ROBOGROUP T.E.K LTD – Update Report

10.04.2022

Stepping up efforts to increase its presence in the US market; won a tender with a South American government; accumulated orders for 2021 for approx. USD 8.1 million; price target remains unchanged.

Stock Exchange **TASE**

Symbol **ROBO**

Sector **TECHNOLOGY**

Sub-sector **ROBOTICS & 3D**

Stock price target **NIS 4.8**

Closing price **NIS 2.2**

Market cap **NIS 116.3 Mn**

No. of shares **52.5 Mn**

Average Daily Trading Volume **224 stocks**

Stock Performance (since Jan. 2022) **26.72%**

RoboGroup (TASE: ROBO) develops, manufactures, and markets training products and e-learning systems, as well as engineering and manufacturing technology training systems. It offers its products internationally under the Intellitek, Robotec, and CoderZ brands.

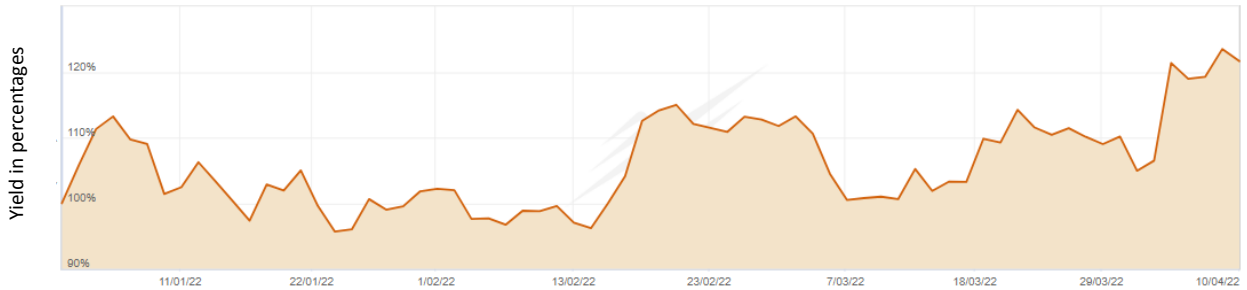
In Q4 2021 and recent months, the company announced the following:

- Increasing efforts to penetrate the American market by establishing sales teams, marketing and customer success.
- Establishment of a business development and sales unit for the business-facing business (Industry 4.0).
- Intellitek has contracted with a world leader in the field of consulting.
- Decrease in revenues compared to 2020; The company ended its revenues at approx. USD 16.4 million.
- A change in the revenue mix indicates a strategic change in the company with a greater focus on the STEM division. This reflects the continued growing interest in the CoderZTM platform.

The EdTech industry is expanding exponentially, with demand rising due to COVID-19 and associated significant changes in the realms of work and labor. EdTech expenditures follow a growth trend, increasing from $152 billion in 2018 to an expected $404 billion by 2025[1].

The company did not meet its revenue projections in H1 2021 due to **delayed B2C activity**, the **geopolitical situation in Ghana**, and **delays in the Negev and Galilee projects**. However, the company is making concerted efforts to **expand its operations in the U.S., North America, and Africa**.

On the next page, we present the main events in the passing months and Q4 2021.



 Lead Analyst **Dr. Tiran Rothman** Equity.Research@frost.com Tel.: +972-9-9502888

[1] "Global EdTech Market to Reach $404B by 2025 -16.3% CAGR," HolonIQ, August 6, 2020

