preferred stock without shareholder approval, which could be used to dilute the stock ownership of a potential hostile acquirer. Oregon law restricts the ability to vote shares of stock acquired in a transaction that causes the acquiring person to control at least one-fifth, one-third or one-half of the votes entitled to be cast in the election of directors (a "control share acquisition"). Shares acquired in a control share acquisition have no voting rights except as authorized by a vote of the shareholders. Although we believe these provisions protect our shareholders from coercive or otherwise unfair takeover tactics and thereby provide for an opportunity to receive a higher bid by requiring potential acquirers to negotiate with our Board of Directors, these provisions apply even if the offer may be considered beneficial by some shareholders.

ITEM 1B: UNRESOLVED STAFF COMMENTS

None.

ITEM 2: PROPERTIES

We lease our principal administrative, marketing, research, and intellectual property development facility, which is approximately 47,000 square feet in size and located in Beaverton, Oregon. In July 2015, we entered into an amendment with the landlord of our corporate offices in Beaverton, Oregon to extend the lease term through March 2024 for rent payments totaling $5.5 million, payable in monthly installments.

We had leased office space in San Mateo, California, until March 31, 2020, when the lease expired.

We believe that our existing facilities are suitable and adequate for our current and foreseeable future needs. See Note 8 of our Notes to Consolidated Financial Statements for further lease-related disclosures.

ITEM 3: LEGAL PROCEEDINGS

We are subject from time to time to legal proceedings and claims arising in the ordinary course of business. At this time, we do not believe that the resolution of any such matters will have a material adverse effect on our financial position, results of operations or cash flows.

ITEM 4: MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5: MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock began trading on the Nasdaq Stock Market LLC in October 2008 under the symbol "DMRC."

At February 19, 2021, we had 261 shareholders of record of our common stock, as shown in the records of our transfer agent. Since many holders hold shares in "street name," we believe that there is a significantly larger number of beneficial owners of our common stock than the number of record holders.

We withhold (purchase) shares of common stock in connection with stock option exercises and the vesting of restricted shares to satisfy required tax withholding obligations.

The following table sets forth information regarding purchases of our equity securities during the three-month period ended December 31, 2020:

Period	(a) Total number of shares purchased (1)	(b) Average price paid per share (1)	(c) Total number of shares purchased as part of publicly announced plans or programs	(d) Approximate dollar value of shares that may yet be purchased under the plans or programs
Month 1				
October 1, 2020 to October 31, 2020	—	$ —	—	$ —
Month 2				
November 1, 2020 to November 30, 2020	18,841	$ 33.77	—	$ —
Month 3				
December 1, 2020 to December 31, 2020	29,723	$ 52.37	—	$ —
Total	48,564	$ 45.15	—	$ —

(1) Stock option shares and fully vested shares of common stock withheld (purchased) by us in satisfaction of required withholding tax liability upon stock option exercise and vesting of restricted stock, respectively.

ITEM 7: MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following Management's Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements relating to future events or the future financial performance of Digimarc, which involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements. Please see the discussion regarding forward-looking statements included at the end of this discussion, under the caption "Forward-Looking Statements," and Item 1A, "Risk Factors" for a discussion of some of the uncertainties, risks and assumptions associated with these statements.

The following discussion should be read in conjunction with our consolidated financial statements and the related notes and other financial information appearing elsewhere in this Annual Report on Form 10-K.

All dollar amounts are in thousands except per share amounts or unless otherwise noted. The percentages within the tables included in this section may not sum to 100% due to rounding.

Overview

Digimarc Corporation, an Oregon corporation incorporated in 2008, is the inventor of a platform that enables a more efficient, reliable and economical means of automatic identification. The Digimarc Platform can apply a unique identifier to virtually all media objects—including product packaging, commercial print, audio and video—that can be automatically identified by an enabled ecosystem of industrial scanners, smartphones and other interfaces. These capabilities allow Digimarc and its partners to supply a wide range of solutions for retail and supply chain operations, consumer engagement, media management and security.

The Digimarc Platform features three core capabilities for the identification, discovery and quality management of media. Digimarc Barcode integrates the identification function, which is a novel data carrier encoded into media in ways that are generally imperceptible to people, permitting the carrier to be repeated many times over the surface of the enhanced media. Digimarc Discover represents the discovery function, which is software for computing devices and network interfaces that recognize and decode indicia of the identity of media. These include, but are not limited to, Digimarc Barcodes, Quick Response Codes, Universal Product Codes, certain other Global Standards One ("GS1") approved one-dimensional codes and relevant contextual data. Digimarc Verify incorporates the quality management function, a suite of software tools used to inspect and verify that the identification and discovery of media are both accurate and effective. Together, these core capabilities enable organizations, application developers, and other solution providers to build new and improve existing automatic identification solutions.

Our growth strategy focuses on increasing the adoption of the Digimarc Platform across the three markets we serve: Government, Retail and Media. Government includes the consortium of Central Banks and other government customers. Retail includes retailers, brands, their suppliers and related solution providers. Media includes media, entertainment, education, and other customers.

We plan to continue investing in research and development and sales and marketing to develop and market our platform and to continue to expand our intellectual property portfolio. To protect our significant efforts in creating our technology, we have implemented an extensive intellectual property protection program that relies on a combination of patent, copyright, trademark and trade secret laws, and nondisclosure agreements and other contracts. As a result, we believe we have one of the world's most extensive patent portfolios in digital watermarking and related fields, with over 1,000 U.S. and foreign patents granted and applications pending as of December 31, 2020. We continue to develop and broaden our portfolio of patented technology in the fields of media identification and management technology and related applications and systems. We devote significant resources to developing and protecting our inventions and continuously seek to identify and evaluate potential licensees for our patents.

COVID-19 Pandemic

The COVID-19 pandemic posed significant risks to our business. The ongoing public health actions attempting to reduce the spread of COVID-19 created and may continue to create significant disruptions to consumer demand, customer and supplier relationships, sales and support processes, and general economic conditions. Accordingly, our management continuously evaluates our business operations, communicates with and monitors the actions of our customers and partners, and reviews our near-term financial performance as we manage the Company through the uncertainty related to the COVID-19 pandemic. Some of our projects with retail customers and partners have been delayed as a result of the COVID-19 pandemic. Delays in these projects have affected the timing of closing new business. To help ensure adequate liquidity during this period and in light of uncertainties posed by the COVID-19 pandemic, we received a loan on April 16, 2020 under PPP. On September 15, 2020, we filed our application for 100% forgiveness of the loan. Our application was reviewed by the Lender and submitted to the Small Business Administration ("SBA") for approval on December 17, 2020. The SBA will, subject to any review of our loan or application, remit payment of the appropriate forgiveness amount to the Lender within 90 days following the date the Lender submitted its decision to the SBA. If the SBA reviews our loan or application, then it may take longer than 90 days for any determination to be made as to whether the Note will be forgiven in whole, in part or at all.

Critical Accounting Policies and Estimates

The preparation of financial statements in accordance with accounting principles generally accepted in the U.S. ("U.S. GAAP") requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate our estimates, including those related to bad debts, contingencies, goodwill, income taxes, intangible assets, marketable securities, property and equipment and revenue recognition. We base our estimates on historical experience and on other assumptions we believe to be reasonable in the circumstances. Actual results may differ from these estimates under different assumptions or conditions.

Some of our accounting policies require higher degrees of judgment than others in their application. We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our consolidated financial statements.

Revenue recognition:

Revenue is recognized in accordance with ASC 606 by applying the following steps:

Step 1: Identify the contract(s) with a customer.

Step 2: Identify the performance obligation(s) in the contract.

Step 3: Determine the transaction price.

Step 4: Allocate the transaction price to the performance obligation(s) in the contract.

Step 5: Recognize when (or as) the entity satisfies the performance obligation(s).

We derive our revenue primarily from software development services and software subscriptions. Applicable revenue recognition criteria are considered separately for each performance obligation as follows:

- Service revenue consists primarily of revenue earned from the performance of software development services. The majority of service contracts are structured as time and materials agreements. Revenue for services is generally recognized as the services are performed. Billing for services rendered generally occurs within one month after the services are provided.
- Subscription revenue consists primarily of revenue earned from the sale of software products and to a lesser extent the licensing of intellectual property. The majority of subscription contracts are recurring, paid in advance and recognized over the term of the subscription, which is typically one to three years.

Customer arrangements may contain multiple performance obligations such as software development services, software products, and maintenance and support fees. We account for individual products and services separately if they are distinct. To determine the transaction price, we consider the terms of the contract and our customary business practices. Some contracts may contain variable consideration. In those cases, we estimate the amount of variable consideration based on the sum of probability-weighted amounts in a range of possible consideration amounts. As part of this assessment, we will evaluate whether any of the variable consideration is constrained and if it is, we will not include it in the transaction price. The consideration is allocated between distinct products and services based on their stand-alone selling prices. For items that are not sold separately, we estimate the standalone selling price based on reasonably available information, including market conditions, specific factors affecting us, and information about the customer. For distinct products and services, we typically recognize the revenue associated with these performance obligations as they are delivered to the customer. Products and services that are not capable of being distinct are combined with other products or services until a distinct performance obligation is identified.

All revenue recognized in the Consolidated Statements of Operations is considered to be revenue from contracts with customers.

Results of Operations—the Years Ended December 31, 2020 and December 31, 2019

The following tables present our consolidated statements of operations data for the periods indicated.

	Year Ended December 31, 2020	Year Ended December 31, 2019
Revenue:		
Service	$ 13,881	$ 13,249
Subscription	10,109	9,738
Total revenue	23,990	22,987
Cost of revenue:		
Service	5,827	6,013
Subscription	2,107	2,023
Total cost of revenue	7,934	8,036
Gross profit	16,056	14,951
Operating expenses:		
Sales and marketing	18,845	19,875
Research, development and engineering	17,314	16,467
General and administrative	12,710	12,340
Total operating expenses	48,869	48,682
Operating loss	(32,813)	(33,731)
Other income, net	277	912
Loss before income taxes	(32,536)	(32,819)
Provision for income taxes	(1)	(21)
Net loss	$ (32,537)	$ (32,840)

	Year Ended December 31, 2020	Year Ended December 31, 2019
Percentages are percent of total revenue		
Revenue:		
Service	58%	58%
Subscription	42	42
Total revenue	100	100
Cost of revenue:		
Service	24	26
Subscription	9	9
Total cost of revenue	33	35
Gross profit	67	65
Operating expenses:		
Sales and marketing	79	86
Research, development and engineering	72	72
General and administrative	53	54
Total operating expenses	204	212
Operating loss	(137)	(147)
Other income, net	1	4
Loss before income taxes	(136)	(143)
Provision for income taxes	(0)	(0)
Net loss	(136%)	(143%)

Summary

Total revenue increased $1.0 million, or 4%, to $24.0 million, primarily as a result of growth both in service and subscription revenue from both Government and Retail customers.

Total operating expenses increased $0.2 million, or less than 1%, to $48.9 million, primarily as a result of routine annual compensation adjustments for our employees and $0.8 million of cash and stock-based severance costs related to our restructuring plan implemented in July 2020, partially offset by lower travel and consulting costs.

Revenue

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Revenue:				
Service	$ 13,881	$ 13,249	$ 632	5%
Subscription	10,109	9,738	371	4%
Total	$ 23,990	$ 22,987	$ 1,003	4%
Revenue (as % of total revenue):				
Service	58%	58%		
Subscription	42%	42%		
Total	100%	100%		

Service. Service revenue consists primarily of revenue earned from the performance of software development services. The majority of service contracts are structured as time and materials agreements. Revenue for services is generally recognized as the services are performed. Billing for services rendered generally occurs within one month after the services are provided. Service contracts can range from days to several years in length. Our contract with the Central Banks, which accounts for the majority of service revenue, has a contract term through December 31, 2024, with the option to extend the term for an additional five years by mutual agreement. The contract is subject to work plans that are reviewed and agreed upon quarterly. The contract provides for predetermined billing rates, which are adjusted annually to account for cost of living variables, and provides for the reimbursement of third party costs incurred to support the work plans.

The increase in service revenue was primarily due to growth in service revenue from Government and Retail customers.

Subscription. Subscription revenue consists primarily of revenue earned from the sale of software products and, to a lesser extent, the licensing of intellectual property. The majority of subscription contracts are recurring, paid in advance and recognized over the term of the subscription, which is typically one to three years.

The increase in subscription revenue was primarily due to growth in software subscriptions to Retail and Government customers, partially offset by the revenue impact of a renegotiated contract with a Retail supplier partner in the first quarter of 2020.

Revenue by geography

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Revenue by geography:				
Domestic	$ 7,419	$ 7,187	$ 232	3%
International	16,571	15,800	771	5%
Total	$ 23,990	$ 22,987	$ 1,003	4%
Revenue (as % of total revenue):				
Domestic	31%	31%		
International	69%	69%		
Total	100%	100%		

The increase in domestic revenue was primarily due to growth in revenue from our domestic Government and Retail customers.

The increase in international revenue was primarily due to growth in revenue from an international Government customer.

Revenue by market

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Government:				
Service	$ 13,263	$ 12,793	$ 470	4%
Subscription	$ 1,683	$ 1,518	165	11%
Total Government	$ 14,946	$ 14,311	$ 635	4%
Retail:				
Service	$ 618	$ 456	$ 162	36%
Subscription	$ 4,942	$ 4,802	140	3%
Total Retail	$ 5,560	$ 5,258	$ 302	6%
Media:				
Service	$ —	$ —	$ —	—%
Subscription	$ 3,484	$ 3,418	66	2%
Total Media	$ 3,484	$ 3,418	$ 66	2%
Total	$ 23,990	$ 22,987	$ 1,003	4%

The increase in Government revenue was primarily due to growth in revenue from the Central Banks.

