WESTPEAK RESEARCH

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DIRTT Environmental Solutions Ltd. (TSE:DRT)

Industrials – Construction

"The Future of Construction"

Company Profile

DIRTT Environmental Solutions Ltd. (DIRTT) is a technology-driven manufacturer of interiors. With its proprietary ICE software and in-house manufacturing, DIRTT handles the processes from production to on-site installation. DIRTT provides its services through a Distribution Partners network, which has a client-base in healthcare, education, financial services, government, non-profit, oil and gas, retail, and technology industries. DIRTT is headquartered in Calgary, Alberta.

Investment in ICE Software Sets Up Future Growth

Continuous investment in its proprietary ICE software provide DIRTT with a strong economic moat, so the company can focus on pursuing its numerous growth strategies. From a client perspective, DIRTT's ICE software-enabled vertical integration order structure is significantly more convenient than having to order different building parts from a variety of construction companies. In terms of production, ICE's automated capabilities allow DIRTT to mitigate rising wage pressure in the construction industry. DIRTT will also be able to take advantage of the rising popularity of AR technology in the enterprise market. Since DIRTT already has experience in VR technology and has recently unveiled ICE's future with AR integration, DIRTT may be able to gain an even greater technological advantage over other North American construction companies.

Valuation & Recommendation

Given DIRTT's current share price, we believe that DIRTT is currently undervalued in the market. Using a discounted cash flow analysis and a comparable company analysis weighted at 50% each, we determined an average 12-month target share price of $9.02, representing a 30.3% upside. We have decided to initiate a **buy** rating on DIRTT Environmental Solutions Ltd.

Equity Research	Canada
Price Target	**CAD$ 9.02**
Rating	Buy
Current Share Price, close	CAD$ 6.92
Total Return	30.3%

Key Statistics	
52 week H/L	$7.47/$4.69
Market Capitalization	$587.4M
Net Debt	$13.7M
Enterprise Value	$507.2M
Net Debt/Enterprise Value	2.7%
Diluted Shares Outstanding	84.9M
Free Float %	96.7%
Dividend Yield	N/A
LTM P/E	50.7x
LTM EV/EBITDA	20.4x

WestPeak's Forecast

	2017E	2018E	2019E
Revenue	$321M	$363M	$371M
EBITDA	$54.5M	$74.7M	$91.1M
EBIT	$32.3M	$50.1M	$65.5M
Net Income	$21.4M	$33.7M	$43.3M
P/E	26.5x	16.8x	13.1x

Price Performance - 1 Year

Source: Bloomberg, CapIQ, WestPeak Research

Business Overview and Fundamentals

Business Summary

DIRTT (Doing It Right This Time) is a leading technology-driven manufacturer of highly customized interiors. DIRTT combines its proprietary ICE 3D design, configuration and manufacturing software with in-house manufacturing of prefabricated interior construction solutions. DIRTT has an extensive Distribution Partners network to service its diverse client base. DIRTT has a culture centered around sustainability, as their practices emphasize reducing their carbon footprint and contributing to local economies. DIRTT has won numerous sustainability awards for its innovations in sustainable construction.

ICE Software

DIRTT bases its business model on its proprietary ICE software. ICE software provides an interactive VR presentation of a working environment, which allows clients to build and place orders through a virtual 3D model space with DIRTT's interior design products (DIRTT Solutions). This allows for extensive customization, since clients can use ICE software to design their desired spaces with an interactive visual aid.

When the order is placed, DIRTT handles the engineering and manufacturing specifications, meaning that part of the business's strength is in DIRTT's process and human capital. Constructed by DIRTT engineers with the aid of ICE software, the individual model parts are built ready for convenient on-site placement. Contractors then supervise the installation, since the installation process is similar to that of conventional construction. Through ICE, the amount of on-site construction activity is reduced compared to conventional construction practices.

As of 2016, DIRTT has invested more than $24.9 million on its ICE software, which is not very substantial relative to the company's enterprise value.

Source: DIRTT

DIRTT Solutions

DIRTT refers to its products as “DIRTT Solutions”. The majority of DIRTT Solutions are interior construction products, but DIRTT also offers structural support through products like DIRTT Timber Frames. This is a breakdown of the interior installations DIRTT offers.