- On November 10, Robogroup announced the winning of a tender for the supply and integration of its equipment in the laboratories of the Government Institute of Technological Studies in South America. The scope of the project is about a million dollars. The products that are part of the project include equipment, simulation software and training products for Industry 4.0. Delivery is expected by the end H1 2022.
    - Robogroup signed an agreement for the aforementioned deal on December 29, and thus the contract was completed.
- The company won a tender for supplying in Israel, accompanied by an order in the amount of NIS 50 thousand without the obligation to provide any marketing activity.
- The company has signed an agreement with the Israel Chamber of Engineers to conduct Industry 4.0 training for engineers in various factories in the country, using the new content system for Industry 4.0 developed by the company as part of the joint program of the company and the Innovation Authority.
- On January 26, 2022, Robogroup received a notification from the Israeli Ministry of Foreign Affairs stating that under the Government 2 Government Agreement (G2G) signed between the Government of Israel and the Government of Latin America and following the customer's notification sent to the Israeli Ministry of Foreign Affairs. The Israeli Ministry of Foreign Affairs informed the client that Robogroup complies with the terms of the G2G agreement and the parties can proceed to sign a binding commercial agreement. The expected financial scope of the project is up to a total of USD 100 million.
    - On April 3, Robogroup received a notice from the customer's embassy submitted to the Israeli Ministry of Foreign Affairs regarding the customer's consent to receive the financing offer received from a banking corporation in Israel to finance the project and the company’s request to transfer its consent to the banking corporation.
- On February 2, the company reported that Intelitek entered into an agreement with a global consulting firm under which Intelitek will provide the global leader with the smart factory system developed by the company as part of the Industry 4.0 smart plant development program including the Innovation Authority support.
- On February 15, the company was selected to establish technological training centers under the G2G agreement with a country in Latin America. The expected financial scope of the project is up to a total of USD 100 million.
    - It should be noted that the project is subject to, among other things, the parties signing the commercial agreement, signing financing agreements between the Ministry of Finance in the client country and the financing bank in the amount of up to USD 100 million, plus the cost of reducing foreign trade risks and additional costs. The project.
- On March 9, the company received notice of utilization to purchase 7,056,735 ordinary shares and raised a total of approximately NIS 14.1 million (gross).

Key events in the passing months and Q4 2021 (continued):

Summary of the year 2021:

- Backlog of orders as of December 31, 2021 amounted to approximately $ 8.1 million.
- The company's revenues fell from a total of about $ 18.8 million in 2020 to a total of about $ 16.4 million in 2021.
    - The decrease in revenue in the Professional Division (Industry 4.0) was mainly due to a slowdown in supplies in the project for the Ministry of Education in the West African country due to a continued delay in payments from the customer.
    - The significant increase in revenue in the STEM division for CoderZ™ products during the reporting period, compared to the corresponding period last year in the amount of USD 2.1 million was mainly due to orders from small customers by schools, counties and countries mainly in the US and 90,000 customer follow-up orders. Licenses in the SaaS model for the CoderZ™ system. The increase in revenues in the STEM products division reflects the continued growing interest from customers around the world in the CoderZ™ platform and the continuing upward trend in the company's revenues in the STEM division.
- In 2021, the Company continued to implement the strategy for operations within the framework of two main divisions, regardless of the geographical location of the subsidiaries in the Group. The activity in the STEM division (CoderZ™) grew from a revenue level of about USD 200,000 in 2019 to about USD 4.0 million in 2020 and to about $ 6.1 million in 2021. The workforce in the STEM division has increased from 17 Jobs in 2019 to 51 jobs as of December 31, 2021 and is planned to continue to grow in 2022. The company continues to focus on investing in growth toward the US K-12 market that is budgeted in surplus according to The American Rescue Plan and in 2021 established three new US departments. B, sales department for districts and countries, marketing department and customer support department. The company continued to work on the development of the CoderZ™ platform, continued to promote the long-term collaboration between CoderZ™ and Amazon (Amazon Future Engineer), as part of which the CoderZ™ platform was marketed to tens of thousands of new users who experienced the virtual challenge of 3 hours. Amazon's distribution warehouse has expanded and expanded the CoderZ™ platform for users of Title 1 schools in the US funded by Amazon (CoderZ™ entered into a contract with Amazon in September 2020 with a sponsorship agreement of up to USD 1 million).

Forecasts for 2022:

- STEM Division: Sales of approximately USD 8 million (compared to USD 6.1 million in 2021). Still a net loss as a result of much investment in development, and increase of marketing, sales and customer success departments in response to the approval of the Biden administration plan "The American Rescue Plan," approved by Congress in March 2021 and centered on USD 128 billion (K-12).
- Industry 4.0 Division: Sales of approx. USD 15 million (compared to USD 10.3 million in 2021).
- A modest net profit of a few hundred thousand dollars. In 2022, Robotech will no longer be a reporting division in its own right and its results will be integrated into the Industry 4.0 division.

