

# SECURITY

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## Robots, Drones, Technology

### And the Future of Guard Services

Pictured (from left to right) are Anthony Meenaghan, Senior Director, Facilities Management and Engineering, Environmental Health & Safety, EMD Serono; Chris Nesman, Senior Manager, Facilities Technical Operations, Facilities Management & Environmental Health & Safety, EMD Serono; Michael K. Landadio, National Security Officer - USA, MilliporeSigma; and Kurt Larson, Account Manager, Allied Universal Security Services. Photo courtesy of Tim Cook of InRange Studio.

# GUARDING REPORT

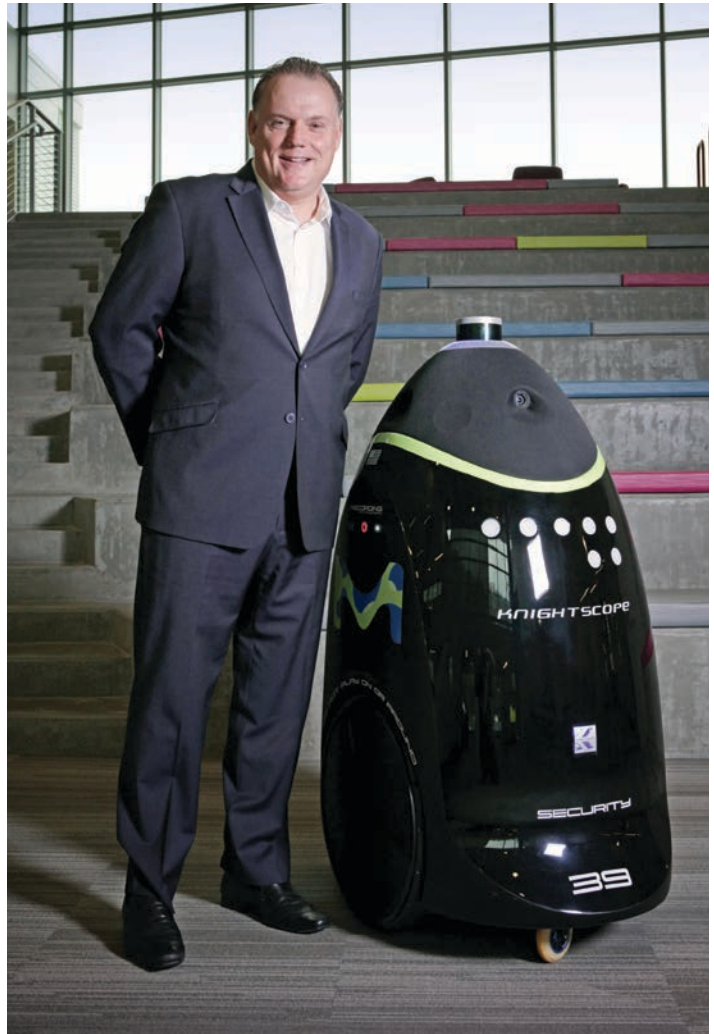
## 2017:

### Industry Continues Growth, But Will Humans Necessarily Keep Driving It?

By **Ed Finkel**, Contributing Writer

The contract security industry continues to boom in the U.S. and worldwide, although security officers are finding an increasing number of technological devices patrolling alongside them.

**M**ore than 40 countries comprising at least half of the world's population have more private security officers than police officers, and the United States has more than 1½ times the number of security officers, about 1.1 million, than police



Anthony Meenaghan, senior director, facilities management and engineering, environmental health & safety for EMD Serono is among those moving ahead with artificial intelligence technology, at least on an introductory basis. *Photo courtesy of Tim Cook, InRange Studio*

and sheriff's officers, which total about 660,000, according to an analysis in the British newspaper *The Guardian*. Estimates suggest there are more than 20 million private security workers around the globe, serving a market worth an estimated \$180 billion – predicted to be \$240 billion by 2020, *the Guardian* reported.