DIRTT Walls

Designed for high customization and supporting integrated technology for commercial, healthcare, education, hospitality and residential purposes, DIRTT Walls are constructed with a combination of glass, aluminum, or comprise panels of FSC certified wood. DIRTT Walls are coated with non-toxic paint with printed graphics.

DIRTT Power

DIRTT Power provides quick-connect, pre-tested adaptable power that with wires in correct lengths when they arrive on-site with factory components. This eliminates waste and provides future flexibility. DIRTT Power wires can be handled by trained electricians and construction labourers who are certified to manage DIRTT Solutions.

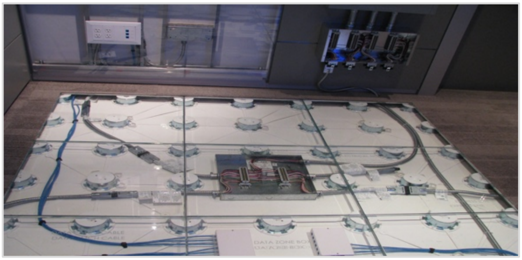
DIRTT Networks

DIRTT Networks provide a pre-tested, componentized approach for building sustainable network infrastructure, Like DIRTT Power, DIRTT Networks data requirements are pre-cut to correct lengths with components ready to go before they arrive on-site. Since they are pre-built, the time and labour costs of wiring DIRTT Network is reduced.

DIRTT Millworks

DIRTT Millworks are a modular cabinetry solution that has healthcare, corporate, education, hospitality and residential applications. DIRTT Millworks integrates with DIRTT Walls, incentivizing clients to continue using DIRTT for future interior upgrades.

DIRTT Floors



DIRTT Floors provide low-profile access floor supports for modular power and network infrastructure, flexibility for future adaptation, and reconfiguration in both existing facilities and new buildings. DIRTT Power and Network lines are to be integrated within DIRTT floors.

DIRTT Timber Frames

DIRTT Timber Frames encompass cross-laminated and glulam timber construction for interior mezzanines, structural elements for low-rise buildings, and other architectural elements connected through woodworking joints configured using ICE.

Distribution Partners and Client Base

DIRTT offers its services through a network of Distribution Partners (DPs), which are third parties that market and sell DIRTT Solutions. To maintain DP status, DPs are obligated to invest in their own regional DIRTT team. At minimum, a DIRTT team must consist of one DIRTT "Champion," one designer, and one project manager. Additionally, DPs must invest in a Green Learning Center (GLC) that showcases new innovations and construction solutions to architects, designers, clients, investors and the media. Since 2012, DPs have invested an average of $1.4 million per year on their respective GLCs. By operating through a Distribution Partners network, 585 staff members are employed to support DIRTT sales, manage DIRTT projects, and increase market awareness about DIRTT around the world at no financial cost to DIRTT itself. DIRTT provides DPs support through direct sales representatives and getting product experts to work with DPs on business development initiatives. DIRTT has 100 DPs in 179 locations in 5 continents, although most DPs are in North America.

Source: DIRTT

DIRTT's clients, as serviced through DPs, operate in a wide variety of industries. DIRTT Solutions have been provided to more than 5,600 clients. The average project size per client is $87,000, which is consistently increasing on an annual basis. The largest individual project completed in DIRTT's history was valued at $19.4 million and was completed early 2013. DIRTT offers its products to numerous US education institutions, such as Duke University, New York University, and Snow College. In terms of other government funded projects, DIRTT also provides its services to BC Ferries, BC Housing, AVCP Regional Housing, and the Cold Climate Housing Research Center. In terms of healthcare, DIRTT's clients include Evergreen Hospital, King Fahd Medical City, and

Seattle Children's Hospital. DIRTT also serves technology companies, such as Shaw, Panasonic, SaskTel, and Luminex. 188 of the Fortune 500 companies have used DIRTT's products, most notably, Google, Microsoft, Nordstrom, and eBay. Many companies become repeat clients, so as DIRTT expands its client base, DIRTT can increase the number of consistent revenue streams through recurring business.

