Biometrics for Workforce Management Market Analysis

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A report on the growing demand for biometric applications for labor management, workforce productivity and time and attendance solutions

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About the Biometrics Research Group

Biometric Research Group, Inc. (BRGI) provides proprietary research, consumer and business data, custom consulting and industry intelligence to help companies make informed business decisions.

We provide news, research and analysis to companies ranging from Fortune 500 to small start-ups through market reports, primary studies, consumer research, custom research, consultation, workshops, executive conferences and our free daily BiometricUpdate.com news service.

BRGI supplies pure-play market research and consultancy services focused on the biometric marketplace, which has a particular focus on the law enforcement and national security sectors. Our portfolio of white papers and research reports is based upon high-quality quantitative analysis, allowing our clients to gain a deeper understanding of the marketplace.

We customize our research design, data collection and statistical reporting using proprietary micro- and macroeconomic modeling and regression analysis.

We also provide actionable business analysis by integrating our research results with qualitative analysis from our BiometricUpdate.com news service.

Research Methodology

BRGI uses a combination of primary and secondary research methodologies to compile the necessary information for its research projections.

The conclusions drawn are based on our best judgment of exhibited trends, the expected direction the industry may follow, and consideration of a host of industry drivers, restraints and challenges that represent the possibility for such trends to occur over a specific time frame. We endeavor to provide the best supporting analyses and data possible; the medium is optimal for your message and your brand.

Primary Research
BRGI conducts interviews with technology providers, clients and other organizations, as well as stakeholders in each of the technology segments, standards organizations, privacy commissions and other influential agencies. To provide balance to these interviews, industry thought leaders who track the implementation of the biometric technologies are also interviewed to get their perspective on the issues of market acceptance and future direction of the industry.

BRGI also applies its own proprietary micro- and macroeconomic modeling using a regression analysis methodology to determine the size of biometric and related-industry marketplaces. Using databases of both publicly and privately available financial data, BRGI works to project market size and market potential, in the context of the global economic marketplace, using proven econometric models.

Secondary Research
BRGI also draws upon secondary research, which includes published sources such as those from government bodies, think tanks, industry associations, Internet sources and BRGI's own repository of news items. This information was used to enrich and externalize the primary data. Data sources are cited where applicable.

Workforce Management Market Forecasts

- The market for worldwide workforce management software was US$10 billion in 2010 and is forecast to reach US$18 billion by the end of 2015.

- Demand for workforce management solutions delivered through the software-as-a-service (SaaS) model will demonstrate robust growth. By 2017, more than 50 percent of new workforce management solution purchases will be made with vendors providing on-demand SaaS offerings. SaaS will account for more than 50 percent of the biometric time and attendance fraud software market by 2018.

- The market for all biometric workforce management solutions (i.e., cloud-, software- and hardware-based) will reach US$600 million in sales by 2018.

- BRGI predicts market growth for cloud-, software-, and hardware-based management solutions of US$1.5 billion from 2015 to 2020.

Biometrics Are an Integral Component of Efficient Employee Management

Biometrics are measurable physical and behavioral characteristics that enable the establishment and verification of an individual's identity. Biometric patterns can be anything from fingerprints, iris (eye) scans, palm prints, gait, facial recognition, or even voice recognition. Biometrics is the science of recognizing an individual based on his or her physical and behavioral traits. Biometric-based authentication systems are widely considered to be more reliable than established password systems for verifying individuals and ensuring they are who they say they are.

Biometric technology is increasingly used as an authentication method for workforce management solutions.

Workforce Management Systems Impact the Bottom Line

Workforce management systems are an integrated set of processes that an organization uses to optimize the productivity of its employees on an individual, departmental and institution-wide level.

In a corporation, organization, or government department or agency, workforce management involves matching employee skills to specific tasks over time, thereby quantifying the amount and types of labor needed to accomplish particular jobs on a day-to-day or hour-by-hour basis. Workforce management systems are deployed to assign the right employees with the right skills to the right job at the right time.

BRGI defines workforce management systems as human resource software applications, such as time and labor, absence management and labor scheduling that enable an organization to maximize the potential of its workforce.

Workforce management systems are commonly used in distribution centers, retail shops, call centers, warehouses and back office operations. Increasingly, workforce management systems include strategic and real-time employee reporting and analytics.

Most businesses spend at least 50 percent of their total operating costs on payroll and workforce management. High-quality biometric tools, software and equipment can be employed to automate these processes, thereby streamlining labour management in order to lower overall costs and improve bottom-line profitability.

