

February 04, 2019

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Duos Technologies Group, Inc. (DUOT US - \$0.53 - Buy)

Transformative Period With Focus on AI | Initiate With Buy | \$2 Price Target

Key Points

Global provider of intelligent technologies. DUOT has experience in designing, developing, and implementing intelligent technologies for rail, utilities, oil and gas, chemical industries, commercial and retail distribution and government sectors. The Company's products and solutions are field tested and ready to scale. The primary target market is North America and current customers are Fortune 100 and 500 companies.

Rich IP portfolio; flexible technology architecture. The Company's technology is built on two platforms. The first is centraco, a customer facing interface. It not only works with inputs from the Company's technology but also embraces third party technology. The real engine is an analytics process backend called praesidium. This is the engine that takes the inputs, be it video or other sensors, does analysis and presents it to the operator or management to take operational or business decisions.

Target markets and customers. The total market Duos addresses is estimated at \$100 billion. The current focus is the rail market, which is the Company's sweet spot. DUOT primarily serves Fortune 100 and Fortune 500 companies. Duos has a small number of large customers which include CSX, BNSF and Ferromex.

Not a single industry trick. Duos' underlying technology is industry agnostic. DUOT is picking the highest growth opportunities. The Company is currently heavily rail focused. As they get capitalized the Company is expected to expand.

Operational milestones. On May 15, 2018, DUOT announced that it was awarded a multi-million dollar contract from Canadian National Railway (TSX:CNR). We estimate the acquisition price for each rail inspection portal is \$1.5 million, which values the original contract in excess of \$6 million. DUOT received a follow on contract for an additional three systems, valued at \$4.5 million. These systems are expected to be delivered in the April 2019 time frame. On September 5, 2018 DUOT announced that it had signed a Software License and Application Models Agreement with CNR. This agreement with Canadian National Railway covers the licensing of seven existing algorithms and the development of an additional 10 algorithms for a flat fee of \$300K.

Focus on AI. We expect the company to announce the formation of a new subsidiary to focus on AI. Initiatives will include IoT, machine learning and AI. Currently, DUOT has the middleware and modeling capability, but does not have a AI development platform. The Company has been working on this platform since November 2018 and the development phase is scheduled to be complete by 1Q19. We are projecting modest revenue contribution from the AI subsidiary for 2019, but expect gross margins in excess of 80%.

Summary

DUOT's gross margins are 50% plus across all of the businesses. At the current burn rate, break even is estimated at around \$14-\$15 million in revenues annually. This is on an operating basis.

As revenues approach \$15-plus million, which we estimate for 2019, then DUOT can become less sensitive to the timing of a single project. 2020 could be the breakout year with contribution from the AI subsidiary.

Rating, Price and Target

Symbol	DUOT
Rating	Buy
Price	\$0.53
Price Target	\$2.00

Market Data

Market Cap (M)	\$11.20
Shares Outstanding (M)	21.00
Average Daily Volume (000s)	12.00
Float (M)	10.40
Total Debt (M)	\$0
Net Cash/Debt (\$M)	\$1.50
Dividend	NM

FYE Dec	2017A	2018E	2019E
EPS	(1.43)	(0.06)	0.02
Revenue (M) (\$)	3.9	12.3	16.5

Quarterly EPS	Q1	Q2	Q3	Q4
2017A	(1.21)	(0.70)	(0.07)	(0.16)
2018E	(0.04)	(0.03)	0.02	(0.01)
2019E	-	-	-	-

Quarterly Revenue (M)	Q1	Q2	Q3	Q4
2017A	1.0	1.2	1.0	0.6
2018E	1.1	3.2	5.1	2.8
2019E	-	-	-	-

Company Description

Duos Technologies Group, Inc., through its subsidiary, Duos Technologies, Inc. designs and deploys artificial intelligence driven intelligent technologies systems in the United States. Its technology platforms include Praesidium, an integrated suite of analytics applications, which process and analyze data streams from virtually conventional or specialized sensors, and/or data points; and Centraco, a user interface that includes a physical security information management system. The company offers intelligent technology solutions for critical infrastructure. Duos Technologies Group, Inc. is headquartered in Jacksonville, Florida. Duos Technologies Technologies Group Inc. is a subsidiary of Environmental Capital Holdings, Inc.

Overview

Duos Technologies Group, Inc. (DUOT), through its operating subsidiary duostech, is primarily engaged in the design and deployment of advanced, artificial intelligence driven intelligent technologies systems. DUOT converges traditional security measures with information technologies to create actionable intelligence.

DUOT's growth strategy includes the expansion of its technology base through organic development efforts, strategic partnerships, and through strategic acquisitions. The Company provides its broad range of technology solutions with an emphasis on mission critical security, inspections and operations within the rail transportation, chemical, petrochemical, government, and banking sectors. DUOT also offers professional and consulting services for large data centers.

DUOT has also expanded its offerings in the IT asset management (ITAM) space for large data centers. During first-half 2018, DUOT announced its new dcVue software platform which is the basis for expanded offerings into this market area.

DUOT has made substantial investments in product research and development and has made significant progress in penetrating the market with its proprietary technology solutions. DUOT has specifically made inroads in the rail industry which is currently undergoing a major shift in maintenance strategies.