The increase in Retail revenue was primarily due to the impact of new contracts entered into with Retail customers partially offset by the revenue impact of a renegotiated contract with a Retail supplier partner in the first quarter of 2020.

The increase in Media revenue was not significant.

Cost of revenue

Service. Cost of service revenue primarily includes:

- compensation, benefits, incentive compensation in the form of stock-based compensation and related costs of our software developers, quality assurance personnel, design professionals, product managers, business development managers and other personnel where we bill our customers for time and materials costs;
- payments to outside contractors that are billed to customers;
- charges for equipment directly used by customers;
- depreciation for machinery, equipment and software directly used by customers; and
- travel costs that are billed to customers.

Subscription. Cost of subscription revenue primarily includes:

- cost of outside contractors that provide operational support for our subscription products;
- Internet service provider connectivity charges and image search data fees to support our subscription products; and
- Amortization of capitalized patent costs and patent maintenance fees.

Gross profit

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Gross Profit:				
Service	$ 8,054	$ 7,236	$ 818	11%
Subscription	8,002	7,715	287	4%
Total	$ 16,056	$ 14,951	$ 1,105	7%
Gross Profit (as % of related revenue):				
Service	58%	55%		
Subscription	79%	79%		
Total	67%	65%		

The increase in total gross profit was primarily due to higher service and subscription revenue and improved service gross profit as a percentage of service revenue.

The increase in service gross profit as a percentage of service revenue was primarily due to a favorable mix of billable expenses, with higher labor expenses, which have a higher billable margin, and lower non-labor expenses, which have a lower billable margin.

There was no change in subscription gross profit as a percentage of subscription revenue.

Operating expenses

Sales and marketing

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Sales and marketing	$ 18,845	$ 19,875	$ (1,030)	(5)%
Sales and marketing (as % of total revenue)	79%	86%		

Sales and marketing expenses consist primarily of:

- compensation, benefits, incentive compensation in the form of stock-based compensation and related costs of sales and marketing employees and product managers;
- travel and market research costs, and costs associated with marketing programs, such as trade shows, public relations and new product launches;
- professional services and outside contractors costs for product and marketing initiatives; and
- charges for infrastructure and centralized costs of facilities and information technology.

The decrease in sales and marketing expenses was primarily due to:

- decreased travel costs of $0.8 million due to travel restrictions related to the COVID-19 pandemic;
- decreased consulting and marketing costs of $0.5 million; and
- decreased training and recruiting costs of $0.2 million; partially offset by
- increased compensation costs of $0.4 million; and
- non-recurring severance costs related to our July 2020 restructuring plan of $0.2 million.

Research, development and engineering

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Research, development and engineering	$ 17,314	$ 16,467	$ 847	5%
Research, development and engineering (as % of total revenue)	72%	72%		

Research, development and engineering expenses arise primarily from three areas that support our business model:

- Fundamental Research:
    - investigation of new digital watermarking algorithms to increase robustness and/or computational efficiency;
    - research of mobile device usage models and imaging sub-systems in camera-phones;
    - industry conference participation and authorship of papers for industry journals;
    - development of new intellectual property, including documentation of claims and production of supporting diagrams and materials;
    - research in multi-spectral analyses, machine learning, machine readable indicia and other content identification technologies;
    - investigation of substrates, printing techniques and printing technology relating to consumer packaged goods and thermal labels;
    - study and analysis of optimal illumination and imaging parameters to enable detection of Digimarc Barcode in high-speed sorting environments;
    - creation of models and sampling methodologies to enable recovering of Digimarc Barcode from highly soiled and highly distorted (e.g., crushed) objects; and
    - investigation and development of enhancement strategies for variety of manufacturing processes involved in the production and formation of plastic containers and objects.
- Platform Development:
    - tuning and optimization of implementation models to improve resistance to non-malicious attacks and routine transformations, such as JPEG, cropping and printing;
    - platform creation to leverage device-specific capabilities (e.g., instruction sets and Graphics Processing Units);
    - embedded systems platform creation and tuning for barcode scanners, thermal label printers, and machine vision environments;
    - tuning big data analytics transformation and metrics aggregation engine;
    - tuning data-driven Internet crawling infrastructure with policy-driven feedback loop;
    - assembly of master book publishing catalog based on aggregation and reconciliation of multiple public data sources;
    - creation of automated build pipelines and tools to ensure all elements of the platform are built in consistent, secure fashion; and
    - building of Web API frameworks to simplify the packaging and delivery of existing Digimarc Platform components.
- Product Development:
    - delivery and enhancement of Digimarc Barcode for an expanding list of applications, including packaging for consumer packaged goods, thermal labels for fresh foods and machine vision applications for manufacturing and recycling;

- improvements to the Digimarc Barcode Manager and Digimarc Barcode Central to provide campaign management and routing services for the Digimarc Discover platform;
- maintenance of the web-hosted image enhancement service in support of Digimarc Discover platform;
- development and optimization of production level image enhancement tools and quality control services;
- iterative development and release of the Digimarc Discover application for the iOS and Android platforms;
- development of real-time analytics portal to support anti-piracy services for the publishing industry; and
- delivery of Digimarc enhancement tools that support Variable Data Printing workflows.

Research, development and engineering expenses consist primarily of:

- compensation, benefits, incentive compensation in the form of stock-based compensation and related costs of software and hardware developers and quality assurance personnel;
- payments to outside contractors;
- the purchase of materials and services for product development; and
- charges for infrastructure and centralized costs of facilities and information technology.

The increase in research, development and engineering expenses was primarily due to:

- increased compensation costs of $0.6 million; and
- non-recurring severance costs related to our July 2020 restructuring plan of $0.6 million; partially offset by
- decreased travel costs of $0.1 million due to travel restrictions related to the COVID-19 pandemic; and
- decreased training and recruiting costs of $0.1 million.

General and administrative

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
General and administrative	$ 12,710	$ 12,340	$ 370	3%
General and administrative (as % of total revenue)	53%	54%		

We incur general and administrative costs in the functional areas of finance, legal, human resources, executive and board of directors. Costs for facilities and information technology are also managed as part of the general and administrative processes and are allocated to this area as well as each of the areas in cost of revenue, sales and marketing, and research, development and engineering.

General and administrative expenses consist primarily of:

- compensation, benefits and incentive compensation in the form of stock-based compensation and related costs of general and administrative personnel;
- third party and professional fees associated with legal, accounting and human resources functions;
- costs associated with being a public company;
- third party costs, including filing and governmental regulatory fees and fees for outside legal counsel and translation costs, related to the filing and maintenance of our intellectual property;
- charges to write off previously capitalized patent costs for patent assets we abandon; and
- charges for infrastructure and centralized costs of facilities and information technology.

The increase in general and administrative expenses was primarily due to:

- increased compensation costs of $0.7 million; and
- increased legal costs associated with financing activities and other matters of $0.2 million; partially offset by
- decreased travel costs of $0.3 million due to travel restrictions related to the COVID-19 pandemic; and
- decreased consulting and contracting costs of $0.2 million.

Stock-based compensation

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Cost of revenue	$ 745	$ 669	$ 76	11%
Sales and marketing	2,152	1,928	224	12%
Research, development and engineering	1,890	1,466	424	29%
General and administrative	4,328	4,151	177	4%
Total	$ 9,115	$ 8,214	$ 901	11%

The increases in stock-based compensation expense were primarily due to stock-based severance costs of $0.5 million related to our restructuring plan implemented in July 2020 and the impact of an additional year of stock awards to employees.

We anticipate incurring an additional $14,416 in stock-based compensation expense through December 31, 2024 for awards outstanding as of December 31, 2020.

Other income, net

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Other income, net	$ 277	$ 912	$ (635)	(70)%
Other income, net (as % of total revenue)	1%	4%		

The decrease in other income, net was primarily due to lower interest income reflecting lower interest rates earned on investments, partially offset by higher average investment balances.

Provision for income taxes

The provision for income taxes reflects current taxes, deferred taxes and withholding taxes in certain foreign jurisdictions.

For the year ended December 31, 2020, our effective tax rate was 0%, reflecting a full valuation allowance recorded against our deferred tax assets. The valuation allowance against deferred tax assets as of December 31, 2020 was $55.6 million, an increase of $7.8 million from $47.8 million as of December 31, 2019. We continually assess the applicability of a valuation allowance against our deferred tax assets. Based upon the positive and negative evidence available as of December 31, 2020, and largely due to the cumulative loss incurred by us over the preceding three years, which is considered a significant piece of negative evidence when assessing the realizability of deferred tax assets, a full valuation allowance is recorded against our deferred tax assets. We will not record tax benefits on any future losses until it is determined that those tax benefits will be realized. All future reversals of the valuation allowance would result in a tax benefit in the period recognized.

For the year ended December 31, 2019, our effective tax rate was 0%, reflecting a full valuation allowance recorded against our deferred tax assets. The valuation allowance against deferred tax assets as of December 31, 2019 was $47.8 million, an increase of $7.9 million from $39.9 million as of December 31, 2018.

Liquidity and Capital Resources

	December 31, 2020	December 31, 2019
Working capital	$ 74,056	$ 37,850
Current ratio (1)	8.6:1	8.0:1
Cash, cash equivalents and short-term marketable securities	$ 77,728	$ 36,817
Long-term marketable securities	$ —	$ —
Total cash, cash equivalents and marketable securities	$ 77,728	$ 36,817

(1) The current (liquidity) ratio is calculated by dividing total current assets by total current liabilities.

The $40.9 million increase in cash, cash equivalents and marketable securities at December 31, 2020 from December 31, 2019 resulted primarily from:

- net proceeds from the issuance of common stock and preferred stock (see "Future cash expectations");
- proceeds from stock option exercises; and
- proceeds from the Note under the PPP; partially offset by
- cash used in operations,
- purchases of common stock related to tax withholding in connection with stock option exercise and the vesting of restricted stock, and
- purchases of property and equipment and capitalized patent costs.

Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities, and trade accounts receivable. We place our cash and cash equivalents with major banks and financial institutions and at times deposits may exceed insured limits. Marketable securities include commercial paper, pre-refunded municipals and corporate notes. Our investment policy requires our portfolio to be invested to ensure that the greater of $3 million or 7% of the invested funds will be available within 30 days' notice.

Other than cash used for operating needs, which may include short-term marketable securities, our investment policy limits our credit exposure to any one financial institution or type of financial instrument by limiting the maximum of 5% of our cash and cash equivalents and marketable securities or $1 million, whichever is greater, to be invested in any one issuer except for the U.S. government, U.S. federal agencies and U.S.-backed securities, which have no limits, at the time of purchase. Our investment policy also limits our credit exposure by limiting to a maximum of 40% of our cash and cash equivalents and marketable securities, or $15 million, whichever is greater, to be invested in any one industry category, (e.g., financial or energy industries), at the time of purchase. As a result, we believe our credit risk associated with cash and investments to be minimal. A decline in the market value of any security below cost that is deemed to be other-than-temporary results in a reduction in carrying amount to fair value. To determine whether an impairment is other-than-temporary, we consider whether we have the ability and intent to hold the investment until a market price recovery and evidence indicating that the cost of the investment is recoverable outweighs evidence to the contrary. There have been no other-than-temporary impairments identified or recorded by us in the years ended December 31, 2020 and 2019.

Cash flows from operating activities

The components of operating cash flows were:

	Year Ended December 31, 2020	Year Ended December 31, 2019	Dollar Increase (Decrease)	Percent Increase (Decrease)
Net loss	$ (32,537)	$ (32,840)	$ 303	1%
Non-cash items	11,683	11,578	105	1%
Changes in operating assets and liabilities	508	(440)	948	215%
Net cash used in operating activities	$ (20,346)	$ (21,702)	$ 1,356	6%

Cash flows used in operating activities in 2020 compared to 2019 improved by $1.4 million, primarily as a result of changes in operating assets and liabilities. The changes in operating assets and liabilities was largely due to timing of receipts from customers and payments to vendors.

Cash flows from investing activities

Cash flows used in investing activities in 2020 compared to 2019 increased by $22.2 million, from $11.7 million to $33.9 million, primarily as a result of higher net purchases of marketable securities as we invested most of the cash proceeds from financing activities.

Cash flows from financing activities

Cash flows provided by financing activities in 2020 compared to 2019 increased by $45.4 million, from $17.3 million to $62.7 million, primarily as a result of higher net proceeds from the issuance of common stock and preferred stock, higher proceeds from stock option exercise activity, and proceeds from the Note issued in April 2020 under the PPP, partially offset by higher purchases of common stock related to tax withholding. See "Future cash expectations."

Future cash expectations

We believe that our current cash, cash equivalents, and short-term marketable securities balances will satisfy our projected working capital and capital expenditure requirements for at least the next 12 months. We continuously review our liquidity and anticipated capital requirements in light of the uncertainty created by the COVID-19 pandemic.

On May 16, 2019, we entered into an Equity Distribution Agreement, whereby we may sell from time to time through Wells Fargo Securities, LLC, as our sales agent, our common stock having an aggregate offering price of up to $30,000. Wells Fargo Securities, LLC will receive from us a commission equal to 2.50% of the gross sales price per share of common stock for shares having an aggregate offering price of up to $10,000, and a commission of 2.25% of the gross sales price per share of common stock thereafter, for shares sold under the Equity Distribution Agreement. For the year ended December 31, 2020, we sold 162 shares at an average price of $16.80 per share totaling $2,718 of cash proceeds, less $61 of commissions and $394 of stock issuance costs. For the year ended December 31, 2019, we sold 336 shares at an average price of $60.61 per share totaling $20,349 of cash proceeds, less $483 of commissions and $251 of stock issuance costs. As of December 31, 2020, $6,932 was available for future issuance under the Equity Distribution Agreement.