Investment Thesis

RoboGroup T.E.K. Ltd. (TASE: ROBO) is an Israeli company that is publicly traded on the Tel Aviv Stock Exchange. RoboGroup's vision is to disrupt the STEM (science, technology, engineering, and math) education technology market with its proprietary online virtual platform that enables students to learn coding, mathematics, and physics using virtual robots. The robots operate according to real-world physics and are controlled using unique coding techniques designed for young students.

The platform represents an accessible alternative for teachers and students lacking access to physical robots due to high costs, major logistical barriers blocking scalability, and high teacher proficiency requirements regarding robotics and coding. The platform also offers flexibility for simulating advanced technology (such as AI) and advanced environments (such as space) for students who are already engaged in STEM work. Its second business unit offers Industry 4.0 training with a range of physical and remote-learning products and services.

Global Education Technology Market

Size

- Education technology expenditures are following a growth trend, increasing from $152 billion in 2018 to an expected $404 billion by 2025.
- The COVID-19 pandemic has fueled a spike in growth in global e-learning for schools (K-12) that is expected to generate over $240 billion by 2022 and $300 billion by 2026 from various sources.
- The first investments in EdTech were made a decade ago with $500 million in VC investments, expanding exponentially with an 32-fold increase of $16 billion in 2020.
- The physical robotics market in education is currently valued at $1.3 billion globally, and is positioned to grow to $3.1 billion by 2025[1].

Current Challenges

- There is a shortage of STEM teachers.
- High costs (often reaching hundreds of USD per student for hardware, travel, etc.) create a "glass ceiling" that prevents minority populations and lower socioeconomic groups from participating in competitions, thereby reducing their chances of participating in the growing STEM economy.

[1] https://www.marketsandmarkets.com/Market-Reports/educational-robot-market-28174634.html?gclid=CjwKCAiAjeSABhAPEiwAqfxURcbM-5wdSNra26Q1yu_neulojx0GUmZumIZRI_hNGMNz3MNku0P44BoCnG4QAvD_BwE

- Learning progress is hard to measure, as it's not individual learning/robots.
- Teaching methods that inspire children's curiosity are lacking, and there is a need to shift the emphasis away from simply learning facts to enabling students to carrying out innovative and enjoyable projects using the knowledge gained, including being creative by applying their own ideas.

RoboGroup's Opportunities

- The COVID-19 pandemic has had a marked positive impact on market growth.
- STEM studies using robotics and science represent a significant pillar that is shaping the future of the economy, in addition to the well-being, security, and progress of all societies and states.
- Mid- and long-term growth is expected in the STEM education segments as governments increasingly move to support the STEM curriculum by, for example, mandating programming training in the K-12 curriculum.
- Schools around the world are facing growing demands by parents and other stakeholders to prepare students for rapid economic, environmental, and social changes, and for jobs that have not yet been created.
- CoderZ can become a leading and enabling platform for expanding STEM and robotics education through its development of individual, integrative, and fully digital learning solutions. In this way, it can penetrate new market segments.

RoboGroup's Value Offering

- **Two company divisions:** (1) STEM Professions Training and Education; and (2) Professional Training in the Industry 4.0 Domain, including Automation, Robotics, and Smart Factories.
- **Unique technology and innovative processes:** (1) highly advanced simulation of physical robots accessible from a browser; (2) modular simulative world to support wide-scale; and (3) efficient content creation mechanism that saves significant development resources, (4) multiplayer options.
- **Business model**: STEM education—user/class/school licensing. Industry—turn-key projects, equipment, and software sales.
- **Vision**: "Inspire every learner on the planet to realize their full potential and own their future." Increase the accessibility of STEM education and robotics so that every student will have more career options in their future. Become the preferred choice for STEM and robotics education, through a gamified, competitive, and self-based learning methodology.

- **Market penetration**: Enter schools' STEM curricula through standards-aligned and integrated curricular activities and extra-curricular competitions and activities.
- **Channels**: Multiple channels to market, including distributors, partnerships with software companies (such as Amazon), robot manufacturers (such as Lego), industrial robot manufacturers (such as Yaskawa), and many others. Scaling will focus on volume/value partner development, together with strong B2C activities, when the company is ready to launch.
- **Company roadmap**: Moving toward an integrative, virtual, and fully digital platform.

The education technologies industry is expanding exponentially, with demand rising due to COVID-19 and significant changes in the world of work and labor. This so-called third education revolution involves a personalized, digitized, and decentralized education system.

