Genius4Security®
UNIQUE TECHNOLOGY FOR US FIRST RESPONDERS

19th JANUARY 2022

EverGreen
By Swiss Growth Forum

Description

Genius4Security, which has close associations with European emotional assessment technology pioneer iDentivisuals®, combines the potential of biometric and cognitive technologies, facial recognition, artificial intelligence and deep learning with a strong human background in business, psychology and human resources fields.

The company develops and creates innovative digital applications capable of reading and interpreting emotions on people's faces, integrating them into working, business and commercial contexts.

G4S echoes the iDentivisuals® view that 80% of decisions are based on emotions. Emotional well-being is defined through the emotions which people show and it is directly related to success.

The company's core message embraces the mission statement that "the only way to really know who we really are is to understand how we feel."

Unique Technology for US First Responders

Genius4Security – a US company which benefits from close associations with European AI and emotional assessment pioneer iDentivisuals® - appears well placed to provide meaningful solutions for the current problems faced by First Responders. If that assessment is correct, the company should be capable in our view of creating significant shareholder value for potential investors. In particular, the scale of First Responder employment and the potential for fresh workplace solutions implies scope for meaningful near term take-up and longer-term growth.

First Responder organizations, notably police forces, are under increasing pressure to ensure consistency of officer behaviour when dealing with members of the public. There has arguably been too much adverse publicity surrounding both individuals' and agencies' behaviour for the current circumstances to continue unaltered.

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In particular, First Responder Agencies have to be mindful of potential settlement costs arising from adverse incidents as well as the negative impact on agencies' morale. The latter can lead both to increased staff turnover and challenges in securing new recruits.

Genius4Security offers a meaningful solution for First Responder organizations in the US. The company will cooperate with Artificial Intelligence based emotional assessment technology pioneer iDentivisuals® about whom SGF Evergreen initiated research coverage with a 2nd December 2021 report entitled "The Power and Value of Emotions."

The report highlighted the technology's ability accurately to determine human emotions through visual markers and to monitor and interpret human emotions on a real time basis as being central to iDentivisuals'® growth case.

G4S should benefit from its ability to service sizable markets within the First Responder category. Moreover, SGF is in a position to make pricing assumptions which investors may consider to be conservative in relation to overall budgeting and employment costs of First Responder organizations. For example, there are currently around 696,644 full time police officers in service in the USA with an average annual salary of $70,000. There should be plenty of scope within a potential $49bn payroll for G4S to market its workplace performance enhancing technological services.

Moreover, there are significant addressable markets for the G4S technological offering outside First Responders. This report highlights scope to make significant inroads into publicly provided school (K-12) education in the US, where news commentary continues to suggest that there is growing discontent among teaching staff and pupils alike with regard to current academic trends. Not all of this discontent relates to the Covid19 pandemic. Parents, pupils, schools and teaching staff might all be expected to benefit from the application of the G4S/iDentivisuals® emotional assessment technology.

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While this Research Brief focuses on G4S and its relevance for First Responders and K-12 education in the US, potential investors should note the important influence of parent company iDentivisuals® the investment case for which was articulated in the 2nd December 2021 report mentioned above. Strong proof of concept, sizable and growing addressable markets, business partnerships with well recognised human resources organizations, an experienced and talented leadership team and attractive financials were all articulated as reasons for investors to be interested in iDentivisuals®.

Unique Technology for First Responders

This SGF Evergreen Research Brief focuses on the potential for Genius4Security (G4S) to assist with significant improvements in the performance of US First Responders through the application of iDentivisuals® technology. It also looks at the potential to diversify the technology's use into US publicly funded school education through a G4S subsidiary Genius4Education.

Genius4Security has close associations with European emotional assessment technology provider iDentivisuals®, which is headquartered in Italy. The ability of iDentivisuals'® technology ability accurately to determine human emotions through visual markers as well as service a number of growth areas by monitoring and interpreting human emotions on a real time basis was covered in a 2nd December SGF Evergreen research report "The Power and Value of Emotions."

First Responders – the Case for Change

First Responders typically refer to individuals with specific training who arrive first and provide assistance at the scene of an accident or emergency. Police forces, firefighters, paramedics and emergency medical technicians are all described as First Resonders. Of specific relevance to Genius4Security and the application of the company's technology is police forces.

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G4S itself argues that 2020 and 2021 were game changing years for First Responders in terms of police overreaction and erosion of safety in major US cities. The company cites a number of key headlines which appeared in the US media and support the case for behavioural change within First Responder organizations themselves. These are highlighted in the bullet points below, which include hyperlinks to the original sources.