The annual *U.S. Contract Security Industry* white paper for 2017 by Robert H. Perry & Associates, Inc., released in July, shows the industry is worth a total of \$44 billion nationwide, about \$24.5 billion of which is outsourced and the rest in-house. The top three companies in the outsourced industry, Securitas, G4S and Allied Universal, totaled \$11.5 billion in revenue.

The industry in the U.S. was composed of 8,000 companies and 800,000 outsourced security officers, enjoying 6.5 percent total revenue growth, although without Securitas' acquisition of Diebold that figure would have been four percent, the white paper showed. Revenues were up 14 percent at the three market leaders, who are aggressively pursuing an expanded menu of services that includes cybersecurity, drones and robotics, although three percent of that growth came from the \$350 million Diebold acquisition, Perry says.

Perry notes that the past year has seen a continuing and wider division

between the service offerings of large contract security companies and their smaller counterparts, which offer little besides standing security officer services.

“The larger companies started investing heavily in technology about five years ago, and the investment is just now starting to pay off – evidenced by the information in the annual reports of the large public security companies,” he says. “Putting in a viable technology offering is expensive, and the returns don’t come immediately.”

Perry predicts the division will continue to get larger in the years to come. “And it will get larger faster, since it takes public money or private equity backing to put a viable technology offering in place; and the smaller company, which doesn’t have access to these markets, doesn’t have the financial resources or borrowing power to compete in this arena,” he says.

### Takeoff of Technology?

Pharmaceutical company EMD Serono is among those moving ahead with artificial intelligence technology, at least on an introductory basis, says Anthony Meenaghan, senior director, facilities management and engineering, environmental health & safety.

When EMD Serono first deployed a robot earlier this year with technology from Knightscope, for a one-year term, Meenaghan needed to get his security officer force on board. “People raise eyebrows and think, ‘Is my job at threat? What is this for? Why are we doing this?’” he says. “Now it’s almost faded into the background.”

Meenaghan and security partner Allied Universal are using the robot, located in the company’s Boston research building, to complement existing resources, giving it targeted areas to patrol in a part of the building, warehouse or parking lot. “People get afraid: ‘It’s going to take over,’” he says. “Ultimately, a robot has to have the human element to make critical decisions.”

The robot charges during the day and then patrols the building’s atrium and corridors at night, recognizing noises and other disturbances and communicating them back to the building command center through its wireless camera, Meenaghan says. The unit can do everything from detecting water leaking on the floor to sensing that an intruder has entered.

“The robot gives real-time data, and the person at the desk makes a decision,”



Research by Robert H. Perry of Robert H Perry & Associates, Inc., shows the security officer industry is worth a total of \$44 billion nationwide, about \$24.5 billion of which is outsourced and the rest in house. The top three companies in the outsourced industry, Securitas, G4S and Allied Universal, totaled \$11.5 billion in revenue. *Photo courtesy of Robert Perry*



The benefits of moving toward robots are on the radar screen of Eric Morse, senior security manager for pharmaceutical company that has been using technology from SHARP. *Photo courtesy of Eric Morse*

he says. “If you’re in the corridor at night, it will recognize movement, and it will approach you. If you don’t swipe a badge in a certain time period, it will send an alarm to security.”

Robots will gain functionality over time and become that much more ingrained into security operations, Meenaghan says. “Can you imagine where we’ll be in five or 10 years? I think it’s going to be common,” he says. “Once people are socialized to them, they’re going to fade into the background and be a complement to the business.”

Meenaghan also expects robots will gain mobility and be able to take an elevator, for example. “I’d like to think that in one or two years, we’d have multiple

robots, and they’ll give us a high degree of coverage, certainly in the evening hours and on the weekends,” he says, adding that that won’t change EMD Serono’s outlook in terms of human job security. “We are not thinking about reducing the security officer force. It doesn’t work without the human touch.”