In addition to expanding its traditional core activity, part of RoboGroup's strategy is investing heavily in developing new products to address the growing education technology (EdTech) market needs. RoboGroup's strategy is to become a leading integrated STEM and industry virtual education learning platform by eliminating the key barriers and challenges that exist today. The company's goal is to become the preferred choice for STEM and robotics education using a gamified, competitive and self-based learning methodology.

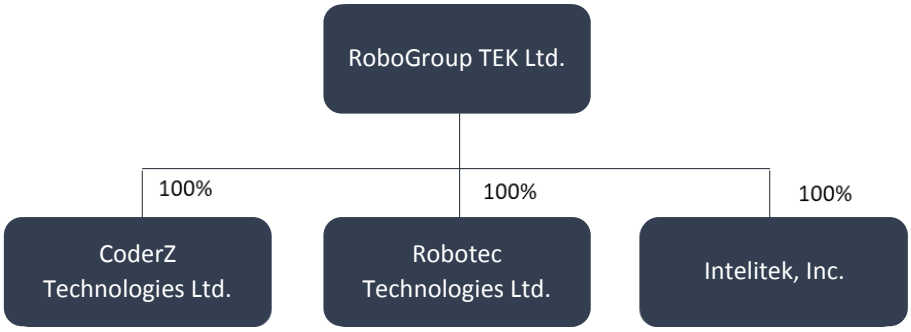
Due to RoboGroup's unique value proposition and its strategic collaborations with leading channels to market, we believe that the company will play a vital role in the growing education technologies market. We see RoboGroup as an outstanding investment opportunity. However, like any technology firm, RoboGroup needs to achieve its vision of becoming a fully digitized and automized solution and to execute further significant sales.

Company Overview

RoboGroup T.E.K. Ltd., headquartered in Israel, is engaged in developing, manufacturing and marketing technology training and education products. It offers its products under two business units – industrial training and STEM education.

Company was incorporated in 1982 as a private company (current name is used since 2000). Company's shares are listed for trading on the Tel Aviv Stock Exchange since 1991 (TASE: ROBO).

The RoboGroup consists of three subsidiaries:



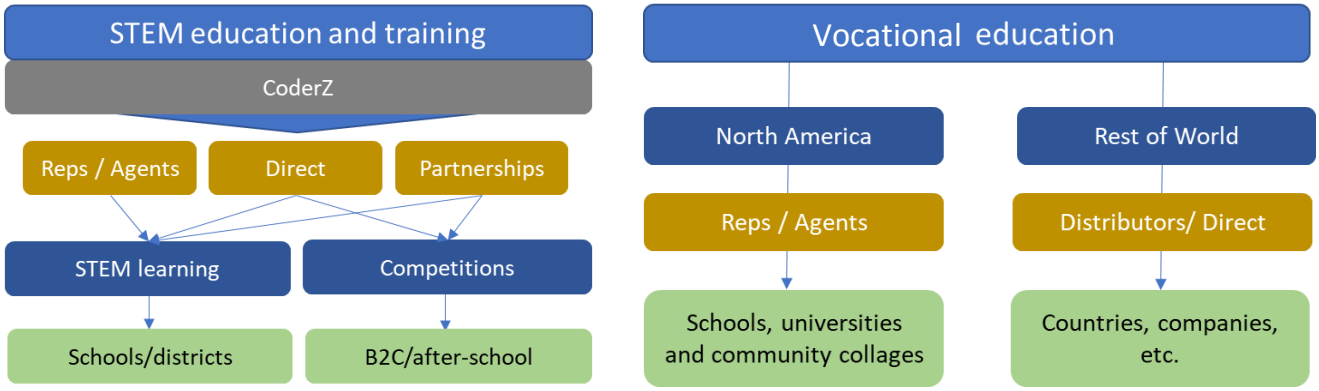
CoderZ Technologies Ltd. - a private company incorporated in Israel and engaged mainly in the development, marketing and distribution of an experiential and gamification-based STEM learning platforms via the use of virtual robots.

Intelitek - a private company incorporated in Delaware, USA and engaged mainly in marketing, sales, technical support and maintenance of the Group's products and products of third parties to the North American education market.