DUOT's business success in the immediate future will largely depend on the increased penetration into target markets for proprietary intelligent analytical technology solutions.

Takeaways

Global provider of intelligent technologies. DUOT has experience in designing, developing, and implementing intelligent technologies for rail, utilities, oil and gas, chemical industries, commercial and retail distribution and government sectors. The Company's products and solutions are field tested and ready to scale. The primary target market is North America and current customers are Fortune 100 and 500 companies. Given the suitability and adaptability of technologies to other verticals, Duos plans to expand presence to other high growth verticals and globally.

Rich IP portfolio. Duos has 9 patents granted and 2 patents pending.

Flexible Technology Architecture. The Company's technology is built on two platforms.

First is centraco®, a customer facing interface. It not only works with inputs from the Company's technology but also embraces third party technology.

The real engine is an analytics process backend called praesidium®. This is the engine that takes the inputs, be it video or other sensors, does analysis and presents it to the operator or management to take operational or business decisions.

Strong, seasoned management team. Gianni Arcaini, Chairman, has a thirty-five year executive career spanning multiple industries. Arcaini is the inventor and co-inventor of all technologies offered by Duos. David Ponevac, CTO, has over 14 years of software engineering experience. Adrian Goldfarb, CFO, is a thirty-five year industry veteran with more than 20 years in the IT industry.

Target markets and customers. The total market Duos addresses is estimated at \$100 billion. The current focus is the rail market, which is the Company's sweet spot.

DUOT primarily serves Fortune 100 and Fortune 500 companies. Duos has a small number of large customers which include CSX, BNSF and Ferromex.

DUOT is also targeting the distribution vertical with retail partners like Kohl's. A related market is the \$2 billion video analytics segment. This opportunity grows out of the Company's involvement with security.

An adjacent addressable opportunity is the \$50 billion Enterprise Information Management (EIM).

DUOT should not run out of opportunities. The current pipeline is in excess of \$100 million. The industry average conversion rate to backlog is about 20 percent.

In sum, the near term verticals DUOT can monetize are rail, distribution and correctional facilities. But rail remains bulk of the business and will likely represent bulk of the growth going forward.

The Company's legacy business has been security applications. DUOT has transitioned to the next phase which includes rail- and maintenance- inspection. This is critical because target monies is going from having to spend on security to real ROI.

Expanding share of wallet in rail vertical. Duos' technology has undergone extensive vetting with transportation research and testing organization, TTCI (a subsidiary of Association of American Railroads). TTCI is the technology arm of AAR and is funded by Class-1 railroads.

The opportunity here is unlike the traditional software business where companies can come in and see if their technology works.

Duos' solutions work. It is a question of developing and fitting it into the business processes of Class-1 rail road and expanding out from there.

But it is a resources intensive business. The type of people needed are not inexpensive. Constraint on DUOT's revenue growth is capitalization and the ability to expand.

DUOT can extend the undercarriage examiner to include a thermal imaging component to look at the heat of wheels of rail cars. The Company has completed a proof-of-concept (PoC). The next step would be to develop a commercial thermal imaging process that would attach to the undercarriage examiner.

Today for railroads, every 50 miles of the rail track have a hot box detector installed. It only reads the temperature but does not give any specifics. With the new technology, DUOT will be able to show which rail car images are heating up and how much it has been heating up. This could be a large opportunity as it could replace the current hot box technology.

DUOT is in a position to capitalize the capabilities of the core technology to develop a diversified product portfolio using the same core technology being available for a multitude of applications.

Neural networking. Machine Learning is going to be a cornerstone of video/image analytics solutions. Duos' systems are set up to take advantage of this trend and remain well positioned to capitalize on it.

Focus on AI. We expect the company to announce the formation of a new subsidiary to focus on AI. Initiatives will include IoT, machine learning and AI. Currently, DUOT has the middleware and modeling capability, but does not have an AI development platform. The Company has been working on this platform since November 2018 and the development phase is scheduled to be complete by 1Q19. We are projecting modest revenue contribution from the AI subsidiary for 2019, but expect gross margins in excess of 80%.

This carve out will likely require a modest capital raise of \$1-\$2 million. DUOT could get the monies from existing shareholders executing their warrants early at a discount.

Not a single industry trick. Duos' underlying technology is industry agnostic. DUOT is picking the highest growth opportunities. The Company is currently heavily rail focused. As they get capitalized, the Company is expected to expand.

DUOT is focusing on a couple of areas. Retail is under tremendous pressure right now. Cost saving and automation of the ingress and egress in the distribution centers is a key application. Duos has an ongoing project with the retailer Kohl's. This includes that automation of their distribution center. Kohl's has deployed DUOT's solution across 9 distribution sites. The projects are deemed completed, and in the process of acceptance testing.

DUOT is also developing applications for oil theft prevention. In sum, Duos has an industry agnostic base of technology which they can apply to multiple industries.

Business model. DUOT's gross margins are 50% plus across all the businesses. At the current burn rate, break even is estimated at around \$14-\$15 million in revenues annually. This is on an operating basis.

Expenditure is skewed toward two key areas - R&D Engineering and Business Development. The Company can then grow the business but also deliver new solutions into those industries and also be able to support them.