But ROI will come from robots detecting water leaks, gas leaks or fires – not to mention an intruder – before a human guard would have seen them. “If you can get to the fire 10 minutes before the security officer could [have noticed it], that’s an amazing savings,” Meenaghan says. “Potentially in the right circumstances, you could reduce officer levels if you wanted to, but you’d weaken what you already have.”

The benefits of moving toward robots are also on the radar screen of Eric Morse, senior security manager for another pharmaceutical company that has been using technology from SHARP. Morse, who preferred not to identify his company publicly, says it’s been taking an “onion-layer approach” to security that makes its defenses difficult to breach. While physical hardware can help accomplish that, the company has most recently chosen the technological approach because “we felt it was more nimble, and there were more benefits than just hardening of the onion layer.”

Morse’s company started partnering with SHARP three years ago and became the first customer to use the model. Among the benefits it offers are external air quality monitoring, infrared and regular cameras, lighting, and two-way communication with the control room. The robot also helps cut emissions from patrol vehicles to the tune of 76 miles per day, Morse says.

And the robot could unsettle intruders when it rolls up, looking at first like a four-wheeled golf cart, but then erecting a camera that draws its height to 6 feet, turning on lights and facing the movement. “There’s an intimidation factor to a robot showing up and turning its lights on,” he says. “If you’re facing that, you know you’re talking to a device that has a security component.”

It’s possible the rollout of robots could reduce the human security force because they will be patrolling the exterior, but that potential return on investment is not a driver for the company to move forward on the project, Morse says. “It’s not the reason we have the unit, to reduce head-

count,” he says. “We look at it as a force multiplier.”

There are important functions that a robot will never perform, such as responding to a medical call, putting out a fire or quelling a workplace violence incident, Morse says. “And that wasn’t the purpose of it; it was to augment our security staff,”

he says. “It may allow us to increase the efficiency of our officers and give them another tool to use, especially the younger generation, who are really in tune with innovation.”

Robots will be focused on “dull, dirty and dangerous” activities, freeing up humans to do more “value-added activi-

ties” as well as those that keep them more engaged, Morse says. “The fourth time I’m walking that fence at night, A) I’m probably not as aware as I could be, and B) I’m going to be thinking about my grocery list, or what I’m doing that weekend. The unit doesn’t care how many times it’s [patrolled the fence].”

## The M&A Trend in the Security Officer Industry

Despite the advances in the U.S. contract guarding business over recent years, there remains a question as to the industry’s viability in view of the increasing trend for integrating manned services with security systems (i.e. security video, access control and monitoring) along with the emergence of other new smart technology options and solutions (i.e. robotics, drones, cybersecurity and crowd sharing alert notification).

While these alternatives proliferate with increasing efficacy in performance and inevitably lower costs in the future, their impact on the contract security industry will likely have mixed results – positive for companies who harness technology into their service delivery strategies – and negative for those companies who fail to invest in or adopt these service-enhancing capabilities.

According to the white paper, *U.S. Contract Security Industry*, by Robert H. Perry & Associates, the largest 41 security officer companies now share \$18.8 billion or 75 percent of this market, with the top four companies (Allied Universal, Securitas, G4S and U.S. Security Associates) sharing \$13.3 billion or 54 percent!

This consolidation of market share has not been gradual but rather a rapid shift over the last five years in an industry which once was highly fragmented and widely dispersed. A comparison of the 2017 Perry white paper to its 2012 edition shows this dramatic movement of revenue concentration from smaller regional and local companies to the largest 41 companies.

With an estimated population of 900,000 security officers and a relatively stabilized base of 8,000 security companies over the last five years, the industry has grown \$4.5 billion in revenues or 23 percent from \$20 billion to \$24.5 billion for a compound annual growth rate of 4.1 percent. Note

that companies with \$50 million or more in annual revenues have grown \$5.6 billion or 43 percent during this period, while companies under \$50 million have shrunk \$1.1 billion or 17 percent.