Robotec Technologies Ltd. - a private company incorporated in Israel and engaged in planning and implementation of technology laboratories in the education system, marketing, distribution, installation and maintenance of all the Group's products, third party products and related products in the STEM field, to the training and education markets. Robotec characterizes and develops advanced solutions, and maintains an extensive set of tutorials and advanced training courses.

Business Model

RoboGroup has two main divisions: STEM education (user/class/school licensing) and Vocational education (turn-key projects, equipment, and software sales).



2. Market Overview & Analysis

The Transformation of Education Industry

The world of work is undergoing a massive shift and as a direct impact we are also at the heart of a global revolution in education.

According to McKinsey Global Institute's report[1], 30-50% of American workers may have to change jobs by 2030 because of artificial intelligence and automation and the past promise of governments and universities that higher education equals secured jobs and income no longer apply.

The current changes in education and training are likely to be marked by continual training throughout a person's lifetime—to keep current in a career, to learn how to complement rising levels of automation, and to gain skills for new work. Workers will likely consume this lifelong learning in short spurts when they need it, rather than in lengthy blocks of time as they do now when it often takes months or years to complete certificates and degrees.

Education was already going through a significant change and a slow evolution going back 10 years or so when Covid-19 hit and turned it into a revolution. Key aspects of what is known as the 3rd education revolution[2] are:

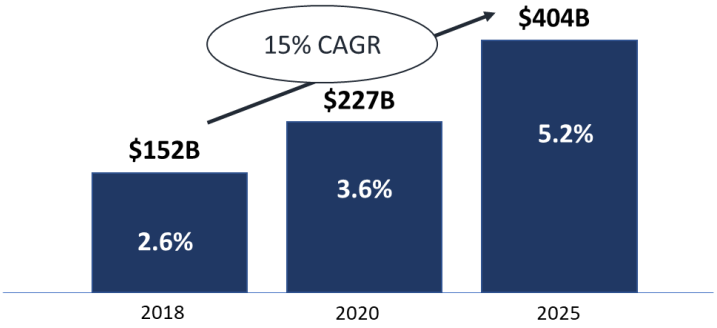
- New alternatives to a central education system
- De-centralization of budget allocation and responsibilities

- Personalized student development programs
- The decline of formalism and the rise of personal digitization
- The labor market and the education market are one

According to Wittgenstein Centre for Demography and Global Human Capital, there will be **half a billion more school and university graduates** in the world by 2025 than today, driven primarily by population growth in developing countries.[3]

Education technology expenditures are in a growth trend **from $152 billion in 2018 to $404 billion by 2025.** However, there is still a lot of growth available as it is still **5% of overall expenditure**.

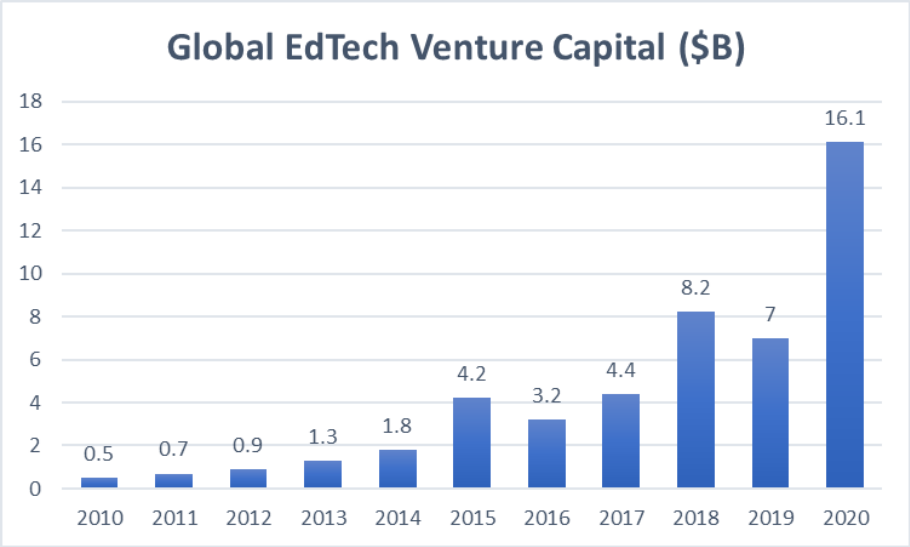
Growth in Total Global Expenditure on Education Technology in USD



Source: HolonIQ

The Covid-19 pandemic is fueling a spike growth in global e-learning for schools (known as K-12) which is expected to generate over **$240 billion by 2022** and $300 by 2026 by various sources[4]. About 60% of market revenues are generated from software.