As revenues approach \$15-plus million, which we estimate for 2019, then DUOT can become less sensitive to the timing of a single project.

We expect DUOT to migrate to a subscription model for two reasons. One that it is more attainable for the customer to buy systems when they only pay the subscription amount than put out the capex. Second, it takes any revenue bumps away and shows the growth in a much more stable manner.

Valuation

Our 12-month price target of \$2 is based on a 4x forecast 2019 revenue of \$16.5 million. This valuation multiple is comparable to the peer group of emerging growth companies.

We expect the business model to come into focus in 2019, and we are forecasting revenues of \$16.5 million.

This is a project based business. Duos is starting to build out in two or three key industries. Revenues can be lumpy early on because of how the Company accounts for revenue. Quarter-on-quarter or year-on-year financial changes are not meaningful near term. Investor focus should be on long term trends.

Notable Operational Milestones

Expanding existing relationships. On May 15, 2018, DUOT announced that it was awarded a multi-million dollar contract from Canadian National Railway (TSX:CNR). The order was for four rail inspection portals and includes the deployment of the Company’s first thermal undercarriage inspection system.

Dollar impact. We estimate the acquisition price for each rail inspection portal is \$1.5 million, which values the original contract in excess of \$6 million (including various sub components). In addition, there is likely a service contract, which is typically up to 40% of the contract value or \$2.5 million recognized over five years. The Company is in the process of acceptance test for the first four systems.

DUOT received a follow on contract for an additional three systems, valued at \$4.5 million. These systems are expected to be delivered in the April 2019 time frame.

Licensing agreement. On September 5, 2018 DUOT announced that it had signed a Software License and Application Models Agreement with a leading North American Class-1 Transportation and Logistics company. This Agreement covers the licensing of seven artificial intelligence-based detection algorithm models and the development of additional 10 algorithms.

Strategic relationship. This agreement with Canada National Railway covers the licensing of seven existing algorithms and the development of an additional 10 algorithms for a flat fee of \$300K. The discount pricing reflected the strategic nature of the relationship. Going forward, we expect DUOS to charge CNR the standard licensing fee.

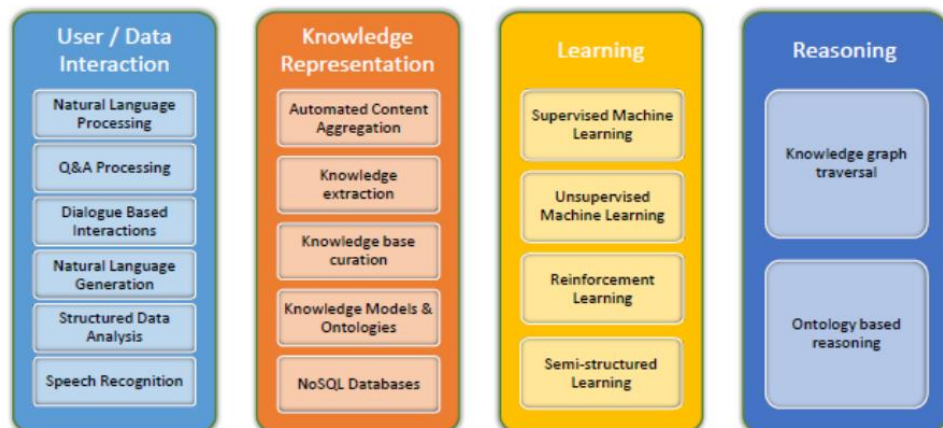
DUOT has submitted a bid with Alstom for an Amtrak project, total project value estimated at \$6 million. We anticipate prototype deliveries by year end 2019, and revenues in 2020.

Worldwide Cognitive/Artificial Intelligence Software Platforms

Market Research firms, IDC and Gartner, predict that the worldwide cognitive/artificial intelligence (AI) software platforms market will grow from \$2.0 billion in 2017 to \$9.5 billion in 2022 at a compound annual growth rate (CAGR) of 37%. Growth in this market continues to be driven by increases in AI software platforms, including conversational AI platforms being used to develop applications ranging from chatbots and conversational interfaces to predictive and prescriptive applications that offer advice and recommendations.

Figure 1. Cognitive/AI Software Platform

A set of technologies that use NLP, machine learning, knowledge graphs and other technologies to answer questions, discover insights and provide recommendations. These systems hypothesize and formulate possible answers based on available evidence, can be trained through the ingestion of vast amounts of content, and automatically adapt and learn from their mistakes and failures.



Sources: IDC,Forrester and ThinkEquity Estimates

The AI software platforms market continues to grow at rapid pace and involves billion-dollar software firms as well as a wealth of start-ups around the globe. DUOT is acting now to gain the benefits derived from AI, deep learning, and machine learning.

Technology Suppliers

Cognitive/AI software platform vendors, like DUOT, need to make their tools and platforms easy to develop, easy to use, and easy to scale. We are already seeing vendors addressing these needs by offering suites of tools and APIs such as Amazon’s SageMaker and Microsoft Azure Machine Learning Studio that help enterprise developers to create AI-enabled applications more easily than ever before. These tools are providing the capabilities for enterprises to create applications that do product recommendation, pricing optimization, predictive maintenance, financial advice, and a whole host of other use cases.