On April 16, 2020, we entered into a Promissory Note with an aggregate principal amount of $5,032 (the "Note") with Steans Bank, N.A. pursuant to the PPP under the CARES Act. The proceeds gave us more time to observe financial market trends and assess the effects of the COVID-19 pandemic on the Company to determine the best course of action concerning financing the business. The Note matures two years from the disbursement date and bears interest at a rate of 1.000% per annum, with the first six months of interest deferred. Principal and interest are payable monthly commencing six months after the disbursement date and may be prepaid by the Company at any time prior to maturity with no prepayment penalties. Subject to the terms and limitations of the PPP, the Note may be forgiven in whole or in part.

On June 5, 2020, we filed a new shelf registration statement on Form S-3, that included $49,265 of unsold securities from our prior shelf registration statement filed on May 26, 2017 that expired in June 2020. Under the new shelf registration statement, we may sell securities in one or more offerings up to $100,000. As of December 31, 2020, there was $97,892 available under the shelf registration. The new shelf registration statement will expire in July 2023.

On June 29, 2020, we were notified by Stearns Bank, N.A. that the Note was transferred to The Loan Source Inc. ("the Lender"), who will be responsible for servicing the Note going forward, including administering loan forgiveness. We believe that we have used the entire amount of the Note to fund expenses eligible for forgiveness under the PPP, and on September 15, 2020, we filed our application for 100% forgiveness of the Note. Our application was reviewed by the Lender and submitted to the SBA for approval on December 17, 2020. The SBA will, subject to any review of our loan or application, remit payment of the appropriate forgiveness amount to the Lender within 90 days following the date the Lender submitted its decision to the SBA. If the SBA reviews our loan or application, then it may take longer than 90 days for any determination to be made as to whether the Note will be forgiven in whole, in part or at all. Principal and interest payments can be deferred until the forgiveness process is completed as no payments would be required if the Note is forgiven.

On July 27, 2020, we announced a plan to restructure certain areas of operations to improve productivity, communication, time to market, and support. The changes reduced the number of employees within the organization by 7%. As a result, we incurred severance costs of $840 during the quarter ended September 30, 2020, consisting of $390 of cash-based severance and $450 of stock-based severance. The annualized cost savings from the restructuring are estimated to be $2,300, consisting of $2,100 of cash-based compensation and $200 of stock-based compensation.

On September 29, 2020, we entered into a Subscription Agreement with TCM Strategic Partners L.P. in a private placement to issue and sell (i) 2,542 shares of our common stock ("Common Shares"), par value $0.001 per share, and (ii) 17 shares of our newly designated Series B Convertible Preferred Stock ("Series B Shares"), par value $0.001 per share, for an aggregate purchase price of $53,500. The purchase and sale of the Common Shares for $36,530 closed on September 29, 2020, and the purchase and sale of the Series B Shares for $16,970 closed on October 1, 2020. Subject to shareholder approval, the Series B Shares automatically convert into fully paid and non-assessable shares of common stock at a conversion price equal to $14.37 per share. The offering was made without an underwriter or placement agent. We paid a total of $272 in stock issuance costs. On December 10, 2020, the Company held a Special Meeting of Shareholders that approved the issuance of the Company's common stock upon the conversion of the Series B Shares issued to TCM Strategic Partners L.P. On December 10, 2020, the Series B Shares automatically converted into 1,198 shares of the Company's common stock.

On October 2, 2020, the SBA released a procedural notice that defined "change of ownership" as used in PPP loans to mean the transfer, whether in one or more transactions, of at least 20% of the common stock or other ownership interest of a PPP borrower. The Note provides that we must obtain the Lender's consent in the event of a "change of ownership."

On November 20, 2020, we received consent from the Lender for the expected "change of ownership" to be triggered by the conversion of the Series B Shares issued on October 1, 2020, under the Subscription Agreement with TCM Strategic Partners L.P.

We may sell shares under the shelf registration and/or use similar or other financing means to raise working capital in the future, if necessary, to support continued investment in our growth initiatives. We may also raise capital in the future to fund acquisitions and/or investments in complementary businesses, technologies or product lines. If it becomes necessary to obtain additional financing, we may not be able to do so, or if these funds are available, they may not be available on satisfactory terms. The COVID-19 pandemic has created substantial uncertainty and volatility in the stock market, particularly in the small-cap sector in which our stock is traded, and negatively impacted our share price. These factors may inhibit our near-term ability to obtain financing.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenue or expenses, results of operations, liquidity, capital expenditures or capital resources that is material to investors.

We are party to an operating lease for our facility in Beaverton, Oregon. As amended in July 2015, the term of this lease runs through March 2024, with remaining rent payments totaling $2.7 million, payable in monthly installments.

We previously leased office space in San Mateo, California, until March 31, 2020, when the lease expired.

Forward-Looking Statements

This Annual Report on Form 10-K includes "forward-looking statements" within the meaning of Section 21E of the Securities Exchange Act of 1934 and Section 27A of the Securities Act of 1933. Words such as "may," "might," "plan," "should," "could," "expect," "anticipate," "intend," "believe," "project," "forecast," "estimate," "continue," and variations of such terms or similar expressions are intended to identify such forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements, or other statements made by us, are made based on our expectations and beliefs concerning future events impacting us, and are subject to uncertainties and factors (including those specified below), which are difficult to predict and, in many instances, are beyond our control. As a result, our actual results could differ materially from those expressed in or implied by any such forward-looking statements, and investors are cautioned not to place undue reliance on such statements. We believe that the following factors, among others (including those described in Item 1A. "Risk Factors"), could affect our future performance and the liquidity and value of our securities and cause our actual results to differ materially from those expressed or implied by forward-looking statements made by us. Forward-looking statements include but are not limited to statements relating to:

- our beliefs regarding the possible effects of the COVID-19 pandemic on general economic conditions, public health, and consumer demand, and the Company's results of operations, liquidity, capital resources, and general performance in the future;
- the possible impact of COVID-19 on our ability to obtain financing through our Equity Distribution Agreement and the availability of any alternative sources of financing;
- the timing and potential for forgiveness of the Note under the terms of the PPP and the possible impact of any audit or review related to the Note;
- the potential impact of COVID-19 on projects with our Retail customers and partners;
- the concentration of most of our revenue among a few customers and the trends and sources of future revenue;
- anticipated successful advocacy of our technology by our partners;
- our belief regarding the global deployment of our products;
- our beliefs regarding potential outcomes of participating in the HolyGrail 2.0 initiative;
- our future level of investment in our business, including investment in research, development and engineering of products and technology, development of our intellectual property, sales growth initiatives and development of new market opportunities;
- anticipated expenses, costs, margins, provision for income taxes and investment activities in the foreseeable future;
- our assumptions and expectations related to stock awards;
- our belief that we have one of the world's most extensive patent portfolios in digital watermarking and related fields;
- anticipated effect of our adoption of accounting pronouncements;
- our beliefs regarding our critical accounting policies;
- our expectations regarding the impact of accounting pronouncements issued but not yet adopted;
- anticipated revenue to be generated from current contracts, renewals, and as a result of new programs;
- our estimates, judgments and assumptions related to impairment testing;
- variability of contracted arrangements in response to changes in circumstances underlying the original contractual arrangements;
- business opportunities that could require that we seek additional financing and our ability to do so;
- the size and growth of our markets and our assumptions and beliefs related to those markets;
- the existence of international growth opportunities and our future investment in such opportunities;
- our expected short-term and long-term liquidity positions;
- our capital expenditure and working capital requirements and our ability to fund our capital expenditure and working capital needs through cash flow from operations or financing;
- the effect of computerized trading on our stock price;
- capital market conditions, our expectations regarding credit risk exposure, interest rate volatility and other limitations on the availability of capital, which could have an impact on our cost of capital and our ability to access the capital markets;
- our use of cash, cash equivalents and marketable securities in upcoming quarters and the possibility that our deposits of cash and cash equivalents with major banks and financial institutions may exceed insured limits;

- the strength of our competitive position and our ability to innovate and enhance our competitive differentiation;
- our beliefs related to our existing facilities;
- protection, development and monetization of our intellectual property portfolio;
- our beliefs related to our relationship with our employees and the effect of increasing diversity within our workforce;
- our beliefs regarding cybersecurity incidents;
- our beliefs related to certain provisions in our bylaws and articles of incorporation;
- our beliefs related to legal proceedings and claims arising in the ordinary course of business; and
- other risks detailed in our filings with the Securities and Exchange Commission, including the risk factors set forth in Item 1A. "Risk Factors."

We believe that the risk factors specified above and the risk factors contained in Item 1A, "Risk Factors," among others, could affect our future performance and the liquidity and value of our securities and cause our actual results to differ materially from those expressed or implied by forward-looking statements made by us or on our behalf. Investors should understand that it is not possible to predict or identify all risk factors and that there may be other factors that may cause our actual results to differ materially from the forward-looking statements. All forward-looking statements made by us or by persons acting on our behalf apply only as of the date of this Annual Report on Form 10-K. We do not undertake any obligation to publicly update or revise any forward-looking statements to reflect future events, information or circumstances that arise after the date of the filing of this Annual Report on Form 10-K.

ITEM 8: FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our Consolidated Financial Statements and the accompanying Notes that are filed as part of this Annual Report are listed under Part III, Item 15, Exhibits and Financial Statement Schedules and are set forth beginning on page F-1 immediately following the signature page of this Form 10-K.

ITEM 9: CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None

ITEM 9A: CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, under the supervision and with the participation of our Chief Executive Officer and Chief Financial Officer, have carried out an evaluation of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934) as of the end of the period covered by this Form 10-K. These disclosure controls and procedures are designed to ensure that information required to be disclosed by us in reports that we file or submit under the Securities Exchange Act of 1934 is (i) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and (ii) accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Based on our evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures, as of the end of the period covered by this Form 10-K, were effective.

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP.

Because of inherent limitations, any control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Management is committed to continue monitoring our internal controls over financial reporting and will modify or implement additional controls and procedures that may be required to ensure the ongoing integrity of our consolidated financial statements.

With the participation of our Chief Executive Officer and Chief Financial Officer, management conducted an evaluation of the effectiveness of internal control over financial reporting based on the framework established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, (COSO). Based on this evaluation, management has concluded that internal control over financial reporting was effective as of the end of the period covered by this Form 10-K based on those criteria.

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting that occurred during the quarter ended December 31, 2020, that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B: OTHER INFORMATION

None

PART III

Certain information required by Part III of this Annual Report on Form 10-K is incorporated herein by reference to the Proxy Statement for our 2021 annual meeting of shareholders, which we intend to file no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K.

ITEM 10: DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Code of Ethics

We have adopted a Code of Business Conduct that applies to our principal executive officer, principal financial officer and controller, as well as a Code of Ethics for Financial Professionals that applies to our principal financial officer and controller. We have made these codes available in the Corporate Governance section of our website at *http://www.digimarc.com/about/company/corporate-governance*. If we waive, or implicitly waive, any material provision of the codes, or substantively amend the codes, we will disclose that fact on our website within four business days.

The other information required by this item is incorporated herein by reference to the information in the Proxy Statement, which we intend to file with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K under the captions "Election of Directors," "Management," "Report of the Governance, Nominating and Sustainability Committee of the Board of Directors—Audit Committee," and "Other Matters—Delinquent Section 16(a) Reports."

ITEM 11: EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference to the information in the Proxy Statement, which we intend to file with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, under the captions "Director Compensation" and "Executive Compensation."

ITEM 12: SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this item is incorporated herein by reference to the information in the Proxy Statement, which we intend to file with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information."

ITEM 13: CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated herein by reference to the information in the Proxy Statement, which we intend to file with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K under the caption "Election of Directors—Determination of Independence," and "Related Person Transactions."

ITEM 14: PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference to the information in the Proxy Statement, which we intend to file with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, under the caption "Audit Fees."

ITEM 15: EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a)(1) Financial Statements

The following documents are filed as part of this Annual Report on Form 10-K:

(i) Report of Independent Registered Public Accounting Firm
Consolidated Balance Sheets as of December 31, 2020 and 2019
Consolidated Statements of Operations for the years ended December 31, 2020 and 2019
Consolidated Statements of Shareholders' Equity for the years ended December 31, 2020 and 2019
Consolidated Statements of Cash Flows for the years ended December 31, 2020 and 2019

(ii) Notes to Consolidated Financial Statements

(a)(2) Financial Statement Schedules

All schedules have been omitted since they are not required or are not applicable or the required information is shown in the consolidated financial statements or related notes.

(a)(3) Exhibits

EXHIBIT INDEX

The agreements included or incorporated by reference as exhibits to this report may contain representations and warranties by each of the parties to the applicable agreement. These representations and warranties have been made solely for the benefit of the other party or parties to the applicable agreement and:

- were not intended to be treated as categorical statements of fact, but rather as a means of allocating the risk to one of the parties if those statements prove to be inaccurate;
- were qualified by disclosures that were made to the other party or parties in connection with the negotiation of the applicable agreement, which disclosures are not necessarily reflected in the agreement;
- may apply standards of "materiality" that are different from "materiality" under the securities laws; and
- were made only as of the date of the applicable agreement or other date or dates that may be specified in the agreement.