Investments in Education Technology (EdTech) startups started a decade ago with $500 million of **Venture Capital investments** exploding to 32x higher at $16B in 2020.



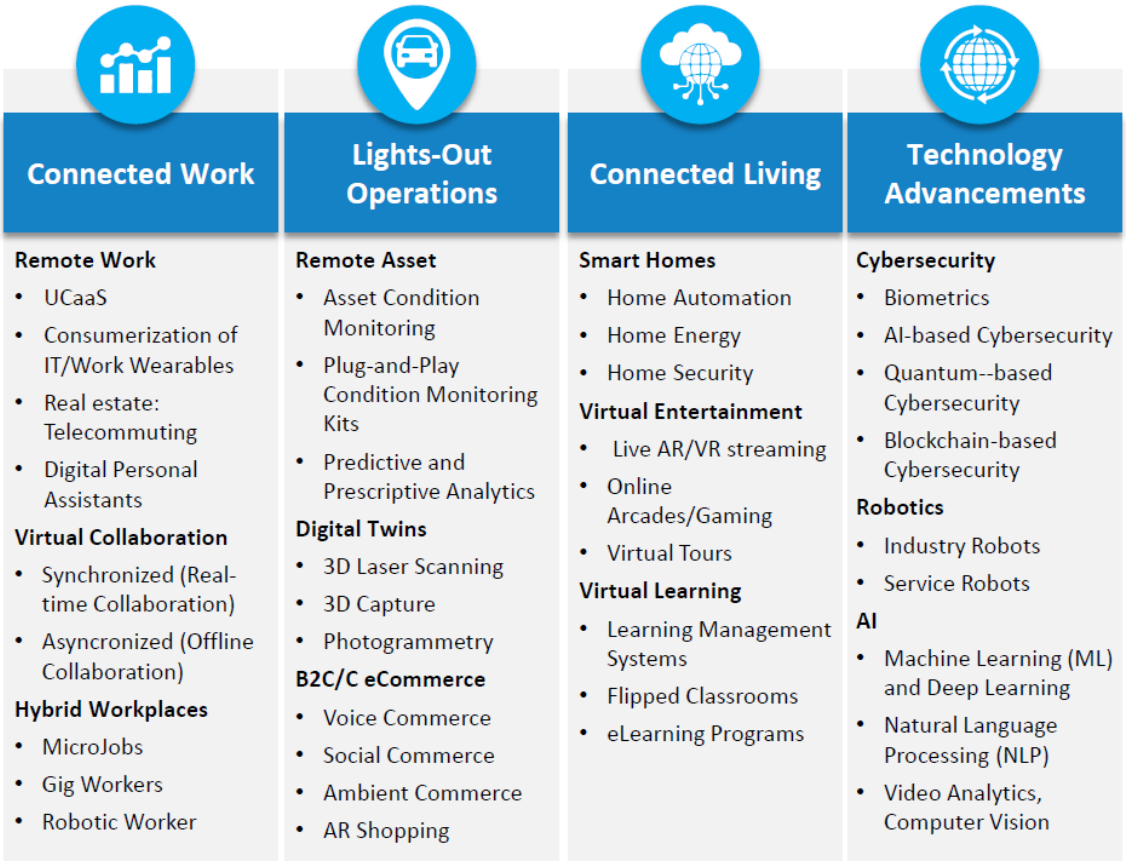
Source: HolonIQ

Long Tern Impact of Covid-19

Global lockdowns and schools roll out of remote learning since March/April opened up massive opportunities for EdTech companies as schools, teachers and parents look for effective remote learning solutions.

A recent report by & Co. Global Strategic Studies Institute from October 2020 stated that "...as the introduction of EdTech progresses, learning will likely be transformed significantly from being centered on group education in one-way lecture format to personalized learning. …this could be described as a "*paradigm shift in learning*": the mainstream of learning is moving from group education to personalized learning optimized to each individual, and a modular, lifelong form of learning is emerging in vocational education."[5]

Many other related opportunities that arise following the COVID-19 outbreak contribute to the growth potential of the market – Demand for robotics, virtual learining and the future of remote work.