In addition, we are seeing vendors providing low-code/no-code AI tools for jobs like image recognition and classification, speech recognition, machine transcription, machine learning-based text analytics, and a host of other functions. These tools can be simply plugged into an application to provide the capabilities of an AI-enabled function without the need for extensive training or development.

Vendors also need to accommodate the low-cost or no-cost open source deep learning and machine learning toolkits and cloud services that are proliferating in the market today. Many organizations are using these tools such as Google’s TensorFlow, Caffe, and R to develop their own cognitive/AI applications. However, these toolsets need additional capabilities and technologies that are not currently offered by open source, which is why the cognitive/AI platforms that offer a range of additional technologies have emerged. Vendors need to include flexibility for developers to add open source models into an extensible framework. Vendors like DUOT that can successfully mix and match open source with proprietary technologies and offer them at a reasonable cost should be the winners in this market in the long run.

Figure 2. Market Glance: Cognitive/AI Systems: Search and Content Analytics



Sources: Company Reports, IDC and ThinkEquity Estimates

Market Forecast

IDC and Gartner predict the market for cognitive/AI software will grow to \$9.5 billion by 2022, at a compound annual growth rate of 37%.

Figure 3. Worldwide Cognitive/AI Software Platforms Revenue by Region, 2017-2022E (\$M)

	2017	2018	2019	2020	2021	2022	2017 Share (%)	2017-2022 CAGR (%)	2022 Share (%)
Region									
Americas	1,667	2,284	3,081	4,120	5,546	7,438	84	35	79
Asia/Pacific	90	123	169	229	294	361	5	32	4
EMEA	228	323	474	714	1,085	1,667	12	49	18
Total	1,985	2,730	3,724	5,064	6,925	9,466	100	37	100

Sources: IDC and ThinkEquity Estimates

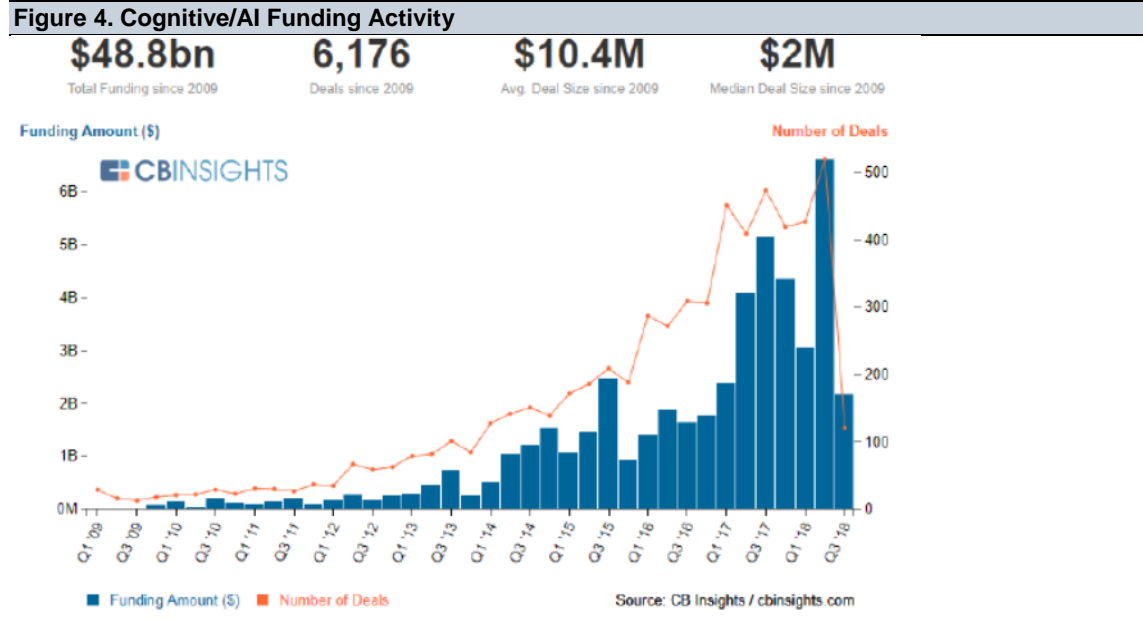
The table shows that the Americas will continue to gain overall share. The second fastest-growing region is EMEA, where rapidly growing commercial activity is generating strong demand for cognitively enabled applications.

Market Context

In 2017, the cognitive/AI software platforms market was primarily made up of many dozens of start-ups and small software firms with an increasing number of very large vendors providing market offerings.

These vendors include companies like IBM, Microsoft, Google, and Amazon as well as other well-known software vendors such as Salesforce, SAP, and OpenText. At the same time, mergers and acquisitions have continued, adding AI platform capabilities to companies such as Cisco and Verint.

We believe DUOT is well positioned for organic growth as well as an attractive takeout candidate.



Sources: CB Insights (August 2018) and ThinkEquity Estimates

Market Drivers

Digital Transformation Should Remain the Strongest Business Driver for Cloud Adoption

Assumption: Digital transformation — the use of platform technologies to create new business value through digitally enhanced offerings, operations, and relationships — remains the top driver of IT spending.