Accordingly, these representations and warranties may not describe the actual state of affairs as of the date they were made or at any other time. Additional information about Digimarc may be found elsewhere in this Annual Report on Form 10-K and in Digimarc's other public filings, which are available without charge through the SEC's website at *http://www.sec.gov*.

Exhibit Number	Exhibit Description
2.1	Separation Agreement among DMRC Corporation, DMRC LLC, Digimarc Corporation and, with respect to certain sections, L-1 Identity Solutions, Inc. (incorporated by reference to Exhibit 2.1 to Amendment No. 2 to the Company's Registration Statement on Form 10, filed with the Commission on August 13, 2008 (File No. 001-34108))†
2.2	Agreement and Plan of Merger dated April 30, 2010 between Digimarc Corporation, a Delaware corporation, and Digimarc Oregon Corporation, an Oregon corporation (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K, filed with the Commission on May 4, 2010 (File No. 001-34108))
3.1	Articles of Incorporation of Digimarc Corporation (incorporated by reference to Exhibit 3.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on October 30, 2020 (File No. 001-34108))
3.2	Bylaws of Digimarc Corporation (incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K, filed with the Commission on May 4, 2010 (File No. 001-34108))

Exhibit Number	Exhibit Description
4.1	Specimen common stock certificate of Digimarc Corporation (incorporated by reference to Exhibit 4.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on July 25, 2014 (File No. 001-34108))
4.2	Description of Securities (incorporated by reference to Exhibit 4.2 to the Company's Annual Report on Form 10-K, filed with the Commission on February 27, 2020 (File No. 001-34108))
10.1	License Agreement between DMRC Corporation and L-1 Identity Solutions Operating Company (incorporated by reference to Exhibit 10.2 to Amendment No. 4 to the Company's Registration Statement on Form 10, filed with the Commission on October 2, 2008 (File No. 001-34108))(1)
10.2	Counterfeit Deterrence System Development and License Agreement, dated as of December 6, 2012, between Digimarc Corporation and the Bank for International Settlements (incorporated by reference to Exhibit 10.2 to the Company's amended Annual Report on Form 10-K/A, filed with the Commission on August 7, 2013 (File No. 001-34108))(5)
*10.3	Digimarc Corporation 2008 Incentive Plan, as amended (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on April 25, 2014 (File No. 001-34108))
*10.4	Equity Compensation Program for Nonemployee Directors under the Digimarc Corporation 2008 Incentive Plan (as amended on February 21, 2011, February 20, 2014 and March 27, 2015) (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on April 28, 2015 (File No. 001-34108))
*10.5	Form of Indemnification Agreement between Digimarc Corporation and each of its executive officers and directors (incorporated by reference to Exhibit 10.1 to Digimarc Corporation's Annual Report on Form 10-K, as filed by Digimarc Corporation with the Securities and Exchange Commission on March 13, 2006 (File No. 000-28317))
*10.6	Form of Change of Control Retention Agreement entered into by and between Digimarc Corporation and each of Messrs. Chamness, Meyer, Beck, and Rodriguez (incorporated by reference to Exhibit 10.6 to the Company's Annual Report on Form 10-K, filed with the Commission on February 22, 2019 (File No. 001-34108))
10.7	Patent License Agreement, dated as of June 11, 2009 between Digimarc Corporation and The Nielsen Company (US), LLC (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on July 31, 2009 (File No. 001-34108))(2)
10.8	Limited Liability Company I Agreement, dated June 11, 2009 between Digimarc Corporation and The Nielsen Company (US), LLC (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on July 31, 2009 (File No. 001-34108))(2)
10.9	Limited Liability Company II Agreement, dated June 11, 2009 between Digimarc Corporation and The Nielsen Company (US), LLC (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on July 31, 2009 (File No. 001-34108))(2)
10.10	Lease Agreement, dated March 22, 2004, between Digimarc Corporation and PS Business Parks, L.P., as amended on May 13, 2010 (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on July 30, 2010 (File No. 001-34108))
10.11	Second Amendment to Lease, dated July 31, 2015, by and between PD Office Owner 9, L.P. and Digimarc Corporation (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on October 30, 2015 (File No. 001-34108))

Exhibit Number	Exhibit Description
10.12	Patent License Agreement, effective as of October 5, 2010, between Digimarc Corporation and IV Digital Multimedia Inventions, LLC (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on April 28,2016 (File No. 001-34108))(4)
10.13	Grant-Back License Agreement, dated October 5, 2010, between Digimarc Corporation and IV Digital Multimedia Inventions, LLC (incorporated by reference to Exhibit 10.13 to the Company's Annual Report on Form 10-K, filed with the Commission on March 3, 2011 (File No. 001-34108))(3)
10.14	Patent Rights Agreement, dated October 5, 2010, between Digimarc Corporation and IV Digital Multimedia Inventions, LLC (incorporated by reference to Exhibit 10.14 to the Company's Annual Report on Form 10-K, filed with the Commission on March 3, 2011 (File No. 001-34108))
10.15	Work Agreement, dated October 5, 2010, by and among Digimarc Corporation, Invention Law Group, P.C. and IV Digital Multimedia Inventions, LLC (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-K, filed with the Commission on April 28, 2016 (File No. 001-34108))(4)
*10.16	Digimarc Corporation 2018 Incentive Plan (incorporated by reference to Appendix A of the Company's Definitive Proxy Statement on Schedule 14A, filed with the Commission on March 21, 2018 (File No. 001-34108))
*10.17	Equity Compensation Program for Nonemployee Directors under the Digimarc Corporation 2018 Incentive Plan (incorporated by reference to Exhibit 10.18 to the Company's Annual Report on Form 10-K, filed with the Commission on February 22, 2019 (File No. 001-34108))
*10.18	Grant-Back License Agreement, dated October 5, 2010, between Digimarc Corporation and IV Digital Multimedia Inventions, LLC (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on May 2, 2019 (File No. 001-34108)) (6)
10.19	Equity Distribution Agreement, dated May 16, 2019 by and between the Company and Wells Fargo Securities, LLC (incorporated by reference to Exhibit 1.1 to the Company's Current Report on Form 8-K, filed with the Commission on May 17, 2019 (File No. 001-34108))
10.20	Promissory Note between the Company and Stearns Bank, N.A., dated April 16, 2020 (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed with the Commission on April 20, 2020 (File No. 001-34108))
10.21	Amendment No. 1 to Equity Distribution Agreement, dated August 6, 2020, by and between the Company and Wells Fargo Securities, LLC (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q, filed with the Commission on October 30, 2020 (File No. 001-34108))
*10.22	Employment Agreement, effective as of August 10, 2020, between Digimarc Corporation and Bruce Davis (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed with the Commission on August 14, 2020 (File No. 001-34108))
10.23	Subscription Agreement, dated September 29, 2020, by and between the Company and TCM Strategic Partners L.P. (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K, filed with the Commission on September 29, 2020 (File No. 001-34108))
10.24	Registration Rights Agreement, dated September 29, 2020, by and between the Company and TCM Strategic Partners L.P. (incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K, filed with the Commission on September 29, 2020 (File No. 001-34108))

Exhibit Number	Exhibit Description
21.1	List of Subsidiaries
23.1	Consent of Independent Registered Public Accounting Firm
31.1	Rule 13a-14(a)/15d-14(a) Certification of Chief Executive Officer
31.2	Rule 13a-14(a)/15d-14(a) Certification of Chief Financial Officer
32.1	Section 1350 Certification of Chief Executive Officer
32.2	Section 1350 Certification of Chief Financial Officer
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Label Linkbase Document
104	Cover Page Interactive Data File (formatted in Inline XBRL and contained in Exhibit 101)

* Management contract or compensatory plan or arrangement.

† Schedules and certain exhibits to this agreement have been omitted pursuant to Item 601(b)(2) of Regulation S-K. Digimarc hereby undertakes to furnish to the Securities and Exchange Commission (the "Commission") copies of the omitted schedules and exhibits upon request by the Commission.

(1) Confidential treatment has been granted for certain portions omitted from this exhibit pursuant to an order granted by the Commission on October 21, 2008, under Rule 24b-2 of the Securities Exchange Act of 1934, as amended. Confidential portions of this exhibit have been separately filed with the Securities and Exchange Commission.

(2) Confidential treatment has been granted for certain portions omitted from this exhibit pursuant to an order granted by the Commission on September 10, 2009, under Rule 24b-2 under the Securities Exchange Act of 1934, as amended. Confidential portions of this exhibit have been separately filed with the Securities and Exchange Commission.

(3) Confidential treatment has been granted for certain portions omitted from this exhibit pursuant to an order granted by the Commission on March 17, 2011, under Rule 24b-2 under the Securities Exchange Act of 1934, as amended. Confidential portions of this exhibit have been separately filed with the Securities and Exchange Commission.

(4) Confidential treatment has been granted for certain portions omitted from this exhibit pursuant to an order granted by the Commission on May 6, 2016, under Rule 24b-2 under the Securities Exchange Act of 1934, as amended. Confidential portions of this exhibit have been separately filed with the Securities and Exchange Commission.

(5) Confidential treatment has been granted for certain portions omitted from this exhibit pursuant to an order granted by the Commission on September 3, 2013, under Rule 24b-2 under the Securities Exchange Act of 1934, as amended. Confidential portions of this exhibit have been separately filed with the Securities and Exchange Commission.

(6) Confidential treatment has been requested for certain portions omitted from this exhibit pursuant to Rule 24b-2 under the Exchange Act. Confidential portions of this exhibit have been separately filed with the SEC.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

DIGIMARC CORPORATION

Date: February 25, 2021

By: /s/ CHARLES BECK
Charles Beck
Title: Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Title	Date
/s/ BRUCE DAVIS **Bruce Davis**	Chief Executive Officer and Chairman of the Board of Directors (Principal Executive Officer)	February 25, 2021
/s/ CHARLES BECK **Charles Beck**	Chief Financial Officer and Treasurer (Principal Financial and Accounting Officer)	February 25, 2021
/s/ RICHARD L. KING **Richard L. King**	Director	February 25, 2021
/s/ RILEY MCCORMACK **Riley McCormack**	Director	February 25, 2021
/s/ JAMES T. RICHARDSON **James T. Richardson**	Director	February 25, 2021
/s/ ALICIA SYRETT **Alicia Syrett**	Director	February 25, 2021
/s/ ANDREW WALTER **Andrew Walter**	Director	February 25, 2021
/s/ BERNARD WHITNEY **Bernard Whitney**	Director	February 25, 2021
/s/ SHEELA ZEMLIN **Sheela Zemlin**	Director	February 25, 2021

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Digimarc Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Digimarc Corporation and subsidiaries (the Company) as of December 31, 2020 and 2019, the related consolidated statements of operations, shareholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2020 and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Evaluation of the Company's revenue recognition analysis related to contracts entered during the year

As discussed in Note 2 to the consolidated financial statements, the Company recorded $24.0 million of total revenue for the year ended December 31, 2020, of which $13.9 million was service revenue and $10.1 million was subscription revenue. The Company derives its revenue primarily from software development services and software subscriptions with a wide range of service and software offerings.

We identified the evaluation of the Company's revenue recognition analysis related to contracts entered during the year as a critical audit matter. Challenging auditor judgment was required to evaluate the potential impact of specific contract terms on revenue recognition due to the unique nature of new revenue contracts within each service and software offering.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design of certain internal controls related to the Company's revenue recognition process, including a control over the Company's assessment of the contract terms and applicable revenue recognition requirements for new revenue contracts. We tested certain new revenue contracts by reading the contract and evaluating the Company's assessment of the contract terms and revenue recognition requirements. For certain contracts, we confirmed directly with the Company's customers the relevant terms of the contract and compared them to the terms utilized by the Company to record revenue. We assessed the recorded revenue by selecting a sample of transactions and comparing the revenue recognized for consistency with the terms of the underlying documentation, including contracts with customers. For a selection of revenue contracts entered during the year, we interviewed personnel outside of the accounting function to consider other relevant facts and circumstances and their impact on revenue recognition.

/s/ KPMG LLP

We have served as the Company's auditor since 2010.