What has caused this rapid shift? The obvious answer, of course, is the recent merger and acquisition trend, primarily by the major national and international security organizations and fueled by investment and funding from private equity firms. But the underlying reason for this shift is less obvious and suggests an increasing number of sellers who concluded that their better option was to exit and sell rather than remain in the marketplace and try to compete and organically grow their market share.

What compels an exit decision? Despite its low barriers of entry and nominal capital requirements, the security guard business has become more challenging for the smaller owner/operator. The traditionally historic advantage of the smaller operator’s ability to offer relationship-driven customized services is no longer totally sufficient for sustainable growth – especially with the increasing regulatory challenges of the ACA, federal and state minimum wage laws, FMLA and state laws (i.e. meal and rest break reporting and now, predictive scheduling). Even stronger local and smaller regional companies are finding it more difficult to protect their client base and grow revenues under increasing regulatory as well as competitive pressures. Larger regional and national organizations are dealing with the regulatory climate while growing market share by leveraging infrastructure, technology, economies of scale with more aggressive pricing and better service reliability. This approach appears to offer a more compelling value proposition from the client’s perspective, which seems evident by the higher client retention rates reported by the major security companies.

However, this consolidating trend may not be inevitable for the future as newer, more tech-savvy owner/operators enter

the business and recognize how to adopt best practices with a variety of sophisticated third-party software platforms and applications to help level the playing field. These include talent management and on-boarding applications to attract, hire and maintain a more skilled and reliable workforce; integrated labor management platforms to control scheduling, compliance, operations, payroll, billing and financial reporting; and state-of-the-art social media marketing applications.

It should be noted that the Perry white paper also describes an additional \$20 billion in-house market. The contract security industry should now be able to more effectively capitalize on and penetrate opportunities in this market – especially for those companies who have invested and integrated technology into a more highly reliable ecosystem of protective services.

For the foreseeable future, the U.S. manned guarding business seems likely for continued sustainable growth. While the technology/manpower ratio may shift the revenue mix going forward, based on today’s currently expanding U.S. economy, the prospects for an aggregate growth rate of four percent or more seem realistic and perhaps even conservative, especially for ownership who have prudently invested in technology enhancements to their core guarding operations. Providing these strategies can yield an attractive ROI, increase operating profits (EBITDA ranges of four to six percent and higher) and enterprise valuations, this industry seems not only viable but also opportune for further investment consideration.

### About the Author



Jack Goldsborough is a principal of Whitehaven Advisors LLC, which provides management consulting and advisory services to the security services industry, its ownership and selected supply-side service vendors.

## Robots vs. Drones

Although robots are beginning to be used in security applications and definitely on the horizon, the drone industry appears to have more immediate application in public safety and security as a force multiplier, says Lew Pincus, former CEO of Gamma 2 and an industry consultant on disruptive technologies.

A recent report from Goldman Sachs says drones will be a \$100 billion industry by 2020, Pincus says, noting they were used recently after the hurricanes in Florida and Texas to do disaster recovery and damage assessment in difficult-to-access locales. “The technology of both tethered and untethered drones are a little more commercially viable right now than the robot market,” he says. “Drones have come forward quicker because they’re not as complex.”

Tethered drones offer unlimited flight times because they receive continuous power through the tether, and they are generally safer because they’re not free-flying, which makes them easier to train security officers to successfully launch and operate, Pincus says. “If you can push a button, you can start using tethered drone technology,” he says. “These days, some tethered drone companies have developed one-touch launch, monitor, patrol and land, whereby the drone is essentially flying itself.”

In a large parking lot at a mall or a supercenter, a drone provides a bird’s eye view to monitor a fleeing shoplifter, vehicle break-in or assault in progress, Pincus says. “You can actually reduce the roving patrols,” he says. “You can reduce the force by one or two officers but still have the human presence to respond where needed. Drones are the new eyes in the sky.”