Impact: Virtually all digital transformation initiatives are dependent on the cloud services delivery model — for scale, access to key technologies (e.g., AI services), and access to digital supply networks and distribution networks. As such, the growing enterprises' focus on digital transformation initiatives should fuel expanding demand for public IT cloud services.

Conversational AI Applications

Assumption: Many organizations are evaluating or embarking on the development and deployment of automated agents based on conversational AI technologies.

Impact: As the general population becomes more familiar with consumer-based conversational apps (think Apple Siri, Microsoft Cortana, Google Now, and Amazon Echo/Alexa), it opens the door for enterprise conversational AI applications for product advisement, recommendations, process improvement, decision making, and other functions.

Deep Learning/Machine Learning Adoption

Assumption: The ongoing adoption and reliability of machine and deep learning techniques and technologies in a wide range of disciplines from image recognition and categorization to information discovery and "weak signal" analysis.

Impact: Overall, machine learning/deep learning is a key component of most AI applications. If DUOT can improve the efficiency, and reliability of machine learning for target verticals, it will make its systems more usable and stable and help increase their popularity.














Market Developments

According to CB Insights, AI acquisitions increased from 80 in 2016 to 115 in 2017. A significant number of these acquisitions were done by leading technology vendors such as Google, Apple, Amazon, Intel, and Microsoft.

The race to acquire IP and talent in the AI platform market is expected to continue, and we expect to see even more acquisitions take place as other leading companies decide that they need to have a stake in AI software development as well.

Finally, another significant market development is the migration of AI and deep learning algorithms from the cloud or on-premise to mobile devices, especially smartphones. The ability to provide predictions, recommendations, and advice that was actually generated on mobile devices with local data is an emerging trend that is expected to become extremely important over the next two to five years.

Figure 5. Top AI acquirers over the last 5 years

Acquirer								
	Emotient	Perceptio	Tuplejump	Turi	VocalIQ	REGAIND	Init.ai	Pop Up Archive
	DeepMind	Emu	Jetpac	Granata	Timeful	Moodstocks	Api.ai	Kaggle
	Indisys	Movidius	Iseez	Nervana	Saffron			
	Mobile Tech	Masquerade	Wi.ai	Ozlo				
	Magic Pony	TellApart	Whetlab	Madbits				
	Angelai	Orbeus	Sqrrl					
	ExpertMaker	SalesPredict	AppTek					
	Cognea	AlchemyAPI	Explorsys					
	Genee	Maluba	Equivio					
	Tempo AI	PredictionIO	MetaMind					
	Crosswise	Palerra						
	BitStew	Wise.io						
	Mindmeld	Perspica						

Sources: Company Reports and ThinkEquity Estimates

DUOT is well positioned to monetize the transition from on-premise to differentiated cloud solutions that compete on added value above the functionality of core components.

Recent Financial Results

Revenues

Revenues were \$5.1 million and \$1.0 million for the three months ended September 30, 2018 and 2017, respectively. The increase in overall revenues was driven by the strength of the project's portion of the business. DUOT's stable capital structure enables the company to pursue large projects requiring the ability to deploy resources. The increase in project revenues was also translated to an increase in maintenance and technical support from a one-time customer change order.

DUOT's objective is to replace declining revenues from legacy customers with new, long term recurring revenue from new customers. The maintenance and technical support revenues are driven by successful completion on projects. The expectation is that revenues from this area will grow in 2019 based on the success of installations.

The lower contribution from ITAM is due to the conclusion of a large project late in 2017 and delays in starting a new project. We expect growth from this segment in 2019.

Figure 6. Duos Technologies Group, Inc. — Statement of Operations

	For the Three Months Ended September 30,	
	2018	2017
<i>(in thousands, except per share data)</i>		
Statement of Operations:		
Revenue	\$5,102	\$1,046
Cost of revenue	2,774	658
Gross profit	2,328	387
Operating expenses	1,692	1,175
Income (Loss) from operations	636	(788)
Other income (expense)	(4)	663
Net income (loss)	633	(125)
Series A preferred stock dividends	-	(6)
Net income (loss) applicable to common stock	\$633	(\$131)

Sources: Company Reports and ThinkEquity estimates.

Cost of Revenues

Cost of revenues on projects increased in-line with the increase in revenues. Overall gross margin was positively impacted in 3Q18 compared to 3Q17 due to tighter cost controls on production of systems and the efficiencies in implementation of projects. Cost of revenues decreased on maintenance and technical support from a shift in the customer base.

Gross Profit

Gross profit was 46% of revenues compared to 37% of revenues for the three months ended September 30, 2018 and 2017, respectively. The overall increase in gross profit was primarily from the increase in project revenues. Typical project gross margins are at least 50%. But the implementation of ASC 606 can have one-off lower margin revenues.

Operating Expenses

Operating expenses in 3Q18 increased by 44%, in comparison to 3Q17. Higher spends is from the increase in resources related to the increase in revenues for the period. Selling and marketing expenses and research and development both increased in-line with the company's investment in resources to grow the business.

Income (Loss) Before Other Expense

The income from operations for 3Q18 was \$636k and the loss from operations for 3Q17 was \$788k. The increased income from operations was from the overall increase in revenue for the period along with an increase in gross margin and a lower rate of increase in operating expenses.