Connected Work
Remote Work
• UCaaS
• Consumerization of IT/Work Wearables
• Real estate: Telecommuting
• Digital Personal Assistants
Virtual Collaboration
• Synchronized (Real-time Collaboration)
• Asyncronized (Offline Collaboration)
Hybrid Workplaces
• MicroJobs
• Gig Workers
• Robotic Worker
Lights-Out Operations
Remote Asset
• Asset Condition Monitoring
• Plug-and-Play Condition Monitoring Kits
• Predictive and Prescriptive Analytics
Digital Twins
• 3D Laser Scanning
• 3D Capture
• Photogrammetry
B2C/C eCommerce
• Voice Commerce
• Social Commerce
• Ambient Commerce
• AR Shopping
Connected Living
Smart Homes
• Home Automation
• Home Energy
• Home Security
Virtual Entertainment
• Live AR/VR streaming
• Online Arcades/Gaming
• Virtual Tours
Virtual Learning
• Learning Management Systems
• Flipped Classrooms
• eLearning Programs
Technology Advancements
Cybersecurity
• Biometrics
• AI-based Cybersecurity
• Quantum--based Cybersecurity
• Blockchain-based Cybersecurity
Robotics
• Industry Robots
• Service Robots
AI
• Machine Learning (ML) and Deep Learning
• Natural Language Processing (NLP)
• Video Analytics, Computer Vision

Disclaimers, disclosures, and insights for more responsible investment decisions

Definitions: "Frost & Sullivan" – A company registered in California, USA with branches and subsidiaries in other regions, including in Israel, and including any other relevant Frost & Sullivan entities, such as Frost & Sullivan Research & Consulting Ltd. ("FSRC"), a wholly owned subsidiary of Frost & Sullivan that is registered in Israel – as applicable. "The Company" or "Participant" – The company that is analyzed in the report**;** "Report", "Research Note" or "Analysis" – The content, or any part thereof where applicable, contained in a document such as a Research Note and/or any other previous or later document authored by "Frost & Sullivan", regardless if it has been authored in the frame of the "Analysis Program", if included in the database at www.frost.com and regardless of the Analysis format-online, a digital file or hard copy**;** "Invest", "Investment" or "Investment decision" – Any decision and/or a recommendation to Buy, Hold or Sell any security of The Company. The purpose of the Report is to enable a more informed investment decision. Yet, nothing in a Report shall constitute a recommendation or solicitation to make any Investment Decision, so Frost & Sullivan takes no responsibility and shall not be deemed responsible for any specific decision, including an Investment Decision, and will not be liable for any actual, consequential, or punitive damages directly or indirectly related to The Report. Without derogating from the generality of the above, you shall consider the following clarifications, disclosure recommendations, and disclaimers. The Report does not include any personal or personalized advice as it cannot consider the particular investment criteria, needs, preferences, priorities, limitations, financial situation, risk aversion, and any other particular circumstances and factors that shall impact an investment decision. Nevertheless, according to the Israeli law, this report can serve as a raison d'etre off which an individual/entity may make an investment decision.

Frost & Sullivan makes no warranty nor representation, expressed or implied, as to the completeness and accuracy of the Report at the time of any investment decision, and no liability shall attach thereto, considering the following among other reasons: The Report may not include the most updated and relevant information from all relevant sources, including later Reports, if any, at the time of the investment decision, so any investment decision shall consider these; The Analysis considers data, information and assessments provided by the company and from sources that were published by third parties (however, even reliable sources contain unknown errors from time to time); the methodology focused on major known products, activities and target markets of the Company that may have a significant impact on its performance as per our discretion, but it may ignore other elements; the Company was not allowed to share any insider information; any investment decision must be based on a clear understanding of the technologies, products, business environments, and any other drivers and restraints of the company's performance, regardless if such information is mentioned in the Report or not; an investment decision shall consider any relevant updated information, such as the company's website and reports on Magna; information and assessments contained in the Report are obtained from sources believed by us to be reliable (however, any source may contain unknown errors. All expressions of opinions, forecasts or estimates reflect the judgment at the time of writing, based on the Company's latest financial report, and some additional information (they are subject to change without any notice). You shall consider the entire analysis contained in the Reports. No specific part of a Report, including any summary that is provided for convenience only, shall serve per se as a basis for any investment decision. In case you perceive a contradiction between any parts of the Report, you shall avoid any investment decision before such contradiction is resolved. Frost and Sullivan only produces research that falls under the non-monetary minor benefit group in MiFID II. As we do not seek payment from the asset management community and do not have any execution function, you are able to continue receiving our research under the new MiFiD II regime. This applies to all forms of transmission, including email, website and financial platforms such as Bloomberg and Thomson.