- Murder surge is on the politicians' focus list in NYC not the pandemic, New York Post, October 18, 2021

- Brutal, brazen crimes shake L.A., LA Times, December 4, 2021

- SF Mayor London Breed Announces Crime Crackdown; 'Less Tolerant Of All The Bulls-t That Has Destroyed Our City', KPIX CBS SF BayArea, December 15, 2021

- Inside the San Francisco Bay Area's pandemic murder surge: 'No one knows this pain but us', The Guardian November 22, 2021

- Homicide spike: Las Vegas police report killings up 69% so far in 2021, Fox5, KVVUTV, August 19, 2021

Furthermore, the US saw more than 1,000 people shot to death by police forces since 2016, which is comfortably more as a portion of population than a number of comparable countries. The comparisons are shown in Figure 1, which uses data from the Prison Policy Initiative Report, 2020.

Such activities come at a substantial cost for police forces. According to the Marshall Project around US$2.5bn was paid out by police forces in the past 10 years in relation to misconduct settlements. *(Source: www.themarshallproject.org)*. Moreover, the cost of liability insurance will probably be under upward pressure so long as payments are seen to be at risk of remaining high.

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Other issues which are likely to be of concern to police forces include high rates of staff turnover and resignations, the potential for budget cuts if First Responder organizations within specific states are seen to be performing sub-optimally and overall losses of morale. If such losses of morale are perceived to reduce the efficacy and reliability of policing methods because of their impact on officer mental health, they clearly come at a potentially high cost both sociologically and financially.

Figure 1 – Police Killings as a Proportion of Population
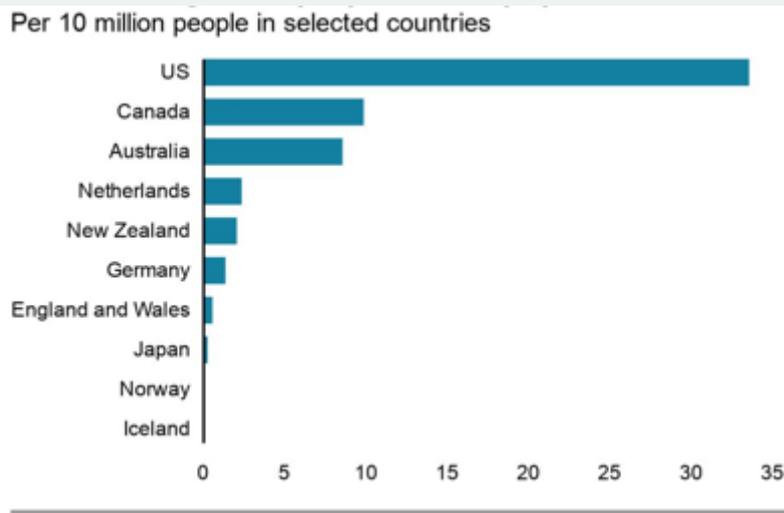
Source: Prison Policy Initiative Report, 2020 (BBC)

First Responders – Genius4Security Solutions at Work

The G4S Solution in a Nutshell

Genius4Security is in a position to apply iDentivisuals® technology, which has significant positive implications for police actions from both efficacy and cost perspectives as the company applies emotional AI powered solutions to assist in recruitment, training and supervision.

Currently, potential police recruits are subject to vetting processes which rely on individual assessments by individual assessors, whose approaches may vary from assessor to assessor and from force to force. A typical review process may include some, or all, of the following: a cognitive assessment, analysis of performance at an assessment centre, a polygraphy test and a psychological examination, all of which rely on individual elements of human data gathering and opinion.

The G4S solution, sourced from parent company iDentivisuals®, is poised to eliminate any potential human error in the field of police recruitment.   Moreover, it should remove any inconsistency between different forces' recruitment processes. All police forces nationwide would be able to adopt identical technology and associated Artificial Intelligence and deep learning. Focus points for G4S's emotional AI powered First Responders solution to assist with recruitment, training and supervision are summarised below:-

- Optimal Job-Person match based on emotional profile for the role

- Risk factors (e.g. aggression) recognition training

- Emotional intelligence simulation training leading to improved decision making in relation to use of force

- Stress management and wellbeing

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The cost benefits for police forces in G4S's opinion would be two-fold. First, there are sizable economies of scale arising from a technology which can be used across all forces and lead to significant unwanted headcount reductions. Second, a more accurate method of rejecting potential recruits who demonstrate indications of behaviours which may lead to disproportionate police reactions should lead to much reduced settlement costs of the kind illustrated in the bullet points earlier in this Research Brief.

The G4S Solution in More Detail

G4S, in association with iDentivisuals®, argues that its technology outperforms current systems including CVSA (Computer Voice Stress Analysis) and Polygraph Tests in many areas. In particular, the technology is less expensive and faster than currently used tools like CVSA and Polygraph *(Source: www.sagepub.com)*

Polygraph exams are not considered effective in fact-finding for the purpose of credible defence strategies and are not admissible in court. In the European Union, the iDentivisuals®' technology has already been admitted in court as a proof to solve violent crimes. G4S's technology can detect cultural and racial bias as well as the inability to effectively deal with high stress situations and therefore can be applied to selection.