Net Income (Loss)

The net income for 3Q18 was \$633k and a net loss for 3Q17 was \$125k. The increase in net income is primarily from the increase in project revenue. The 2017 net loss was reduced by the \$2.2 million warrant derivative gain on debt related to debt financing and offset by the non-cash charges of \$1.5 million in debt discount expense.

Net income (loss) per common share was \$0.03 and \$(0.07) for the three months ended September 30, 2018 and 2017, respectively. The net income per common share for 3Q18 was \$0.02 on a dilutive basis.

Figure 7. Duos Technologies Group, Inc. – Balance Sheet Summary

<i>(based on September 30,18 10Q)</i>	September 30, 2018	December 31, 2017
Cash	\$1,572,051	\$1,941,818
Total assets	\$3,823,552	\$2,866,178
Total liabilities	\$3,274,081	\$2,243,643
Total stockholders' equity (deficit)	\$549,471	\$622,535

Sources: Company Reports and ThinkEquity Estimates

Liquidity and Capital Resources

As of September 30, 2018, DUOT has a working capital of \$286k, including \$1.6 million of cash. The company has incurred a net loss of \$745k for the nine months ended September 30, 2018.

Net cash used in investing activities for the nine months ended September 30, 2018 and 2017 were \$223k and \$23k, respectively representing an increase in investments in software development and lab equipment during the nine months of 2018.

Net cash used in financing activities for the nine months ended September 30, 2018 was \$54k and cash flow provided in the same period 2017 was \$895k.

As of November 13, 2018, DUOT had approximately \$690k. The Company has approximately \$135k in monthly lease and other mandatory payments.

Figure 8. Duos Technologies Group, Inc. – Operating Activities

<i>(,000)</i>	For the Three Months Ended September 30,	
	2018	2017
Net cash used in operating activities	(\$92)	(\$1,046)
Net cash used in investing activities	(223)	(23)
Net cash used (provided) by financing activities	(54)	895
Net decrease in cash	(370)	(174)

Sources: Company Reports and ThinkEquity Estimates

DUOT had a positive working capital of \$286k and an accumulated deficit of \$29.4 million at September 30, 2018. During the same period in 2017, DUOT had a negative working capital of \$7.6 million and an accumulated loss from operations of \$27.2 million.

Summary

Global provider of intelligent technologies. Duos has experience in designing, developing, and implementing intelligent technologies for rail, utilities, oil and gas, chemical industries, commercial and retail distribution and government sectors. The Company's products and solutions are field tested and ready to scale. The primary target market is North America and current customers are Fortune 100 and 500 companies. Given the suitability and adaptability of technologies to other verticals, Duos plans to expand presence to other high growth verticals and globally.

Rich IP portfolio. Duos has nine patents granted and two patents pending.

Flexible Technology Architecture. The Company's technology is built on two platforms.

The first is *centraco@*, a customer facing interface. It not only works with inputs from the Company's technology but also embraces third party technology. The real engine is an analytics process backend called *praesidium@*. This is the engine that takes the inputs, be it video or other sensors, does analysis and presents it to the operator or management to take operational or business decisions.

Not a single industry trick. Duos' underlying technology is industry agnostic. The Company is picking the highest growth opportunities. The Company is currently heavily rail focused. As they get capitalized, the Company should expand.

Duos is focusing on a couple of areas. Retail is under tremendous pressure right now. Cost saving and automation of the ingress and egress in the distribution centers is a key application. Duos has an ongoing project with the retailer Kohl's. This includes the automation of their distribution center. This project will be coming to completion shortly. Once that is successful, Kohl's is expected to roll it out to all of their distribution centers. This is a \$3 million project and it opens up opportunities for Duos with other retail partners.

The Company is also developing applications for oil theft prevention. In sum, Duos has an industry agnostic base of technology which they can apply to multiple industries.

Business Model

The Company's gross margins are 50% plus across all of the businesses. At the current burn rate, breakeven is estimated at around \$14-\$15 million in revenues annually. This is on an operating basis.

At \$8 million in annualized sales, the Company can breakeven on a quarterly basis. There is no plan to grow the G&A by a large amount. When it comes to the use of proceeds, the focus is on two key areas - R&D Engineering and Business Development. The Company can then grow the business but also deliver new solutions into those industries and be able to support them.

Parallel to that, Duos would go to a subscription model for two reasons. One, that it is more attainable for the customer to buy systems when they only pay the subscription amount than put out the capex. Second, it takes any revenue bumps away and shows the growth in a much more stable manner.

As revenues approach \$12-\$14 million, which we estimate for 2019, then Duos can become less sensitive to the timing of a single project.

Artificial Intelligence Software Platforms

Market Research firms, IDC and Gartner, predict that the worldwide cognitive/artificial intelligence (AI) software platforms market will grow from \$2.0 billion in 2017 to \$9.5 billion in 2022 at a compound annual growth rate (CAGR) of 37%. Vendors like DUOT that can successfully mix and match open source with proprietary technologies and offer them at a reasonable cost should be the winners in this market in the long run.

Risks

Ability to continue as a going concern. DUOT had a net loss of \$5.1 million for the year ended December 31, 2017. During the same period, cash used in operations was \$3.6 million. The accumulated deficit as of December 31, 2017 was \$28.7 million.