Features in drone technology like the ability to measure toxic gases or capture high-definition video are similar to those in use on robots, Pincus says. “They all have comparable bells and whistles,” he says. “They can have payloads with thermal and infrared cameras. They can have facial and license plate recognition, or monitor heat, humidity, toxic gases and air quality.”

Using drones, nuclear facilities could provide an outer layer of protection at their fence-line while measuring radiation and otherwise monitoring air quality, Pincus says. Border patrol agents could use tethered drones or contract with private companies to use aerial drones for thermal imaging, to see if people are attempting to



Tethered drones offer unlimited flight times because they receive continuous power through the tether, and they are generally safer because they’re not free-flying, which makes them easier to train security officers to successfully launch and operate. *Photo courtesy of Hoverfly*

**“Ultimately, we’re going to see a new class of better-qualified officers interacting with this [robotics] technology.”**

illegally cross through the desert.

“Ultimately, we’re going to see a new class of better-qualified officers interacting with this technology,” he says. “There’s a new skill set that’s going to be required. It’s very exciting for the professional security officer working with this technology, and the end user getting better value and better protection.”

The data that’s collected and available from drones will help with real-time and forensic case management as well as predictive analysis, Pincus says. “That’s where

the whole industry is going: How do we put the right resources at the right place at the right time to mitigate risks,” he says. “Risk never sleeps.” But Pincus believes the industry is moving toward better data and intelligence to focus where to put energy, assets and security spend.

Pincus also foresees partnerships around drone and unmanned ground vehicles technology between private commercial security and public law enforcement. “For example, if somebody’s on a watch list, and you’re providing private security at an event and you have facial recognition technology, it’s easy to send that image and that file directly to law enforcement so they can act faster,” he says.

Ground-based robots will become more standard technology in the not-too-distant future, Pincus believes, but right now he compares the level of usability to that of self-driving cars. “There’s still a lot of challenges and a lot of testing that needs to be done,” he says. “With security practitioners being risk-averse, it’s going to take a little bit more time and testing to find the sweet spot.”

About a half-dozen companies are trying to develop such robots, Pincus says. “They’re still having lots of problems in terms of navigation and obstacle avoidance,” he says. “They are very reliable. The big challenge is navigating through complex [or] super-large spaces, especially if those areas are dynamic and changing. But it’s just a matter of time until the technology is perfected.”

But not everyone thinks robots have such a bright future in the security environment. Tom Conley, president and CEO of The Conley Group, Inc., believes they represent the next step in a trend he describes as “very disturbing,” with private companies increasingly using large security officer firms that supply plenty of bodies but little strategy. The robots will simply replace some of those bodies without adding much intelligence, he believes.

“People who buy ‘big guarding’ get bodies, but they don’t get solutions,” Conley says. “I understand all the supposed economies-of-scale,” but companies should be seeking a more professionalized, armed security force, he says. “The basic premise of robots is that we’re going to shift from one incompetent mechanism for another. They want to do a lateral move, instead of a growth move.”

Robots will need a far more advanced form of artificial intelligence to replace

a human being, and what's available at the moment is essentially a "land drone," Conley says. "I understand why they're appealing," he says. "They're not going to be out smoking in the back. They're not going to fall asleep. They're depreciable, unlike labor. ... They don't have to worry about their 'officer' showing up for work because they never leave."

But not only are few security environments are static enough for the current capabilities of robots to meet the needs, it's hard to imagine how they ever could, Conley says. "You not only have to have sight, sound, smell, touch, all that stuff, but you have to be able to process that in a decision matrix," he says. "Let's say a robot had arms, legs, a head and was capable

of doing everything, physically, that a human can do. What you would have to do then, through artificial intelligence, is program into that robot every eventuality that could possibly exist."

A robot can patrol a data center, roving up and down the aisles all night, but closed-circuit television, cameras and sensors can fulfill the same function, only more efficiently, effectively and cheaply, Conley says. "Other electronics systems can be in multiple places," he says. "The camera system, in a data area, can tell you if something moves, and then you dispatch a human who, based on the situation, in the hundreds of billions of possible scenarios, can very quickly use their training and actually resolve the problem."