Portland, Oregon
February 25, 2021

DIGIMARC CORPORATION

CONSOLIDATED BALANCE SHEETS
(In thousands, except per share data)

	December 31, 2020	December 31, 2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 19,696	$ 11,213
Marketable securities	58,032	25,604
Trade accounts receivable, net	3,907	4,021
Other current assets	2,197	2,456
Total current assets	83,832	43,294
Property and equipment, net	3,272	3,650
Intangibles, net	6,612	6,670
Goodwill	1,114	1,114
Other assets	2,198	2,660
Total assets	$ 97,028	$ 57,388
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and other accrued liabilities	$ 2,827	$ 2,272
Note payable, current	3,947	—
Deferred revenue	3,002	3,172
Total current liabilities	9,776	5,444
Lease liability and other long-term liabilities	2,295	2,494
Note payable, long-term	1,118	—
Total liabilities	13,189	7,938
Commitments and contingencies (Note 14)		
Shareholders' equity:		
Preferred stock (par value $0.001 per share, 2,500 authorized, 10 shares issued and outstanding at December 31, 2020 and 2019)	50	50
Common stock (par value $0.001 per share, 50,000 authorized, 16,735 and 12,446 shares issued and outstanding at December 31, 2020 and 2019, respectively)	17	12
Additional paid-in capital	255,024	188,103
Accumulated deficit	(171,252)	(138,715)
Total shareholders' equity	83,839	49,450
Total liabilities and shareholders' equity	$ 97,028	$ 57,388

See Notes to Consolidated Financial Statements

DIGIMARC CORPORATION

CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Year Ended December 31, 2020	Year Ended December 31, 2019
Revenue:		
Service	$ 13,881	$ 13,249
Subscription	10,109	9,738
Total revenue	23,990	22,987
Cost of revenue:		
Service	5,827	6,013
Subscription	2,107	2,023
Total cost of revenue	7,934	8,036
Gross profit	16,056	14,951
Operating expenses:		
Sales and marketing	18,845	19,875
Research, development and engineering	17,314	16,467
General and administrative	12,710	12,340
Total operating expenses	48,869	48,682
Operating loss	(32,813)	(33,731)
Other income, net	277	912
Loss before income taxes	(32,536)	(32,819)
Provision for income taxes	(1)	(21)
Net loss	$ (32,537)	$ (32,840)
Beneficial conversion feature	(11,443)	—
Net loss attributable to common shares	$ (43,980)	$ (32,840)
Earnings (loss) per common share:		
Loss per common share — basic	$ (3.41)	$ (2.79)
Loss per common share — diluted	$ (3.41)	$ (2.79)
Weighted average common shares outstanding — basic	12,906	11,762
Weighted average common shares outstanding — diluted	12,906	11,762

See Notes to Consolidated Financial Statements

DIGIMARC CORPORATION

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(In thousands)

	Preferred Stock		Common Stock		Additional Paid-in	Accumulated	Total Shareholders'
	Shares	Amount	Shares	Amount	Capital	Deficit	Equity
BALANCE AT DECEMBER 31, 2019	10	$ 50	12,446	$ 12	$ 188,103	$ (138,715)	$ 49,450
Issuance of Series B preferred stock, net of issuance costs	17	17	—	—	16,871	—	16,888
Record Series B beneficial conversion feature	—	—	—	—	11,443	—	11,443
Accrete Series B beneficial conversion feature	—	—	—	—	(11,443)	—	(11,443)
Conversion of Series B preferred stock to common stock	(17)	(17)	1,198	1	16	—	—
Issuance of common stock, net of issuance costs	—	—	2,704	3	38,600	—	38,603
Exercise of stock options	—	—	358	1	5,921	—	5,922
Issuance of restricted common stock	—	—	256	—	—	—	—
Forfeiture of restricted common stock	—	—	(15)	—	—	—	—
Purchase and retirement of common stock	—	—	(212)	—	(3,760)	—	(3,760)
Stock-based compensation	—	—	—	—	9,273	—	9,273
Net loss	—	—	—	—	—	(32,537)	(32,537)
BALANCE AT DECEMBER 31, 2020	10	$ 50	16,735	$ 17	$ 255,024	$ (171,252)	$ 83,839
BALANCE AT DECEMBER 31, 2018	10	$ 50	11,891	$ 12	$ 162,428	$ (105,875)	$ 56,615
Issuance of common stock, net of issuance costs	—	—	336	—	19,615	—	19,615
Exercise of stock options	—	—	55	—	1,178	—	1,178
Issuance of restricted common stock	—	—	300	—	—	—	—
Forfeiture of restricted common stock	—	—	(49)	—	—	—	—
Purchase and retirement of common stock	—	—	(87)	—	(3,506)	—	(3,506)
Stock-based compensation	—	—	—	—	8,388	—	8,388
Net loss	—	—	—	—	—	(32,840)	(32,840)
BALANCE AT DECEMBER 31, 2019	10	$ 50	12,446	$ 12	$ 188,103	$ (138,715)	$ 49,450

See Notes to Consolidated Financial Statements

DIGIMARC CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31, 2020	Year Ended December 31, 2019
Cash flows from operating activities:		
Net loss	$ (32,537)	$ (32,840)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation, amortization and write-off of property and equipment	1,531	1,449
Amortization and write-off of intangibles	771	758
Amortization of right of use assets under operating leases	470	447
Amortization of net premiums and (discounts) on marketable securities	(204)	710
Stock-based compensation	9,115	8,214
Changes in operating assets and liabilities:		
Trade accounts receivable	114	(133)
Other current assets	259	(356)
Other assets	(8)	27
Accounts payable and other accrued liabilities	512	702
Deferred revenue	(199)	(41)
Lease liability and other long-term liabilities	(170)	(639)
Net cash used in operating activities	(20,346)	(21,702)
Cash flows from investing activities:		
Purchase of property and equipment	(1,020)	(1,055)
Capitalized patent costs	(612)	(659)
Maturity of marketable securities	43,155	41,374
Purchase of marketable securities	(75,379)	(51,310)
Net cash used in investing activities	(33,856)	(11,650)
Cash flows from financing activities:		
Issuance of common stock, net of issuance costs	38,603	19,615
Issuance of preferred stock, net of issuance costs	16,888	—
Exercise of stock options	5,922	1,178
Proceeds from note payable	5,032	—
Purchase of common stock	(3,760)	(3,506)
Net cash provided by financing activities	62,685	17,287
Net increase (decrease) in cash and cash equivalents	8,483	(16,065)
Cash and cash equivalents at beginning of period	11,213	27,278
Cash and cash equivalents at end of period	$ 19,696	$ 11,213
Supplemental disclosure of cash flow information:		
Cash received for income taxes, net	$ 20	$ 90
Supplemental schedule of non-cash activities:		
Property and equipment and patent costs in accounts payable	$ 76	$ 35
Stock-based compensation capitalized to software and patent costs	$ 158	$ 174
Right of use assets obtained in exchange for lease obligations	$ —	$ 2,709
Beneficial conversion feature	$ 11,443	$ —
Series B preferred stock dividend, converted into common stock	$ 248	$ —

See Notes to Consolidated Financial Statements

(1) Description of Business and Summary of Significant Accounting Policies

Description of Business

Digimarc Corporation ("Digimarc" or the "Company"), an Oregon corporation, is the inventor of a platform that enables a more efficient, reliable and economical means of automatic identification. The Digimarc Platform can apply a unique identifier to virtually all media objects—including product packaging, commercial print, audio and video—that can be automatically identified by an enabled ecosystem of industrial scanners, smartphones and other interfaces. These capabilities allow Digimarc and its partners to supply a wide range of solutions for retail and supply chain operations, consumer engagement, media management and security.

The Digimarc Platform features three core capabilities for the identification, discovery and quality management of media. Digimarc Barcode integrates the identification function, which is a novel data carrier encoded into media in ways that are generally imperceptible to people, permitting the carrier to be repeated many times over the surface of the enhanced media. Digimarc Discover represents the discovery function, which is software for computing devices and network interfaces that recognize and decode indicia of the identity of media. These include, but are not limited to, Digimarc Barcodes, Quick Response Codes, Universal Product Codes, certain other GS1 approved one-dimensional codes and relevant contextual data. Digimarc Verify incorporates the quality management function, a suite of software tools used to inspect and verify that the identification and discovery of media are both accurate and effective. Together, these core capabilities enable organizations, application developers, and other solution providers to build new and improve existing automatic identification solutions.

Principles of Consolidation

The consolidated financial statements include the accounts of Digimarc and its wholly-owned subsidiaries. All intercompany transactions and balances have been eliminated.

Use of Estimates

The preparation of the consolidated financial statements in accordance with accounting principles generally accepted in the U.S. ("U.S. GAAP") requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. The Company's accounting policies for revenue recognition require higher degrees of judgment than others in their application. Management bases its estimates on historical experience and on other assumptions that are believed to be reasonable in the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

Reclassifications

Certain prior period amounts in the accompanying consolidated financial statements and notes thereto have been reclassified to conform to current period presentation, including the reclassification of revenue and expense accounts to better align with the presentation provided by our peers in the software industry. These reclassifications had no material effect on the results of operations or financial position for any period presented.

Cash Equivalents

The Company considers all highly liquid marketable securities with original maturities of 90 days or less at the date of acquisition to be cash equivalents. Cash equivalents include money market securities, commercial paper and pre-refunded municipals totaling $18,568 and $10,436 at December 31, 2020 and 2019, respectively. Cash equivalents are carried at either cost or amortized cost depending on the type of security, which approximates fair value.

Marketable Securities

The Company considers all investments with original maturities over 90 days that mature in less than one-year from the balance sheet date to be short-term marketable securities. Short-term marketable securities primarily include commercial paper, pre-refunded municipals and corporate notes. The Company's marketable securities are classified as held-to-maturity and are reported at amortized cost, which approximates market value.

A decline in the market value of any security below amortized cost that is deemed to be other-than-temporary results in a reduction in the carrying amount. The impairment is charged to earnings and a new cost basis for the security is established. To determine whether an impairment is other-than-temporary, the Company considers whether it has the ability and intent to hold the investment until a market price recovery and considers whether evidence indicating that the cost of the investment is recoverable outweighs evidence to the contrary. There have been no other-than-temporary impairments identified or recorded by the Company.

Premiums and discounts are amortized or accreted over the life of the related security as an adjustment to yield using a method that approximates the effective interest method. Under this method, dividend and interest income are recognized when earned.

Fair Value of Financial Instruments

Accounting Standards Codification ("ASC") 820 "*Fair Value Measurements and Disclosures*" defines fair value, establishes a framework for measuring fair value under generally accepted accounting principles in the U.S., and enhances disclosures about fair value measurements. ASC 820 describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value, which are the following:

- Level 1—Pricing inputs are quoted prices available in active markets for identical investments as of the reporting date.
- Level 2—Pricing inputs are quoted for similar investments, or inputs that are observable, either directly or indirectly, for substantially the full term through corroboration with observable market data. Level 2 includes investments valued at quoted prices adjusted for legal or contractual restrictions specific to these investments.
- Level 3—Pricing inputs are unobservable for the investment; that is, the inputs reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability.

The estimated fair values of the Company's financial instruments, which include cash equivalents, accounts receivable, accounts payable and other accrued liabilities, approximate their carrying values due to the short-term nature of these instruments.

The Company's fair value hierarchy for its cash equivalents and marketable securities as of December 31, 2020 and 2019, respectively, was as follows:

December 31, 2020	Level 1	Level 2	Level 3	Total
Money market securities	$ 10,988	$ —	$ —	$ 10,988
Commercial paper	—	36,478	—	36,478
Pre-refunded municipals	—	26,697	—	26,697
Corporate notes	—	2,437	—	2,437
Total	$ 10,988	$ 65,612	$ —	$ 76,600

December 31, 2019	Level 1	Level 2	Level 3	Total
Money market securities	$ 746	$ —	$ —	$ 746
Commercial paper	—	25,481	—	25,481
Corporate notes	—	5,773	—	5,773
U.S. treasuries	—	4,040	—	4,040
Total	$ 746	$ 35,294	$ —	$ 36,040

The fair value maturities of the Company's cash equivalents and marketable securities as of December 31, 2020 are as follows:

	Maturities by Period				
	Total	Less than 1 year	1-5 years	5 - 10 years	More than 10 years
Cash equivalents and marketable securities	$ 76,600	$ 76,600	$ —	$ —	$ —

Concentrations of Business and Credit Risk

A significant portion of the Company's business depends on a limited number of large contracts. The loss of any large contract may result in loss of revenue and margin on a prospective basis. Financial instruments that potentially subject Digimarc to concentrations of credit risk consist primarily of cash and cash equivalents, marketable securities, and accounts receivable. Digimarc places its cash and cash equivalents with major banks and financial institutions and at times deposits may exceed insured limits. Other than cash used for operating needs, which may include short-term marketable securities with the Company's principal banks, Digimarc's investment policy limits its credit exposure to any one financial institution or type of financial instrument by limiting the maximum of 5% of its cash equivalents and marketable securities or $1,000, whichever is greater, to be invested in any one issuer except for the U.S. government, U.S. federal agencies and U.S. backed securities, which have no limits, at the time of purchase. The Company's investment policy also limits its credit exposure by limiting the maximum of 40% of its cash equivalents and marketable securities, or $15,000, whichever is greater, to be invested in any one industry category, (e.g., financial or energy industries), at the time of purchase. As a result, Digimarc's credit risk associated with cash and cash equivalents and marketable securities is believed to be minimal.

Contingencies

The Company evaluates all pending or threatened contingencies or commitments, if any, that are reasonably likely to have a material adverse effect on the Company's operations or financial position. The Company assesses the probability of an adverse outcome and determines if it is remote, reasonably possible or probable as defined in accordance with ASC 450 "*Contingencies*." If information available prior to the issuance of the financial statements indicates that it is probable that an asset has been impaired or a liability has been incurred at the date of the financial statements, and the amount of the loss, or the range of probable loss can be reasonably estimated, then the loss is accrued and charged to operations. If no accrual is made for a loss contingency because one or both of the conditions pursuant to ASC 450 are not met, but the probability of an adverse outcome is at least reasonably possible, the Company will disclose the nature of the contingency and provide an estimate of the possible loss or range of loss, or state that such an estimate cannot be made.

Goodwill

The Company tests goodwill for impairment annually and whenever events or changes in circumstances indicate that the carrying value may exceed the fair value, in accordance with ASC 350 "*Intangibles – Goodwill and Other*". The Company operates as a single reporting unit. The Company estimates the fair value of its single reporting unit using a market approach, which takes into account the Company's market capitalization plus an estimated control premium. In connection with the Company's annual impairment test of goodwill as of June 30, 2020 and 2019, it was concluded that there was no impairment to goodwill as the estimated fair value of the Company's reporting unit exceeded the carrying value.

Impairment of Long-Lived Assets

The Company assesses long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable, in accordance with ASC 360 "*Property, Plant and Equipment*."