As of September 30, 2018, DUOT has a working capital of \$286k, including \$1.6 million of cash.

The technology management platforms are complex and highly integrated. The technology platforms developed and designed by Duos to accommodate integrated applications that include organically developed technology and third-party technology, thereby substantially increasing their functionality. Due to the complexity and the condensed development cycles under which the Company operates, they may experience errors in software, corruption or loss of data, or unexpected performance issues from time to time. Any major integration or interoperability issues or launch delays could have a material adverse effect on revenues and operating income.

Products and services may fail to keep pace with changing technology and evolving industry standards. The market in which Duos operates is characterized by rapid technological developments, evolving industry standards, frequent new product introductions and changes in customer requirements.

Both traditional and new competitors are investing heavily in these market areas and competing for customers. As next-generation video analytics technology continues to evolve, Duos must keep pace in order to maintain or expand market position.

Revenues are dependent on economic conditions and the willingness of enterprises to invest in technology. Enterprises continue to be cautious about sustained economic growth and have tried to maintain or improve profitability through cost control and constrained spending. Duos' core technologies are designed to address cost reduction but other factors may cause delaying or rejecting capital projects. There is a growing market trend toward more customers exploring operating expense models as opposed to capital expense models for procuring technology.

The market trend toward operating expense models should continue as customers seek ways of reducing their overhead and other costs. These may result in continued pressure on the ability to increase revenue and may create competitive pricing pressures and price erosion.

Faces significant competition and many of the competitors are larger and have greater financial resources. Duos' product offerings compete and will compete with other similar products from competitors. These competitive products could be marketed by well-established, successful companies that possess greater financial, marketing, distributional and other resources.

History of losses and growth plans expect to incur negative operating cash flows in the future. Accumulated deficit was approximately \$28 million as of December 31, 2017 and approximately \$29.4 million as of September 30, 2018. Operating losses may continue as DUOT continues to expend resources to further develop and enhance technology offering,

Dependence on a limited number of customers. As of December 31, 2017, four customers accounted for 83% of accounts receivables. Additionally, the three largest customers accounted for approximately 60% of total revenues for the year ended December 31, 2017. The concentration of credit risk makes DUOT vulnerable economically.

Inability to protect Intellectual Property. Duos relies on a combination of trade secrets, patents, copyrights, trademarks, confidentiality agreements, and other contractual provisions to protect intellectual property, but these measures may provide only limited protection.

The Company cannot be certain that their technologies and products do not and will not infringe on issued patents or other proprietary rights of others.

Competitors may develop technologies that are similar or superior to Duos' technologies, duplicate technologies, or design around patents, and may have or obtain patents or other proprietary rights that would prevent, limit, or interfere with Duos ability to make, use, or sell their products.

For additional risk considerations, please refer to the Company's SEC filings.