Among the security functions robots also can't fulfill: stopping an armed robbery, performing CPR, or putting out a fire, Conley says. "They can't even go down stairs," he says. "They are the ultimate unarmed security officer – because they have no arms."

Conley predicts litigation for negligent security if companies keep deploying robots as they are. "I can't believe people are buying them, and moreover, I can't believe people are actually trusting them," he says. "My fear is people are going to die because land drones can't help them. It's an easy solution for business owners. The problem is, they do nothing, except, perhaps, in some limited cases, give the illusion of security." §

### 15<sup>th</sup> Annual Top Guarding Firms Listing

Company, Head Office	Offices	Employees Full-time unless otherwise noted	Revenues (USD) unless otherwise noted
Allied Universal, Santa Ana, CA	190	140,000	\$5,100,000,000,000
Securitas North America, Chicago, IL	350	110,500	\$4,200,000,000 <sup>1</sup>
G4S Secure Solutions (USA), Palm Beach Gardens, FL	146	57,000	\$2,261,000,000 <sup>2</sup>
US Security Associates, Roswell, GA	215	50,000	\$1,450,000,000
National Security Alliance, Dayton, OH	119	14,661	\$464,000,000 <sup>3</sup>
SOS Security, Parsippany, NJ	45	6,500	\$272,500,000
Covenant Services Worldwide, Bolingbrook, IL	30	4,200	\$230,000,000
Walden Security, Chattanooga, TN	18	5,500	\$225,100,000
SecurAmerica, Atlanta, GA	45	7,000	\$200,000,000
Whelan Security, St. Louis, MO	35	6,000	\$188,500,000
Command Security Corp., Herndon, VA	23	5,200	\$103,600,000 <sup>4</sup>
Andy Frain Services, Aurora, IL	46	11,750	\$102,000,000
St. Moritz Security Services, Pittsburgh, PA	30	3,000	\$82,158,000
United American Security, Raleigh, NC	25	2,825	\$74,827,000
DSI Security, Dothan, AL	26	4,300	\$57,500,000
Titan Security Group, Chicago, IL	3	1,400	\$55,400,000
Per Mar Security & Research, Davenport, IA	23	2,036	\$55,019,400 <sup>5</sup>
Sunstates Security, Raleigh, NC	21	1,936	\$54,026,000 <sup>6</sup>
CPS Security Solutions, Gardena, CA	11	1,600	\$53,846,000
APG Security, South Amboy, NJ	13	1,882	\$51,650,000
Premier Securiry/Apex3 Security, Chicago, IL	1	1,100	\$49,000,000
Elite Investigations, New York City, NY	38	1,453	\$44,327,000
Master Security, Hunt Valley, MD	4	810	\$43,700,000
Arrow Security, New York City, NY	12	1,100	\$29,000,000
United Security, Red Bank, NJ	10	850	\$27,800,000
GMI Guard Management, San Diego, CA	3	600	\$20,000,000 <sup>6</sup>

Prepared from responses to questionnaires from The Security Letter, and signed by officers for security guard revs. in the US and Canada, or as noted, through 12/31/16. \*Members of the National Security Alliance. Notes: 1. Total global corporate revs.: \$10.5B, of which \$4.9B reflects total security services for North America. Total global employment: 330,000. 2. Total global corporate revs. \$9.7B of which \$7.6B reflects global security services and systems. Total employment: 585,000. 3. A consortium of 17 regional contract security cos. 4. Total revs.: \$162,179,000. 5. Total corporate revs.: \$108,600,000. 6. Total corporate revs.: \$40M. Added: Andy Frain Services, GMI Guard Mgmt, Premier Security/Apex3 Security. Thanks to Jeff DiDomenico of Valiant Solutions.