Moreover, the company's technology should outperform currently adopted assessment processess as it is assessor-independent. Only a few assessors appear to be trained to and be capable of detecting emotions correctly. This supports the view that the algorithm can outperform the human observer.

First Responders – Genius4Security Pricing Model

The pricing and market size model which we assume for G4S reflects a combination of police force headcount, agency numbers and inferred training costs. This Research Brief also notes the average salary of US police officers and inferred technology application costs as a portion of the overall payroll.

Currently, the US has around 18,000 Enforcement Agencies in the USA which employ 696,644 Officers The average salary of a US police officer was estimated to be US$70,000 in May 2020. *(Sources: usafacts.org, www.statista.com and www.bls.gov.)* The 50 largest cities employ 144,495 officers or 21% of the national total *(Source: www.worldatlas.com).*

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The overall US expenditure on policing is of the order of $140bn annually of which around 4% is spend on training as an average based on data from the different budget sources. From the COPS (Community Oriented Policing Service) funding the company understands that 11.3% of the training spending is dedicated to self improvement (not basic / field training), which implies a 0,46% of spending or self improvement spending out of the total budget. The implied addressable market is thus deemed to be $637m. *(Source: www.cnbc.com)*

Genius4Education – Teaching with Technology

G4S argues that its emotional AI technology is applicable to US education where the company notes a perception that K-12 public schools – i.e. kindergarten through to graduation – in the US are in a state of crisis. The proposed operating platform for education is Genius4Education, a wholly owned subsidiary of G4S. The company notes the findings of the all important Rand Report.

US Education in Crisis

In 2020 and 2021 the advent of Covid 19 has challenged and put pressure on the Public Education sector (K-12) that was already facing shortages, resignations and general discontent. G4S through G4E cites a number of headline articles which support the view that a solution within education has to be found. We include examples in the bullet points, which include hyperlinks to their sources, below.

- 30,000 Teachers resigned in September 2021 alone before Omicron surge

- Damage to children's education could last a lifetime

- Job-Related Stress Threatens the Teacher Supply

- Teachers are planning to leave schools that are already understaffed

- School closed in Chicago due to Omicron

- One million fewer US students are enrolled in college than pre pandemic

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G4E notes that the impact of Covid 19 is causing a devastating effect on Public Education and that schools and colleges are closing some of them not even serving from remote causing a substantial public service lockdown. Moreover, distant learning is causing unexpected costs and frustration to families leading to discrimination for students with limited access to technology.

The company expects that the effects of lockdowns and closures will linger. Given over one million fewer students may be enrolling into college education might raise concerns about the average level of higher education. After more than a year of isolation and the loss of an unprecedented amount of classroom time, there is scope for the youngest members of society to have fallen behind socially, academically and emotionally in ways that could harm their physical and mental health for decades

Furthermore, according to the Rand Report (*www.rand.org*), teachers are resigning by the thousands and around 25% of teachers say they are likely to leave their job, creating a skilled labour shortage that exacerbates the limited resources of public funding. The Rand Report states that mode of instruction and health are the most frequently cited sources of stress for teachers.

The G4E Solution

G4E is in a position to provide emotional AI powered technology based solutions strengthen the teacher selection process, identify stress risk areas and eventually possible areas of implicit bias that impact officer performance, improve decision making to create a better and less stressful work environment. These are summarised below.

- Recruitment of new teachers

- Quality of work conditions

- Stress management and wellbeing

- Ongoing training and supervision

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G4E Addressable Market

G4E estimates its addressable market to be US640m.   This is based on the assumption that K-12 schools spend US$ 640.0 Billion or US$ 12,624 per pupil annually, out of which only 7.8% is funded by the US Federal Government. Municipalities and states are funding the balance. About 10% of Funding is devoted to services (about 80% being salaries and benefits).

Assuming 1% only of the spending in services is allocated to training & development, a Serviceable Available Market (SAM) of US$ 640 Million can be estimated (*Sources: iDentivisuals® estimates on National Center for Education statistics and* [www](#).educationdata.org *data)*

Financial Forecasts

Genius4Security and iDentivisuals® base their revenue forecasts on the broad addressable market assumptions which appear in the commentary for this Research Brief.   These revenue forecasts are summarised in Figure 2 which includes profit & loss projections by the key lines of EBITDA, EBIT, Pre-tax Profit and Net Income.

The expected profitability of Genius4Security mirrors the expectations for iDentivisuals® in Europe. Gross margins are expected to be of the order of 80% near term and EBITDA margins move close to 70%.