Recoverability of assets to be held and used is measured by a comparison of the carrying amount of the assets to future net undiscounted cash flows expected to be generated by the assets over their remaining useful life. If such assets are considered to be impaired, the impairment would be recognized in operating results at the amount by which the carrying amount of the assets exceeds the fair value of the assets. Fair value is determined based on discounted cash flows or appraised values, depending on the nature of the assets.

Assets to be disposed of are reported at the lower of the carrying amount or fair value less costs to sell.

Research and Development

Research and development costs are expensed as incurred in accordance with ASC 730 "*Research and Development*."

Software Development Costs

Under ASC 985 "*Software*," software development costs are to be capitalized beginning when a product's technological feasibility has been established and ending when a product is made available for general release to customers. To date, the establishment of technological feasibility of the Company's products has occurred shortly before general release and, therefore, software development costs qualifying for capitalization have been immaterial. Accordingly, the Company has not capitalized any software development costs and has charged all such costs to research and development expense.

Patent Costs

Costs associated with the application and award of patents in the U.S. and various other countries are capitalized and amortized on a straight-line basis over the term of the patents as determined at award date, which varies depending on the pendency period of the application. Capitalized patent costs, also referred to as patent prosecution costs, include internal legal labor, professional legal fees, government filing fees and translation fees related to expanding the Company's patent portfolio.

Costs associated with the maintenance and annuity fees of patents are accounted for as prepaid assets at the time of payment and amortized over the shorter of the maintenance period or remaining life of the related patent.

Revenue Recognition

See Note 2 for detailed disclosures of the Company's revenue recognition policy.

Stock-Based Compensation

The Company accounts for stock-based compensation in accordance with ASC 718 "*Compensation—Stock Compensation*," which requires the measurement and recognition of compensation for all stock-based awards made to employees and directors including stock options and restricted stock based on estimated fair values. The estimated fair value of stock option and restricted stock awards is recognized over the vesting period of the award using the straight-line method.

For stock option awards, the Company uses the Black-Scholes option pricing model as its method of valuation. The Company's determination of the fair value on the date of grant (measurement date) is affected by its stock price as well as assumptions regarding a number of subjective variables. These variables include, but are not limited to, the expected life of the award, the Company's expected stock price volatility over the term of the award, the risk-free interest rate and the expected dividend yield.

For restricted stock awards which vest upon meeting a service condition, the Company uses the fair market value of the Company's common stock on the date of the grant (measurement date) as its method of valuation.

For performance restricted stock awards which vest upon meeting both a market condition and a service condition, the Company uses the Monte Carlo Simulation model as its method of valuation. The Company's determination of the fair value on the date of grant (measurement date) is affected by its stock price as well as assumptions regarding a number of subjective variables. These variables include, but are not limited to, the expected stock price volatility over the term of the award and the risk-free interest rate.

Although the fair value of stock-based awards is determined in accordance with ASC 718 and Staff Accounting Bulletin ("SAB") No. 107 "*Shared-Based Payment*," the Black-Scholes option pricing model and the Monte Carlo Simulation model require the input of subjective assumptions, and other reasonable assumptions could provide differing results.

Income Taxes

The Company accounts for income taxes in accordance with ASC 740 "*Income Taxes*" utilizing the asset and liability method. Under the asset and liability method, deferred income taxes reflect the future tax consequences of differences between the tax basis of assets and liabilities and their financial reporting amounts. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period of enactment.

The Company records valuation allowances on deferred tax assets if, based on available evidence, it is more-likely-than-not that all or some portion of the assets will not be realized.

The Company is subject to income taxes within the U.S. and other countries, and, in the ordinary course of business, there are transactions and calculations where the ultimate tax determination is uncertain. The Company reports a liability (or contra asset) for unrecognized tax benefits resulting from uncertain tax positions taken (or expected to be taken) on a tax return. The Company recognizes interest and penalties, if any, related to the unrecognized tax benefits in income tax expense.

Accounting Pronouncements Issued But Not Yet Adopted

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-13, "*Financial Instruments - Credit Losses (ASC 326): Measurement of Credit Losses on Financial Instruments*," which amends the guidance on the impairment of financial instruments. The amendments in this update removes the thresholds that entities apply to measure credit losses on financial instruments measured at amortized cost, such as loans, trade receivables, reinsurance recoverables, off-balance-sheet credit exposures, and held-to-maturity securities. Under current U.S. GAAP, entities generally recognize credit losses when it is probable that the loss has been incurred. The guidance removes all current recognition thresholds and introduces the new current expected credit loss ("CECL") model which will require entities to recognize an allowance for credit losses for the difference between the amortized cost basis of a financial instrument and the amount of amortized cost that an entity expects to collect over the instrument's contractual life. The new CECL model is based upon expected losses rather than incurred losses. The amendments in this update are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2022. Early adoption is permitted. The Company does not expect the impact of the adoption of this standard to have a material impact on its financial condition, results of operations and disclosures.

In December 2019, the FASB issued ASU No. 2019-12, "*Income Taxes (ASC 740) Simplifying the Accounting for Income Taxes*," that removes certain exceptions to the general principles and also improves consistent application of and simplify generally accepted accounting principles. The amendments in this update are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted. The Company does not expect the impact of the adoption of this standard to have a material impact on the Company's financial condition, results of operations and disclosures.

(2) Revenue Recognition

The Company derives its revenue primarily from software development services and software subscriptions. Applicable revenue recognition criteria are considered separately for each performance obligation as follows:

- Service revenue consists primarily of revenue earned from the performance of software development services. The majority of service contracts are structured as time and materials consulting agreements. Revenue for services is generally as the services are performed. Billing for services rendered generally occurs within one month after the services are provided.
- Subscription revenue consists primarily of revenue earned from the sale of software products and to a lesser extent the licensing of intellectual property. The majority of subscription contracts are recurring, paid in advance and recognized over the term of the subscription, which is typically one to three years.

Customer arrangements may contain multiple performance obligations such as software development services, software products, and maintenance and support fees. The Company accounts for individual products and services separately if they are distinct. To determine the transaction price, the Company considers the terms of the contract and the Company's customary business practices. Some contracts may contain variable consideration. In those cases, the Company estimates the amount of variable consideration based on the sum of probability-weighted amounts in a range of possible consideration amounts. As part of this assessment, the Company will evaluate whether any of the variable consideration is constrained and if it is the Company will not include it in the transaction price. The consideration is allocated between distinct products and services based on their stand-alone selling prices. For items that are not sold separately, the Company estimates the standalone selling price based on reasonably available information, including market conditions, specific factors affecting the Company, and information about the customer. For distinct products and services, the Company typically recognizes the revenue associated with these performance obligations as they are delivered to the customer. Products and services that are not capable of being distinct are combined with other products or services until a distinct performance obligation is identified.

All revenue recognized in the Consolidated Statements of Operations is considered to be revenue from contracts with customers.

The following table provides information about disaggregated revenue by major target market in the Company's single reporting segment:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Government		
Service	$ 13,263	$ 12,793
Subscription	1,683	1,518
Total Government	14,946	14,311
Retail		
Service	$ 618	$ 456
Subscription	4,942	4,802
Total Retail	5,560	5,258
Media		
Service	$ —	$ —
Subscription	3,484	3,418
Total Media	3,484	3,418
Total	$ 23,990	$ 22,987

The Company has contract assets from contracts with customers that are classified as "trade accounts receivable." Financial information about trade accounts receivable is included in Note 6.

The Company has contract liabilities from contracts with customers that are classified as "deferred revenue." Deferred revenue consists of billings in advance for services and subscriptions for which the performance obligation has not been satisfied.

The following table provides information about contract liabilities from contracts with customers:

	December 31, 2020	December 31, 2019
Deferred revenue, current	$ 3,002	$ 3,172
Deferred revenue, long-term	30	59
Total	$ 3,032	$ 3,231

The Company recognized $2,993 of revenue during the year ended December 31, 2020 that was included in the contract liability balance as of December 31, 2019.

The aggregate amount of the transaction price from contractual obligations that are unsatisfied or partially unsatisfied was $17,921 and $17,759, as of December 31, 2020 and 2019, respectively.

(3) Segment Information

Geographic Information

The Company derives its revenue from a single reporting segment: automatic identification solutions. Revenue is generated in this segment primarily through software development services and software subscriptions. The Company markets its products in the U.S. and in non-U.S. countries through its sales personnel and partners.

Revenue by geographic area, based upon the "bill-to" location, was as follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Domestic	$ 7,419	$ 7,187
International (1)	16,571	15,800
Total	$ 23,990	$ 22,987

(1) Revenue from the Central Banks, consisting of a consortium of central banks around the world, is classified as international revenue. Reporting revenue by country for this customer is not practicable.

Major Customers

The following customers accounted for 10% or more of revenue:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Central Banks	60%	61%
Walmart Inc.	13%	*

* Less than 10%

Long-lived assets by geographical area

The Company's long-lived assets are all domestic, domiciled in the U.S.

(4) Stock-Based Compensation

Stock-based compensation includes expense charges for all stock-based awards to employees and directors. These awards include stock option grants, restricted stock awards and restricted stock unit awards.

Stock-based compensation expense related to internal labor is capitalized to software and patent costs based on direct labor hours charged to capitalized software and patent costs.

Determining Fair Value

Stock Options

The Company estimates the fair value of stock options on the date of grant (measurement date) using the Black-Scholes option pricing model. The Company recognizes the fair value of stock option awards on a straight-line basis over the vesting period of the award.

The following inputs are used in the Black-Scholes option pricing model to estimate the fair value of stock options:

Stock Price. The stock price represents the fair market value of the Company's common stock on the date of the grant.

Expected Life. The expected life of awards granted represents the period of time that they are expected to be outstanding. The Company determines the expected life based on historical experience with similar awards, giving consideration to the contractual terms and vesting schedules of the awards. Stock options granted generally vest over a service period of three years and have a contractual term of ten years.

Expected Volatility. The Company estimates the volatility of its common stock at the date of grant based on the historical volatility of its common stock based on historical prices over the most recent period commensurate with the expected life of the award.

Risk-Free Interest Rate. The Company determines the risk-free interest rate using current U.S. treasury yields for bonds with a maturity commensurate with the expected life of the award.

Expected Dividend Yield. The expected dividend yield is derived by the Company's expected annual dividend rate over the expected term divided by the fair value of the Company's common stock at the grant date.

Black Scholes Option Valuation Inputs:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Stock price	$ 15.36	$ 39.54
Expected life (years)	3.25	3.20
Expected volatility	70.91%	58.68%
Risk-free interest rate	0.25%	1.51%
Expected dividend yield	0%	0%

Restricted Stock

The fair value of restricted stock awards is based on the fair market value of the Company's common stock on the date of the grant (measurement date), and is recognized on a straight-line basis over the vesting period of the award. Restricted stock awards granted generally vest over a service period of three to four years for employee grants and one to three years for director grants.

Restricted Stock Units

The fair value of restricted stock unit ("RSU") awards, which vest upon meeting a service condition, is based on the fair market value of the Company's common stock on the date of the grant (measurement date) and is recognized on a straight-line basis over the service period of the award, which is generally 3 years.

Performance Restricted Stock Units

The fair value of performance restricted stock unit ("PRSU") awards, which vest upon meeting both a market condition, such as exceeding a target stock price in the future, and a service condition, is determined on the date of grant (measurement date) using the Monte Carlo Simulation model. The Company recognizes the fair value of the award on a straight-line basis over the service period of the award, which is generally 3 years.

The following inputs are used in the Monte Carlo Simulation model to estimate the fair value of PRSUs:

Stock Price. The stock price represents the fair market value of the Company's common stock on the date of the grant.

Expected Volatility. The Company estimates the volatility of its common stock at the date of grant based on the historical volatility of its common stock based on historical prices over the most recent period commensurate with the term of the award.

Risk-Free Interest Rate. The Company determines the risk-free interest rate using current U.S. treasury yields for bonds with a maturity commensurate with the term of the award.

Monte Carlo Simulation Inputs:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Stock price	$ 16.49	$ —
Expected volatility	72.50%	—
Risk-free interest rate	0.14%	—

Stock-based Compensation

	Year Ended December 31, 2020	Year Ended December 31, 2019
Stock-based compensation:		
Cost of revenue	$ 745	$ 669
Sales and marketing	2,152	1,928
Research, development and engineering	1,890	1,466
General and administrative	4,328	4,151
Stock-based compensation expense	9,115	8,214
Capitalized to software and patent costs	158	174
Total stock-based compensation	$ 9,273	$ 8,388

The following table sets forth total unrecognized compensation cost related to non-vested stock-based awards granted under the Company's equity compensation plans:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Total unrecognized compensation costs	$ 14,416	$ 13,535

Total unrecognized compensation costs will be adjusted for any future forfeitures if and when they occur.

The Company expects to recognize the total unrecognized compensation costs as of December 31, 2020 for stock options, restricted stock and restricted stock unit awards over weighted average periods through December 31, 2024 as follows:

	Stock Options	Restricted Stock	RSUs	PRSUs
Weighted average period	1.35 years	1.36 years	1.75 years	2.00 years

(5) Earnings Per Common Share

The Company calculates basic and diluted earnings per common share in accordance with ASC 260 "*Earnings Per Share*," using the two-class method because the Company's unvested restricted stock is a participating security since these awards contain non-forfeitable rights to receive dividends. Under the two-class method, earnings are allocated to each class of common stock and participating security as if all of the earnings for the period had been distributed.