The workforce management market is divided into two components: software and services. The software market is further divided into standalone software and integrated software. The services market covers a variety of services related to workforce management software including implementation, support and maintenance, optimization and training services.

BRGI notes that the market for worldwide workforce management software was US$10 billion in 2010 and is forecast to reach US$18 billion by the end of 2015. The demand for workforce management solutions delivered through the software-as-a-service (SaaS) model is demonstrating robust growth. BRGI projects that by 2017, more than 50 percent of new workforce management purchases by will be made with vendors providing on-demand SaaS offerings.

Key vendors dominating this space include ADP Inc., Kronos Inc., Oracle Corp. and SAP AG. Other vendors with substantial market share include Amano Group, Atoss Software AG, Empower Software, Huntington Business Systems Inc., Infor Global Solutions, NICE Actimize, RedPrairie, Reflexis Systems Inc., Tomax Corp., Uptivity Inc., WorkPlace Systems Inc. and Work-Force Software.

These vendors provide all-inclusive workforce management software systems.

Workforce Management and Big Data

Vendors offering all-inclusive workforce management systems as software, are developing new tools and technologies to manage the complex data generated by the systems. Vendors are leveraging big data analytics to bind together time and attendance, scheduling, HR and payroll, and talent management to create meaningful workforce analytics to inform decisions.

Healthcare Providers Drive Growth

The need to reduce labor costs in hospitals and for other healthcare providers, along with the drive towards operational efficiencies and consolidation in healthcare, are driving growth in the workforce management solution marketplace. The United States is leading adoption of workforce management systems for the healthcare market. There are stringent and regulatory requirements for this sector, including privacy, security, fraud detection and records-keeping, and the result provides an ideal use-case for biometric technology incorporated into workforce management systems.

Many hospitals and healthcare organizations are currently deploying biometric security architecture. Secure identification is critical in the healthcare system—to control access to digitized patients' data, to limit physical access to buildings and hospital wards, as well as to authenticate medical and social support personnel.

There is also an increasing need to identify patients with a high degree of certainty. Identity verification solutions based on biometric technology can provide identity assurance and authentication while increasing privacy and security. Biometric technology can also add oper-

ational efficiencies to the healthcare system that reduce costs, reduce fraud and increase patient satisfaction and positive outcomes by reducing medical errors. As electronic health records (EHRs) and personal health records (PHRs) become more commonly used, biometrics will be utilized as an authentication mechanism by both medical facilities personnel and insurers.

In developed countries like the United States, records must show every instance when a patient's electronic record is accessed. Biometrics permit medical professionals to do this easily since their use of a biometric identifier can be automatically and digitally recorded each time a medical record is opened. A number of biometric equipment manufacturers and service providers offer turnkey applications that maintain and track access to EHRs.

These requirements in the healthcare sector continue to drive innovation and growth in workforce management systems, thereby helping to reduce workplace challenges while concurrently addressing compliance issues and unmet needs of the healthcare providers for accountability, tracking and efficiency. Vendors focused on the healthcare segment include **IBM,** along with **Kronos Inc.**

Security, fraud prevention, privacy and patient safety are driving growth of biometrics in healthcare.

Biometric Time and Attendance Systems

Biometric workforce management, or time and attendance systems, are installed in workplaces or institutions that record biometrics to monitor the attendance of workers.

Biometric time and attendance systems work by measuring features of the body that are unique to each person. They offer greater accuracy in attendance tracking and access control.

The key benefit of biometric time and attendance systems is that they prevent employee time theft. Borrowing a swipe card to gain access to controlled areas is not feasible with biometrics in place. The systems also reduce time and attendance fraud by preventing "buddy clocking," where one employee clocks in for

another. Biometric time and attendance systems can also be used for identity verification, in order to ensure that the person using a credential is authorized.

BRGI estimates that the market for biometric workforce management solutions (i.e., cloud-, software-, and hardware-based) will reach US$600 million in sales by 2018. Our firm estimates market growth for cloud-, software-, and hardware-based workforce management solutions of $1.5 billion from 2015 to 2020. We also estimate that SaaS will account for over 50 percent of the biometric time and attendance software market by 2018.

India Deploys Biometric Workforce Management for Government Employees

Growth will be global in the biometric time and attendance market and will accelerate due to government spending in emerging countries such as India.

In 2010, there were estimated to be 6.4 million government employees in India, and less than 50,000 managers to administer them. The Indian government's investment in biometric workforce management allows managers to exercise a greater degree of control over a large number employees, some of whom have been known to be extremely truant.