Risks, valuation, and projections: Any stock price or equity value referred to in The Report may fluctuate. Past performance is not indicative of future performance, future returns are not guaranteed, and a loss of original capital may occur. Nothing contained in the Report is or should be relied on as, a promise or representation as to the future. The projected financial information is prepared expressly for use herein and is based upon the stated assumptions and Frost & Sullivan's analysis of information available at the time that this Report was prepared. There is no representation, warranty, or other assurance that any of the projections will be realized. The Report contains forward-looking statements, such as "anticipate", "continue", "estimate", "expect", "may", "will", "project", "should", "believe" and similar expressions. Undue reliance should not be placed on the forward-looking statements because there is no assurance that they will prove to be correct. Since forward-looking statements address future events and conditions, they involve inherent risks and uncertainties. Forward-looking information or statements contain information that is based on assumptions, forecasts of future results, estimates of amounts not yet determinable, and therefore involve known and unknown risks, uncertainties and other factors which may cause the actual results to be materially different from current projections. Macro level factors that are not directly analyzed in the Report, such as interest rates and exchange rates, any events related to the ecosystem, clients, suppliers, competitors, regulators, and others may fluctuate at any time. An investment decision must consider the Risks described in the Report and any other relevant Reports, if any, including the latest financial reports of the company. R&D activities shall be considered as high risk, even if such risks are not specifically discussed in the Report. Any investment decision shall consider the impact of negative and even worst case scenarios. Any relevant forward-looking statements as defined in Section 27A of the Securities Act of 1933 and Section 21E the Securities Exchange Act of 1934 (as amended) are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

The Report shall include a description of the Participant and its business activities, which shall inter alia relate to matters such as: shareholders; management; products; relevant intellectual property; the business environment in which the Participant operates; the Participant's standing in such an environment including current and forecasted trends; a description of past and current financial positions of the Participant; and a forecast regarding future developments and any other matter which in the professional view of Frost & Sullivan (as defined below) should be addressed in a research Report (of the nature published) and which may affect the decision of a reasonable investor contemplating an investment in the Participant's securities. An equity research abstract shall accompany each Equity Research Report, describing the main points addressed. A thorough analysis and discussion will be included in Reports where the investment case has materially changed. The named lead analyst and analysts responsible for this Report certify that the views expressed in the Report accurately reflect their personal views about the Company and its securities and that no part of their compensation was, is, or will be directly or indirectly related to the specific recommendation or view contained in the Report. Neither said analysts nor Frost & Sullivan trade or directly own any securities in the company. The lead analyst has a limited investment advisor license for analysis only.

Any advice contained within this research paper is only intended for wholesale investors. Recipients of this research paper, including the issuer of the Securities, are strictly prohibited from permitting retail investors to view, obtain or download a copy of the research paper or placing it on a website or other forum where a retail investor may obtain access to it.

© 2021 All rights reserved to Frost & Sullivan and Frost & Sullivan Research & Consulting Ltd. Any content, including any documents, may not be published, lent, reproduced, quoted or resold without the written permission of the companies.

Endnotes

[1]https://www.mckinsey.com/~/media/mckinsey/industries/public%20and%20social%20sector/our%20insights/what%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20wages/mgi%20jobs%20lost-jobs%20gained_report_december%202017.pdf

[2] https://www.nesacenter.org/uploaded/conferences/FLC/2018/handouts/DonnaOrem_ThirdEdRevolution2018.pdf

[3] http://dataexplorer.wittgensteincentre.org/wcde-v2/

[4] https://e-student.org/e-learning-statistics/

[5] https://www.mitsui.com/mgssi/en/report/detail/__icsFiles/afieldfile/2020/12/17/2010x_sakai_e.pdf