Basic earnings per common share excludes dilution and is calculated by dividing earnings to common shares by the weighted-average number of common shares outstanding for the period. Diluted earnings per common share is calculated by dividing earnings to common shares by the weighted-average number of common shares, as adjusted for the potentially dilutive effect of stock options. The dilutive effect of stock options is determined using the treasury stock method.

The following table reconciles earnings (loss) per common share:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Basic Earnings (Loss) per Common Share:		
Loss to common shares — basic	$ (32,537)	$ (32,840)
Beneficial conversion feature	(11,443)	—
Net loss attributable to common shares — basic	$ (43,980)	$ (32,840)
Weighted average common shares outstanding — basic	12,906	11,762
Basic earnings (loss) per common share	$ (3.41)	$ (2.79)
Diluted Earnings (Loss) per Common Share:		
Net loss attributable to common shares — diluted	$ (43,980)	$ (32,840)
Weighted average common shares outstanding — diluted	12,906	11,762
Diluted earnings (loss) per common share	$ (3.41)	$ (2.79)

See Note 11 for details on the beneficial conversion feature.

The following table indicates the common stock equivalents related to stock options that were anti-dilutive and excluded from diluted earnings per common share calculations:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Anti-dilutive shares due to:		
Exercise prices higher than the average market price	200	100
Net loss	—	28

(6) Trade Accounts Receivable and Allowance for Doubtful Accounts

Trade Accounts Receivable

Trade accounts receivable are recorded at the invoiced amount.

	December 31, 2020	December 31, 2019
Trade accounts receivable	$ 3,932	$ 4,036
Allowance for doubtful accounts	(25)	(15)
Trade accounts receivable, net	$ 3,907	$ 4,021
Unpaid deferred revenue included in trade accounts receivable	$ 1,711	$ 2,015

Allowance for doubtful accounts

The allowance for doubtful accounts is the Company's best estimate of the amount of probable credit losses in the Company's existing trade accounts receivable. The Company determines the allowance based on historical write-off experience and current information. The Company reviews its allowance for doubtful accounts each reporting period. Account balances are charged against the allowance after all means of collection have been exhausted and the potential for recovery is considered remote.

Unpaid deferred revenue

The unpaid deferred revenue that is included in trade accounts receivable is billed in accordance with the provisions of the contracts with the Company's customers.

Major customers

The following customers accounted for 10% or more of trade accounts receivable, net:

	December 31, 2020	December 31, 2019
Central Banks	69%	69%

(7) Property and Equipment

Property and Equipment

Property and equipment are stated at cost. Repairs and maintenance are charged to expense when incurred.

Depreciation on property and equipment is calculated using the straight-line method over the estimated useful lives of the assets, generally two to ten years. Leasehold improvements are amortized using the straight-line method over the shorter of the estimated useful life or the lease term.

	December 31, 2020	December 31, 2019
Office furniture and fixtures	$ 1,650	$ 1,650
Software	5,004	4,379
Equipment	4,967	5,041
Leasehold improvements	1,658	1,721
Gross property and equipment	13,279	12,791
Less accumulated depreciation and amortization	(10,007)	(9,141)
Property and equipment, net	$ 3,272	$ 3,650

8. Leases

The Company adopted ASC 842, "*Leases*," as amended, as of January 1, 2019, using the retrospective approach. The retrospective approach provides a method for recording existing leases at adoption and recording the cumulative effect of initially applying the new standard as an adjustment to the opening balance of retained earnings. In addition, the Company elected the package of practical expedients permitted under the transition guidance within the new standard, which allowed the Company to carry forward the historical lease classification, its assessment on whether a contract was or contains a lease, and its initial direct costs for any leases that existed prior to January 1, 2019. In addition, the Company elected the short-term lease exception as a practical expedient and elected to combine lease and non-lease components.

The Company leases its corporate office in Beaverton, Oregon. In July 2015, the Company entered into an amendment with the landlord of its corporate office to extend the lease term through March 2024 with remaining rent payments as of December 31, 2020 totaling $2,703, payable in monthly installments. The Company had leased office space in San Mateo, California, until March 31, 2020, when the lease expired.

All of the Company's leases are operating leases. The following table provides additional details of leases presented in the Consolidated Balance Sheets:

	December 31, 2020	December 31, 2019
Right of use assets	$ 1,793	$ 2,263
Lease liabilities, current	$ 663	$ 663
Lease liabilities, long-term	$ 1,772	$ 2,435
Weighted-average remaining life	3.2 years	4.1 years
Weighted-average discount rate	8.20%	8.20%

The carrying value of the right of use assets is included in "Other assets" and the current and long-term lease liabilities are included in "Accounts payable and other accrued liabilities" and "Lease liability and other long-term liabilities," respectively, in the Consolidated Balance Sheets.

Operating lease expense is included in cost of revenue and operating expenses in the Consolidated Statements of Operations and in cash flows from operating activities in the Consolidated Statements of Cash Flows. The operating leases include variable lease costs which are not material and are included in operating lease expense. Additional details of the Company's operating leases are presented in the following table:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Operating lease expense	$ 1,030	$ 1,044
Cash paid for operating leases	$ 1,218	$ 1,339

The table below reconciles the cash payment obligations for the first five years and total of the remaining years for the operating lease liability recorded in the Consolidated Balance Sheet as of December 31, 2020:

Year ending December 31:	Cash Payment Obligations
2021	$ 838
2022	862
2023	867
2024	218
2025	—
Thereafter	—
Total lease payments	2,785
Imputed interest	(350)
Total minimum lease payments	$ 2,435

(9) Intangibles

Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. No impairment charges were recorded for the years ended December 31, 2020 and 2019.

Patent costs associated with the application and award of patents in the U.S. and various other countries are capitalized and amortized on a straight-line basis over the term of the patents as determined at the award date, which varies depending on the pendency period of the application, generally approximating seventeen years.

Amortization of intangible assets acquired is calculated using the straight-line method over the estimated useful lives of the assets.

	Estimated Life (years)	December 31, 2020	December 31, 2019
Capitalized patent costs	17-20	$ 9,708	$ 9,245
Intangible assets acquired:			
Purchased patents and intellectual property	3-10	250	250
Existing technology	5	1,560	1,560
Customer relationships	7	290	290
Backlog	2	—	760
Tradenames	3	—	290
Non-solicitation agreements	1	—	120
Gross intangible assets		11,808	12,515
Accumulated amortization		(5,196)	(5,845)
Intangibles, net		$ 6,612	$ 6,670

Amortization expense on intangible assets was as follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Amortization expense	$ 559	$ 567

For intangible assets recorded at December 31, 2020, the estimated future aggregate amortization expense for the years ending December 31, 2021 through December 31, 2025 is as follows:

Year ending December 31:	Amortization Expense
2021	$ 498
2022	483
2023	472
2024	461
2025	443

(10) Notes Payable

Promissory Note under the Paycheck Protection Program

On April 16, 2020, the Company entered into a Promissory Note with Stearns Bank, N.A. in an aggregate principal amount of $5,032 (the “Note”), pursuant to the Paycheck Protection Program (the “PPP”) under the Coronavirus Aid, Relief, and Economic Security Act (the “CARES Act”).

The Note matures two years from the disbursement date and bears interest at a rate of 1.000% per annum, with the first six months of interest deferred. Principal and interest are payable monthly commencing six months after the disbursement date and may be prepaid by the Company at any time prior to maturity with no prepayment penalties.

Under the terms of the CARES Act, PPP loan recipients can apply for and be granted forgiveness for all or a portion of loans granted under the PPP. The Note is subject to forgiveness to the extent proceeds are used for payroll costs, including payments required to continue group health care benefits, and certain rent, utility, and mortgage interest expenses (collectively, "Qualifying Expenses"), pursuant to the terms and limitations of the PPP. The Company believes that it used all of the proceeds from the Note for Qualifying Expenses. However, no assurance is provided that the Company will obtain forgiveness of the Note in whole or in part.

On June 29, 2020, the Company was notified by Stearns Bank, N.A. that the Note was transferred to The Loan Source, Inc., (the "Lender") who will be responsible for servicing the Note going forward, including administering loan forgiveness.

On September 15, 2020, the Company filed its application for 100% forgiveness of the Note. The application was reviewed by the Lender and submitted to the Small Business Administration ("SBA") for approval on December 17, 2020. The SBA will, subject to any review of the Company's loan or application, remit payment of the appropriate forgiveness amount to the Lender within 90 days following the date the Lender submitted its decision to the SBA. If the SBA reviews the Company's loan or application, then it may take longer than 90 days for any determination to be made as to whether the Note will be forgiven in whole, in part or at all. Principal and interest payments can be deferred until the forgiveness process is completed as no payments would be required if the Note is forgiven.

The Note provides that the Company must obtain lender consent in the event of a "change of ownership." On October 2, 2020, the SBA released a procedural notice that defined "change of ownership" as used in PPP loans to mean the transfer, whether in one or more transactions, of at least 20% of the common stock or other ownership interest of a PPP borrower. On November 20, 2020, the Company received consent from the Lender for the expected "change of ownership" to be triggered by the conversion of the Series B Convertible Preferred Stock issued on October 1, 2020, under the Subscription Agreement with TCM Strategic Partners L.P.

The following table provides information about the Note:

		December 31, 2020
Note payable	$	5,032
Accrued interest		33
Total	$	5,065
Note payable, current	$	3,947
Note payable, long-term		1,118
Total	$	5,065

(11) Shareholders' Equity

Preferred Stock

In June 2008, the Board of Directors authorized 2,500 shares of preferred stock, par value $0.001 per share. The Board of Directors has the authority to issue the undesignated preferred stock in one or more series and to determine the powers, preferences and rights and the qualifications, limitations or restrictions granted to or imposed upon any wholly unissued series of undesignated preferred stock and to fix the number of shares constituting any series and the designation of such series, without any further vote or action by the shareholders. The issuance of preferred stock may have the effect of delaying, deferring or preventing a change of control of the Company without further action by shareholders and may adversely affect the voting and other rights of the holders of common stock.

The Board of Directors authorized 10 shares of Series A Redeemable Nonvoting Preferred stock ("Series A Preferred") that were issued to certain executive officers at the time of formation. The Series A Preferred has no voting rights, except as required by law, and may be redeemed at the option of the Company's Board of Directors at any time.

The Series A Preferred is redeemable based on the stated fair value of $5.00 per share. The Series A Preferred has no dividend rights and no rights to the undistributed earnings of the Company.

On September 29, 2020, the Company entered into a Subscription Agreement with TCM Strategic Partners L.P. to issue and sell 17 shares of its Series B Convertible Preferred Stock, par value $0.001 per share ("Series B Shares"), for $16,970 of cash proceeds and paid $82 in stock issuance costs. The closing of the sale and issuance of the Series B Shares occurred on October 1, 2020. Subject to shareholder approval, the Series B Shares automatically convert into fully paid and non-assessable shares of common stock at a conversion price equal to $14.37 per share.

On December 10, 2020, the Company held a Special Meeting of Shareholders that approved the issuance of the Company's common stock upon the conversion of the Series B Shares issued to TCM Strategic Partners L.P. in connection with the private placement on October 1, 2020. On December 10, 2020, the Series B Shares automatically converted into 1,198 shares of the Company's common stock ("the Conversion Shares"). Under the terms of the Subscription Agreement, the Conversion Shares will continue to be subject to the restrictions on transfer that expire on October 1, 2021.

The Series B Shares contained a contingent beneficial conversion feature ("BCF") that was recognized and accreted at its intrinsic value of $11,443 upon shareholder approval on December 10, 2020 and recognized in the Consolidated Statements of Shareholders' Equity. The BCF is treated as a deduction from net loss to arrive at net loss attributable to common shareholders for the purposes of calculating earnings per share. See Note 5 for calculation of basic and diluted earnings per share.

Common Stock

In June 2008, the Board of Directors authorized 50,000 shares of common stock, par value $0.001 per share. The holders of Digimarc common stock are entitled to one vote for each share held of record on all matters submitted to a vote of its shareholders, including the election of directors. Subject to preferences that may be granted to any then outstanding preferred stock, holders of common stock are entitled to receive ratably those dividends as may be declared by the Board of Directors out of funds legally available for such purpose, as well as any distributions to the Company's shareholders. In the event of the Company's liquidation, dissolution or winding up, holders of common stock are entitled to share ratably in all of the Company's assets remaining after payment of liabilities and the liquidation preference of any then outstanding preferred stock. Holders of common stock have no preemptive or other subscription or conversion rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and non-assessable.

On September 29, 2020, the Company entered into a Subscription Agreement with TCM Strategic Partners L.P. to issue and sell 2,542 shares of its common stock in a private placement at a price of $14.37 per share. The closing of the sale of common stock occurred the same day. The offering was made without an underwriter or placement agent. The Company received $36,530 of cash proceeds and paid $190 in stock issuance costs.

On December 10, 2020, the Series B Shares automatically converted into 1,198 shares of the Company's common stock.

In May 2019, the Company entered into an Equity Distribution Agreement, whereby the Company may sell from time to time through Wells Fargo Securities, LLC, as its sales agent, the Company's common stock having an aggregate offering price of up to $30,000.

For the year ended December 31, 2020 the Company sold 162 shares at an average price of $16.80 under this Equity Distribution Agreement totaling $2,718 of cash proceeds, less $61 of commissions and $394 of stock issuance costs.

For the year ended December 31, 2019, the Company sold 336 shares at an average price of $60.61 under this Equity Distribution Agreement totaling $20,349 of cash proceeds, less $483 of commissions and $251 of stock issuance costs.