Earlier this year, India's Department of Electronics and Information Technology (DeitY) announced that it was implementing biometric attendance systems in 54 government centers in Delhi to monitor all employees entering and exiting the offices. This biometric workforce management solution verifies the identities of employees via fingerprint scan to provide real-time access into the offices within two seconds. The department plans to roll out the technology to 394 government organizations and agencies within the Delhi region. After the DeitY implements the technology in central government offices in Delhi, the department will deploy it to

other locations across the country through state governments.

The DeitY time and attendance system is based on Aadhaar. The Indian government provides a 12-digit unique Aadhaar number to all citizens. The number is linked to each citizen's basic demographic and personal information, photograph, 10 fingerprints and iris scans, which are stored in a centralized database.

To date, the program has issued 630 million Aadhaar numbers, and has enrolled approximately 850 million people. The database is actively used to monitor school attendance, issue natural gas subsidies to India's rural poor, and to send wages directly to people's bank accounts. The system, a landmark legacy project of India's previous Congress Party government, can also provide identification to people who do not have birth certificates.

With India and other national governments in emerging economies intent on using biometric workforce management solutions to monitor their employees, BRGI expects rapid growth for the market segment.

Institutional Adoption Driving New Product Innovation

These projected growth rates for workforce management and initial bullish market uptake in healthcare and government, have begun to drive innovation and spur the release of a bevy of new products.

As an example, **Infinisource** recently announced that it has partnered with **Morpho** to develop what they call the market's "most advanced" biometric time clock. The iSolved NXG time clock is designed to collect attendance and labor data for the small and mid-size employer, and can be integrated into the iSolved human capital management (HCM) solution to provide the time tracking power, precision and flexibility required by employers.

fingerprint Scanner

Small and medium-sized business using Infinisource's software can incorporate biometrically enabled time clocks.

The NXG time clock is available with an optional biometric scanner from Morpho, preventing employees from punching in for their co-workers and using other fraudulent behavior. When the time clock is set to identification mode, each employee can simply scan a finger to clock in and out, without the use of an additional badge. The iSolved NXG time clock is assembled in the United States and can be purchased from iSolved's network of certified partners and directly from Infinisource throughout the U.S.

Intelligent Systems & Solutions recently launched iSattva, a desktop time and attendance terminal powered by **HID Lumidigm** Venus and Mercury biometric fingerprint sensors. iSattva features a built-in biometric server that can authenticate people using a proprietary fingerprinting algorithm developed in-house by the firm's R&D team.

iSattva supports industry standard databases like MS Access, MS SQL Server, MySQL and Oracle. Using HID Global's Lumidigm Venus sensors, the iSattva solution delivers biometric performance (regardless of environmental or skin conditions), integration options and liveness detection in any setting.

Liveness detection reduces the risk of spoofing by requiring a liveness signature in addition to matched biometric information. Methods can include medical measurements such as pulse oximetry, electrocardiogram, or odor. In a few cases, liveness information is inherent to the biometric itself, i.e., the biometric cannot be captured unless the user is present, or "live," e.g., electrocardiogram as a biometric.[1]

The iSattva time and attendance terminal is integrated with ISS SAMAY software, offering a range of options to manage employee attendance, access control and payroll.

iSattva time and attendance solution offers an employee enrollment and verification system that addresses the requirements of a wide range of industry verticals. Users can securely enroll or authenticate themselves on the iSattva time and attendance terminal with a simple tap of a finger.

The time and attendance terminal's main features include integration with a patented multispectral imaging sensor from HID Lumidigm, use of the ISO 19794-4:2005 format that aligns with universal biometric data interchange formats, a built-in biometric server with hosting support on standard databases, integration with ISS SAMAY time attendance, access control and payroll software, support for an unlimited number of fingerprint templates, and a pricing structure that charges on a per-fingerprint basis.

Key vendors within the biometric time and attendance system market include **IRIS ID, Bodet, Anviz, ZKTeco, ENTERTECH SYSTEMS, MorphoTrak, 3M Cogent, Green Bit , SRI International, Suprema Inc., IDTech360** and **Image-Ware Systems.**

Value Added Resellers and Workforce Management

A value added reseller (VAR) is an IT vendor that takes an existing, separate product and adds their own value to it, usually in the form of a specific new application. The value added reseller therefore combines a new service with an existing product and is defined by the fact that they add features or services, usually to the benefit of end-users.