Potential attractions of the business, once fully funded and operational, include its high operational gearing and capital light structure. These parameters were covered in detail in the 2nd December SGF Evergreen iDentivisuals® report "The Power and Value of Emotions" which was mentioned earlier in this Research Brief.

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Figure 2 – Genius4Security - Profit & Loss Projections

	2022	2023	2024	2025	2026
Emotions at Work for 1st Responders & Education					
Avg. Fee per Department / School	*12,000*	*13,200*	*14,520*	*15,972*	*17,569*
Rebate rate	*40%*	*20%*	*0%*	*0%*	*0%*
Clients	*15*	*448*	*882*	*1,259*	*1,799*
EaW Sales	**108,000**	**4,730,880**	**12,799,525**	**20,113,540**	**31,606,991**
Avg fee per Department	*12,000*	*13,200*	*14,520*	*15,972*	*17,569*
Rebate rate	*40%*	*20%*	*0%*	*0%*	*0%*
Clients	*25*	*453*	*882*	*1,259*	*1,799*
Interrogation Room	**180,000**	**4,783,680**	**12,799,525**	**20,113,540**	**31,606,991**
Avg Fee per Officer per Year	*86*	*86*	*86*	*86*	*86*
Avg Officer per Dpt	*886*	*546*	*683*	*854*	*1,067*
Rebate rate	*40%*	*20%*	*0%*	*0%*	*0%*
Clients	*8*	*68*	*129*	*143*	*159*
Assessment Sales	**365,741**	**2,555,829**	**7,563,538**	**10,504,914**	**14,590,158**
Avg Fee per Officer	*150*	*166*	*183*	*219*	*263*
Avg Officer per Dpt	*886*	*546*	*683*	*854*	*1,067*
Rebate rate	*40%*	*20%*	*0%*	*0%*	*0%*
Clients	*8*	*55*	*102*	*127*	*159*
E4L Sales	**637,920**	**4,000,960**	**12,709,341**	**23,830,014**	**44,681,277**
Gun Registration Screening Services	*296,406*	*6,216,469*	*7,593,750*	*8,652,264*	*9,993,365*
Rebate rate	*40%*	*0%*	*0%*	*0%*	*0%*
Gun Registration Screening Services	**177,844**	**6,216,469**	**7,593,750**	**8,652,264**	**9,993,365**
TOTAL NET SALES	*1,469,505*	*22,287,817*	*53,465,679*	*83,214,271*	*132,478,781*
Royalties	1,250,000	5,707,563	11,943,136	13,732,141	21,121,817
Genius 4 Security fees	562,500	564,383	1,600,000	1,600,000	1,600,000
Cloud Services	76,873	520,855	599,990	856,108	1,132,731
Total COGS	***1,889,373***	***6,792,802***	***14,143,125***	***16,188,248***	***23,854,548***
GROSS MARGIN	- 419,868	*15,495,015*	*39,322,554*	*67,026,023*	*108,624,233*
%	**-28.6%**	**69.5%**	**73.5%**	**80.5%**	**82.0%**
Marketing fees	200,000	1,114,391	2,138,627	1,664,285	1,324,788
Customer Service	1,107,500	4,949,514	6,019,655	5,374,692	5,758,599
Office Rent	200,000	220,000	242,000	532,400	585,640
Salaries	535,000	1,237,000	1,420,700	1,562,770	1,719,047
Board fees	390,000	576,000	788,400	1,162,890	1,521,747
General Expenses	50,000	30,000	36,000	48,000	60,000
Total Opex	***2,482,500***	***8,126,905***	***10,645,383***	***10,345,038***	***10,969,821***
EBITDA	- 2,902,368	*7,368,110*	*28,677,171*	*56,680,985*	*97,654,413*
%	**-197.5%**	**33.1%**	**53.6%**	**68.1%**	**73.7%**
Yearly Amortization (intangible)	840,000	1,170,000	1,420,000	1,610,000	1,760,000
Yearly Amortization (tangible)	5,000	15,000	25,000	35,000	45,000
EBIT	- 3,747,368	*6,183,110*	*27,232,171*	*55,035,985*	*95,849,413*
%	**-255.0%**	**27.7%**	**50.9%**	**66.1%**	**72.4%**
Interests	-25,000	0	0	0	0
GROSS PROFIT	- 3,772,368	*6,183,110*	*27,232,171*	*55,035,985*	*95,849,413*
Taxes	-999,677	1,638,524	7,216,525	14,584,536	25,400,094
NET PROFIT	- 2,772,690	*4,544,586*	*20,015,646*	*40,451,449*	*70,449,318*
Investments	*4,250,000*	*1,750,000*	*1,350,000*	*1,050,000*	*850,000*
Intangibles	**4,200,000**	**1,650,000**	**1,250,000**	**950,000**	**750,000**
Tangibles	**50,000**	**100,000**	**100,000**	**100,000**	**100,000**

Source: Company data and estimates

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