As of December 31, 2020, there is $6,932 available for future issuance under the Equity Distribution Agreement.

Stock Incentive Plan

In March 2018, the Company's Board of Directors approved the 2018 Incentive Plan ("2018 Plan") which was later approved by the Company's shareholders at the Company's 2018 Annual Meeting of Shareholders in April 2018. The 2018 Plan replaced the 2008 Incentive Plan ("2008 Plan"). The 2018 Plan provides for the grant of incentive and non-qualified stock options, stock appreciation rights, stock awards, restricted stock awards, restricted stock units, performance shares, performance units, and other stock or cash-based awards, which may be granted to officers, directors, employees, consultants, agents, advisors and independent contractors who provide services to the Company and its affiliated companies.

The 2018 Plan authorizes the issuance of 1,000 shares of common stock. In addition, up to 770 shares of common stock subject to awards outstanding under the 2008 Plan became available for issuance under 2018 Plan to the extent that those shares cease to be subject to the awards (as a result of, for example, expiration, cancellation or forfeiture of the award). The shares authorized under the 2018 Plan are subject to adjustment in the event of a stock split, stock dividend, recapitalization or similar event. Shares issued under the 2018 Plan will consist of authorized and unissued shares or shares held by the Company as treasury shares. If an award granted under the 2018 Plan lapses, expires, terminates or is forfeited or surrendered without having been fully exercised or without the issuance of all the shares subject to the award, the shares covered by that award will again be available for issuance under the 2018 Plan. Shares that are (i) tendered by a participant or retained by the Company as payment for the purchase price of an award or to satisfy tax withholding obligations or (ii) covered by an award that is settled in cash, or in some manner that some or all of the shares covered by the award are not issued, will again be available for issuance under the 2018 Plan. In addition, awards granted as substitute awards in connection with acquisition transactions will not reduce the number of shares authorized for issuance under the 2018 Plan.

As of December 31, 2020, under all of the Company's stock-based compensation plans, an additional 807 shares remained available for future grants under the 2018 Plan. The Company issues new shares upon exercises of stock options, grants of restricted stock awards and vesting of restricted stock unit awards.

Stock Options

The following table reconciles the outstanding balance of stock option awards:

	Options	Weighted Average Exercise Price	Weighted Average Grant Date Fair Value	Aggregate Intrinsic Value
Options outstanding, December 31, 2018	513	$ 28.52	$ 13.10	
Granted	100	$ 39.54	$ 16.40	
Exercised	(55)	$ 21.26	$ 9.76	
Forfeited or expired	—	—	—	
Options outstanding, December 31, 2019	558	$ 31.22	$ 14.03	
Granted	105	$ 15.36	$ 7.36	
Exercised	(358)	$ 29.36	$ 13.24	
Forfeited or expired	—	—	—	
Options outstanding, December 31, 2020	305	$ 27.94	$ 12.65	$ 5,886
Options exercisable, December 31, 2020	117	$ 33.12		$ 1,647
Options unvested, December 31, 2020	188	$ 24.73		$ 4,239

The aggregate intrinsic value is based on the closing price of $47.24 per share of Digimarc common stock on December 31, 2020, which would have been received by the optionees had all of the options with exercise prices less than $47.24 per share been exercised on that date.

The following table summarizes information about stock options outstanding at December 31, 2020:

	Options Outstanding			Options Exercisable		
Exercise Price	Number Outstanding	Remaining Contractual Life (Years)	Weighted Average Exercise Price	Number Outstanding	Remaining Contractual Life (Years)	Weighted Average Exercise Price
$15.36 - $24.99	105	9.61	$ 15.36	—	—	$ —
$25.01 - $34.99	100	7.67	$ 29.55	75	7.67	$ 29.55
$35.01 - $39.54	100	8.67	$ 39.54	42	8.67	$ 39.54
$15.36 - $39.54	305	8.67	$ 27.94	117	8.03	$ 33.12

Restricted Stock

The following table reconciles the unvested balance of restricted stock:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested balance, December 31, 2018	426	$ 28.85
Granted	300	$ 25.22
Vested	(242)	$ 27.88
Forfeited	(49)	$ 27.43
Unvested balance, December 31, 2019	435	$ 27.05
Granted	256	$ 29.95
Vested	(260)	$ 28.25
Forfeited	(15)	$ 23.73
Unvested balance, December 31, 2020	416	$ 28.20

The following table indicates the fair value of all restricted stock awards that vested:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Fair value of restricted stock awards vested	$ 5,946	$ 9,495

Restricted Stock Units Activity

The following table reconciles the unvested balance of restricted stock unit awards:

	Number of Units	Weighted Average Grant Date Fair Value
Unvested balance, December 31, 2019	—	$ —
Granted	45	$ 15.36
Vested	—	$ —
Forfeited	—	$ —
Unvested balance, December 31, 2020	45	$ 15.36

Performance Restricted Stock Units Activity

The following table reconciles the unvested balance of performance restricted stock unit awards:

	Number of Units	Weighted Average Grant Date Fair Value
Unvested balance, December 31, 2019	—	$ —
Granted	124	$ 11.08
Vested	—	$ —
Forfeited	—	$ —
Unvested balance, December 31, 2020	124	$ 11.08

(12) Defined Contribution Plan

The Company sponsors an employee retirement savings plan (the "Plan") which qualifies as a deferred salary arrangement under Section 401(k) of the Internal Revenue Code. The Plan combines both an employee savings plan and company matching plan into one plan under Section 401(k), including a 401(k) Roth option. Employees become eligible to participate in the Plan at the beginning of the month following the employee's hire date. Employees may contribute up to 75% of their pay to the Plan, subject to the limitations of the Internal Revenue Service Code. Company matching contributions are mandatory under the Plan.

The Company made matching contributions in the aggregate amount as follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Matching contributions	$ 1,146	$ 1,062

(13) Income Taxes

The benefit (provision) for income taxes reflects current taxes, deferred taxes, and withholding taxes. The effective tax rates for the years ended December 31, 2020 and 2019 were 0% and 0%, respectively. The Company continues to provide for a full valuation allowance to offset its net deferred tax assets until such time it is more likely than not the tax assets or portions thereof will be realized.

Components of tax benefit (provision) allocated to continuing operations include the following:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Current:		
Federal	$ 16	$ (4)
State	(9)	10
Foreign	(8)	(27)
Sub-total	$ (1)	$ (21)
Deferred:		
Federal	$ —	$ —
State	—	—
Foreign	—	—
Sub-total	$ —	$ —
Total tax benefit (provision)	$ (1)	$ (21)

The reconciliation of the statutory federal income tax rate to the Company's effective income tax rate is as follows:

	Year Ended December 31, 2020	%	Year Ended December 31, 2019	%
Income taxes computed at statutory rates	$ 6,832	(21)%	$ 6,892	(21)%
(Increases) decreases resulting from:				
State income taxes, net of federal tax benefit	451	(1)%	143	(1)%
Federal and state research and experimentation credits	947	(3)%	781	(2)%
Change in valuation allowance	(7,830)	24%	(7,873)	24%
Impact of expired tax positions	—	—%	—	—%
Impact of recent U.S. tax reform	—	—%	—	—%
Other	(401)	1%	36	—%
Total	$ (1)	—%	$ (21)	—%

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. The tax effects of significant items comprising the Company's deferred tax assets and deferred tax liabilities are as follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Deferred tax assets:		
Stock based compensation	$ 158	$ 1,166
Federal and state net operating losses	47,442	39,879
Goodwill	154	220
Accrued compensation	14	9
ASC 842 - lease liabilities	524	712
Federal and state research and experimentation credit	9,152	8,173
Intangible asset differences	87	122
Deferred social security tax	212	—
Other	27	57
Total gross deferred tax assets	57,770	50,338
Less valuation allowance	(55,639)	(47,809)
Net deferred tax assets	$ 2,131	$ 2,529
Deferred tax liabilities:		
Patent expenditures	$ (1,433)	$ (1,481)
ASC 842 - right of use assets	(386)	(528)
Fixed asset differences	(312)	(520)
Total gross deferred tax liabilities	$ (2,131)	$ (2,529)
Total net deferred tax assets	$ —	$ —

The Company had a valuation allowance of $55,639 and $47,809 on deferred tax assets as of December 31, 2020 and 2019, respectively, an increase of $7,830 during the year ended December 31, 2020.

As of December 31, 2020, the Company has federal and state net operating loss carryforwards of $191,345 and $122,168, respectively, which have a carryforward of 5 years to indefinite depending on the jurisdiction. The gross deferred tax assets for federal and state net operating loss carryforwards acquired in the Attributor Corporation acquisition have been reduced to the amount of losses allowed to be utilized in the post-acquisition period before expiration after considering the applicable limitations of Internal Revenue Code Section 382.

As of December 31, 2020, the Company has federal and state research and experimental tax credits of $9,276 and $884, respectively, which have a carryforward of 5 to 20 years depending on the jurisdiction.

The Company records accrued interest and penalties associated with uncertain tax positions in the provision for income taxes in the consolidated statements of operations. For the years ended December 31, 2020 and 2019, the Company recognized accrued interest and penalties associated with uncertain tax positions of $0 and $0, respectively. The Company does not anticipate any of its unrecognized benefits will significantly increase or decrease within the next 12 months.

A summary reconciliation of the Company's uncertain tax positions is as follows:

	Year Ended December 31, 2020	Year Ended December 31, 2019
Beginning balance	$ 676	$ 613
Addition for current year tax positions	92	61
Addition for prior year tax positions	55	2
Reduction for prior year positions	—	—
Reduction for prior year positions resolved during the current year	—	—
Ending balance	$ 823	$ 676

Uncertain tax positions are classified as a long-term liability (or a contra deferred tax asset) in the consolidated balance sheets for uncertain tax positions taken (or expected to be taken) on a tax return.

The Company's open tax years subject to examination in the U.S. federal jurisdiction are 2017 through 2019 and applicable state jurisdictions for the tax years 2017 through 2019. To the extent allowed by law, the taxing authorities may have the right to examine prior periods where net operating losses or tax credits were generated and carried forward, and make adjustments up to the amount of the net operating loss or tax credit carryforward.

(14) Commitments and Contingencies

Certain of the Company's product license and services agreements include an indemnification provision for claims from third parties relating to the Company's intellectual property. Such indemnification provisions are accounted for in accordance with ASC 450 "*Contingencies*." To date, there have been no claims made under such indemnification provisions.

The Company is subject from time to time to other legal proceedings and claims arising in the ordinary course of business. At this time, the Company does not believe that the resolution of any such matters will have a material adverse effect on its financial position, results of operations or cash flows.

(15) Quarterly Financial Information—Unaudited

2020	Quarter Ended March 31	June 30	September 30	December 31 (1)
Service revenue	$ 3,738	$ 3,892	$ 3,352	$ 2,899
Subscription revenue	2,451	2,605	2,399	2,654
Total revenue	6,189	6,497	5,751	5,553
Total cost revenue	2,198	2,113	1,928	1,695
Gross profit	3,991	4,384	3,823	3,858
Gross profit percent, service revenue	55%	59%	58%	61%
Gross profit percent, subscription revenue	79%	80%	78%	79%
Gross profit percent, total	64%	67%	66%	69%
Sales and marketing	$ 5,246	$ 4,633	$ 4,538	$ 4,428
Research, development and engineering	4,433	4,208	4,662	4,011
General and administrative	3,367	3,081	3,009	3,253
Operating loss	(9,055)	(7,538)	(8,386)	(7,834)
Net loss	(8,908)	(7,461)	(8,352)	(7,816)
Beneficial conversion feature	—	—	—	(11,443)
Net loss attributable to common shares	$ (8,908)	$ (7,461)	$ (8,352)	$ (19,259)
Earnings (loss) per common share:				
Loss per common share—basic	$ (0.74)	$ (0.62)	$ (0.68)	$ (1.27)
Loss per common share—diluted	$ (0.74)	$ (0.62)	$ (0.68)	$ (1.27)
Weighted average common shares outstanding—basic	12,037	12,108	12,241	15,222
Weighted average common shares outstanding—diluted	12,037	12,108	12,241	15,222

(1) Loss per common share of $(1.27), basic and diluted, includes impact of beneficial conversion feature of $11,443. See Note 11 for details on the beneficial conversion feature.

2019	Quarter Ended March 31	June 30	September 30	December 31
Service revenue	$ 3,814	$ 3,575	$ 3,160	$ 2,700
Subscription revenue	1,846	2,605	2,668	2,619
Total revenue	5,660	6,180	5,828	5,319
Total cost revenue	2,134	2,185	1,918	1,799
Gross profit	3,526	3,995	3,910	3,520
Gross profit percent, service revenue	57%	53%	55%	52%
Gross profit percent, subscription revenue	74%	80%	81%	80%
Gross profit percent, total	62%	65%	67%	66%
Sales and marketing	$ 4,950	$ 5,087	$ 4,839	$ 4,999
Research, development and engineering	4,038	3,981	4,105	4,343
General and administrative	3,210	3,079	2,998	3,053
Operating loss	(8,672)	(8,152)	(8,032)	(8,875)
Net loss	(8,463)	(7,933)	(7,761)	(8,683)
Earnings (loss) per common share:				
Loss per common share—basic	$ (0.74)	$ (0.68)	$ (0.65)	$ (0.73)
Loss per common share—diluted	$ (0.74)	$ (0.68)	$ (0.65)	$ (0.73)
Weighted average common shares outstanding—basic	11,487	11,665	11,924	11,967
Weighted average common shares outstanding—diluted	11,487	11,665	11,924	11,967

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