Instead of a technology end-user having to assemble a hardware solution and then seek to combine that hardware with appropriate software, a VAR undertakes that process on the end-user's behalf.

In the biometrics industry, a VAR can bundle its own software application with specialized biometrics hardware. Value can be added through the provision of professional services that include customization, integration, training, implementation and general consulting focused on the new hardware/software combination. Typically, a VAR differentiates itself within a marketplace through the technical expertise it brings in terms of developing a specific application for an existing biometrics hardware product.

Value added resellers have expanded their busi-

[1]Encyclopedia of Biometrics. Li, Stan Z. and Jain, April 2009, p. 924.

ness in the biometrics sector because many original equipment manufacturers (OEMs) design hardware to specific industry standards. Standards have been established for technical interfaces, data interchange formats, application profile standards, and performance testing and reporting. Standards are defined by the InterNational Committee for Information Technology Standards (INCITS) M1, the National Institute of Standards, Joint Technical Committee 1 (JTC 1)/Subcommittee 37 (SC 37), and the Organization for the Advancement of Structured Information Standards (OASIS).

Many biometric hardware manufacturers differentiate themselves by enhancing the technical capacity of their products. As an example, a fingerprint or palm print recognition scanner may be more accurate than a previous version. The scanner most likely will also be compatible with standards enumerated by standard granting agencies such as INCITS, NIS and OASIS. The reason for compliance is self-evident. Many security and law enforcement agencies demand that hardware function within specified parameters. Such standards will outline operational performance requirements along with outlining interoperability specifications. The interoperability specifications ensure that hardware can be directed in certain standardized methods by software. This is important since not all end-users will utilize their biometrics hardware in the same fashion.

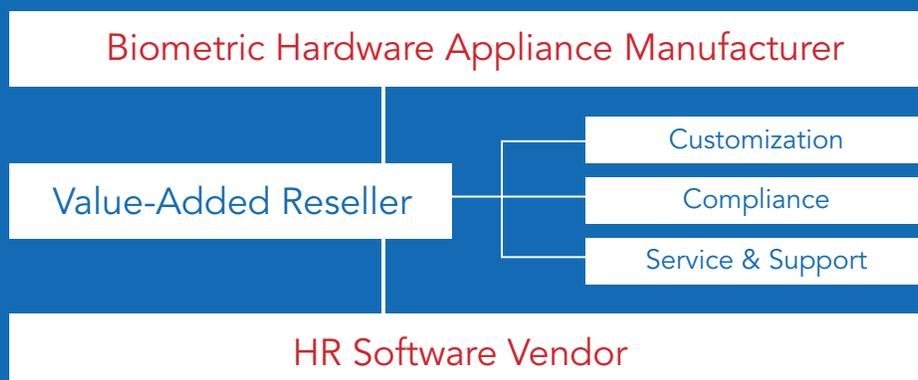VARs permit hardware, in effect, to be customized to the requirements of the customer.

This creates a tremendous number of benefits, which includes the assurance that time and attendance management software can be developed for standardized biometric hardware appliances.

Benefits for VARs and end-users are obvious, but benefits of the value added model also accrue to hardware manufacturers. VARs often represent a lower upfront sales cost for a manufacturer since VARs are only paid when they sell a product. This allows manufacturers to lower their customer acquisition costs. Manufacturers can leverage VARs in order to lower the costs of having to find, hire, train and manage a specific sales force in a certain sub-sector.

VARs are also important because they typically have a wide network of customer relationships, which means that manufacturers do not have to invest a tremendous amount of time, money and effort in building their own sales channels. Some VARs include **Fulcrum Biometrics, Mayflex,** and even multinational **Diebold,** which signed an agreement to resell **Daon's** biometrics and identity management software.

As a consequence, manufacturers can utilize VARs to increase their revenue streams, while their end-users concurrently benefit from added product functionality. BRGI projects that many value-added resellers will emerge and will focus on developing and providing biometric time and attendance software, in partnership with device manufacturers, in order to capture growing revenue streams.

Role of VARs in Integrating Biometrics for Workforce Management

Biometric Hardware Appliance Manufacturer

Value-Added Reseller	Customization
	Compliance
	Service & Support

HR Software Vendor

Conclusion

The application of biometric technologies in workforce management solutions represents strong growth opportunities for many businesses and service sectors. Large-scale government deployments, such as that of India, as well as regulatory-driven deployments, such as healthcare, will drive near-term opportunity. Value-added resellers will continue to play an important role in the biometric workforce management solution ecosystem—applying customized workforce management software to standards-driven biometrics hardware.