Figure 9. Duos Technologies Group Inc. - Income Statement, 2014-2019E

	2014	2015	Mar-16 1Q16	Jun-16 2Q16	Sep-16 3Q16	Dec-16 4Q16	2016	Mar-17 1Q17	Jun-17 2Q17	Sep-17 3Q17	Dec-17 4Q17	2017	Mar-18 1Q18	Jun-18 2Q18	Sep-18 3Q18	Dec-18 4Q18E	2018E	2019E	
(\$ in thousands, except per share data)																			
Revenues:																			
Project	\$1,803	\$3,759	\$229	\$883	\$594	\$1,494	\$3,200	\$360	\$591	\$561	\$371	\$1,884	845	2,941	4,731	2,500	\$11,017	\$14,000	
Maintenance and technical support	2,400	2,481	608	603	619	401	2,231	315	311	288	\$213	1,128	257	252	371	250	1,131	1,250	
IT asset management services	-	528	167	161	154	191	674	360	260	197	\$56	873	46	47	-	40	132	1,250	
Total Revenues	\$4,202	\$6,768	\$1,004	\$1,647	\$1,367	\$2,086	\$6,105	\$1,036	\$1,163	\$1,046	\$641	\$3,885	1,148	3,240	5,102	2,790	12,280	\$16,500	
Cost of revenues																			
Project	1,146	2,052	141	378	303	759	1,581	346	376	458	307	1,488	548	1,847	2,685	1,395	6,610	\$7,500	
Maintenance and technical support	986	959	268	196	263	59	786	147	88	131	93	459	103	108	89	100	509	500	
IT asset management services	-	185	78	98	79	111	366	138	122	69	19	348	20	28	-	20	46	350	
Total Cost of Revenues	2,132	3,196	486	672	645	929	2,732	631	586	658	419	2,295	671	1,983	2,774	1,515	7,165	8,350	
Gross Profit	\$2,070 49%	\$3,572 53%	518 52%	975 59%	722 53%	1,157 55%	\$3,372 55%	404 39%	577 50%	387 37%	221 35%	\$1,590 41%	477 42%	1,257 39%	2,328 46%	1,275 46%	\$5,337 43%	8,150 49%	
Operating Expenses:																			
Selling and marketing expenses	283	254	86	85	62	45	278	69	50	27	33	179	41	74	73	70	259	500	
Salaries, wages and contract labor	2,264	2,587	886	939	759	787	3,370	736	840	784	739	3,099	766	1,315	1,072	1,000	4,153	4,500	
Research and development	192	217	55	74	72	70	272	88	72	66	85	311	135	143	123	150	450	750	
Professional fees	84	256	77	92	60	77	306	120	85	87	101	394	64	60	64	60	248	500	
General and administrative expenses	835	906	180	239	199	272	890	248	310	210	283	1,052	210	295	360	350	1,215	1,200	
Impairment loss on intangible assets & goodwill	-	1,579	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Operating Expenses	3,658	5,799	1,285	1,428	1,152	1,252	5,116	1,260	1,358	1,175	1,241	5,034	1,216	1,888	1,692	1,630	6,325	7,450	
Profit (loss) from Operations	(1,588)	(2,227)	(767)	(453)	(430)	(94)	(1,744)	(856)	(781)	(788)	(1,020)	(3,444)	(740)	(631)	636	(355)	(988)	700	
Salaries -percentage	54%	38%	88%	57%	55%	38%	55%	71%	72%	75%	115%	80%	67%	41%	21%	36%	34%		
R&D percentage	5%	3%	6%	4%	5%	3%	4%	8%	6%	6%	13%	8%	12%	4%	2%	5%	4%		
Other Income (Expense):																			
Interest Income (Expense)	(516)	(744)	(72)	(144)	(162)	(183)	(561)	(921)	(833)	(1,526)	(1,239)	(4,519)	(6)	(4)	(5)	(5)	(20)	(20)	
Other Income (Expense) - Non Cash	0	646	1	(66)	0	(191)	(256)	(518)	295	2,189	844	2,810	2	1	1	-	4	-	
Total Other Income (Expense)	(516)	(99)	(71)	(210)	(161)	(375)	(817)	(1,439)	(538)	663	(395)	(1,709)	(4)	(4)	(4)	(5)	(16)	(20)	
Net Income (Loss) before Taxes	(2,103)	(2,326)	(838)	(663)	(591)	(469)	(2,561)	(2,295)	(1,318)	(125)	(1,415)	(5,153)	(743)	(634)	633	(360)	(1,004)	\$680	
Income Tax Provision	(4)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Series A preferred stock dividends	(536)	-	-	-	-	(6)	(6)	(6)	(6)	(6)	(0)	(18)	-	-	-	-	-	0	
Net income (loss) applicable to common stock	(2,643)	(2,326)	(838)	(663)	(591)	(475)	(2,567)	(2,301)	(1,324)	(131)	(1,415)	(5,171)	(743)	(634)	633	(360)	(1,004)	680	
Net income (loss) per common share	(\$1.51)	(\$1.33)	(\$0.45)	(\$0.35)	(\$0.31)	(\$0.25)	(\$1.36)	(\$1.21)	(\$0.70)	(\$0.07)	(\$0.16)	(\$1.43)	(\$0.04)	(\$0.03)	\$0.02	(\$0.01)	(\$0.06)	\$0.02	
Weighted average shares outstanding	1,750,028	1,750,028	1,883,598	1,883,598	1,883,598	1,883,598	1,883,598	1,894,171	1,894,923	1,899,716	8,736,794	3,606,401	20,709,478	20,707,153	26,412,450	27,000,000	23,707,270	32,000,000	

Sources: Company Reports and ThinkEquity Estimates

Figure 10. Duos Technologies Group, Inc.—Valuation Comparables, Prices as of 1/31/19

Company Name	TEV/Total Revenues LTM	TEV/EBITDA LTM	TEV/EBIT LTM	P/Diluted EPS	P/Tang BV LTM
Digimarc Corporation (NasdaqGS:DMRC)	8.3x	NM	NM	NM	4.0x
Intelligent Systems Corporation (AMEX:INS)	9.9x	43.8x	50.8x	57.7x	7.9x
SuperCom Ltd. (NasdaqCM:SPCB)	1.2x	NM	NM	NM	1.3x
Mitek Systems, Inc. (NasdaqCM:MITK)	5.9x	105.8x	NM	NM	13.7x
Aware, Inc. (NasdaqGM:AWRE)	1.7x	50.3x	NM	240.1x	1.2x
BIO-key International, Inc. (NasdaqCM:BKYI)	3.9x	NM	NM	NM	3.7x
Spectra Systems Corporation (AIM:SPSC)	3.8x	9.9x	12.7x	14.9x	3.3x
Applied DNA Sciences, Inc. (NasdaqCM:APDN)	4.1x	NM	NM	NM	NM
Duos Technologies Group, Inc. (OTCPK:DUOT)	1.3x	NM	NM	NM	NM
Summary Statistics	TEV/Total Revenues LTM	TEV/EBITDA LTM	TEV/EBIT LTM	P/Diluted EPS	P/Tang BV LTM
High	9.9x	105.8x	50.8x	240.1x	13.7x
Low	1.2x	9.9x	12.7x	14.9x	1.2x
Mean	4.8x	52.5x	31.8x	104.2x	5.0x
Median	4.0x	47.1x	31.8x	57.7x	3.7x

Sources: Thomson Reuters, Google Finance and ThinkEquity Estimates

Important Disclosures

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Duos Technologies Group, Inc. Rating History as of 02/01/2019

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