Revenue Streams and Highlights

DIRTT generates revenue primarily through the sale of DIRTT Solutions. DIRTT also generates some revenue through the sale of ICE software, which is necessary for clients to customize their designs, and service revenue through ICE Edge Business Solutions Ltd. ICE Edge Business Solutions Ltd. is a wholly-owned subsidiary of DIRTT that sells ICE software licenses to companies in industries where DIRTT does not compete, i.e. companies not in the construction industry.

Historically, revenues appear to be seasonal, as DIRTT's Q3 and Q4 gross profits have always been stronger than its Q1 and Q2 earnings since 2013. On a year over year basis, DIRTT has displayed consistent improvement in gross profit. EBITDA margins rose from 3.1% in 2013 to 13.5% in 2015. Q3 2016 had an EBITDA margin of 15.1%. The increasing EBITDA margins are due to the consistently decreasing COGS margins. COGS margins decreased from 61.9% in 2013 to 57.1% in 2015. Q3 2016 had a COGS margin of 56.7%. These trends may be attributed to increases in production efficiency from improvements in ICE software, indicating that DIRTT's continuous investment in ICE software and vertically integrated business model pay off.

Below is a breakdown of Q3 revenue generated per region in 2015 and 2016:

Country	Q3 2016 Revenue (CAD$ thousands)	Q3 2016 %	Q3 2015 Revenue (CAD$ thousands)	Q3 2015 %
Canada	12,138	17.0	12,903	20.8
United States	58,171	81.3	45,671	73.6
Middle East	1,222	1.7	3,496	5.6
Total	**71,531**	**100**	**62,070**	**100**

When comparing DIRTT's Q3 2016 earnings with Q3 2015 earnings, there are several important trends to note. Revenue increased by $9.5 million (15.2%). Gross profit increased by $3.2 million (11.4%). While revenue in Canada and the Middle East decreased, the quantity offset is greater in the US. Energy company expenditure in Canada has been weak, which is a negative for DIRTT as larger sellers in the space. For the most part, this news has been priced in by the market, as DIRTT's stock increased 32% from the earnings call on November 11, 2016 ($5.65) to February 27, 2017 ($7.47).

Since EBITDA margins and earnings continue to increase, we believe that 2017 will be an even better year for DIRTT. We believe that the market simply priced in Q3 2016 as a relatively strong quarter, but the market has yet to price in the likelihood that margins and earnings will continue to improve. Given DIRTT's seasonal history of earning higher later in the year, shareholders should not compare Q1 2017 earnings to Q4 2016, but it is reasonable to expect Q1 2017 earnings to be higher than Q1 2016 earnings.

Dividends

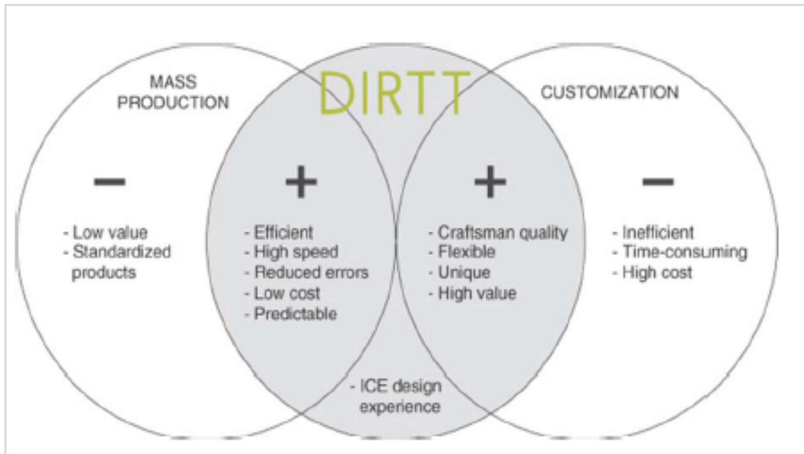
DIRTT has not declared or paid any cash dividends on Common Shares to date.

Competitive Advantages

DIRTT's competitive advantages are centered around its proprietary ICE software. From a customer standpoint, ICE acts as a point of differentiation through its ability to customize products without sacrificing production time. From an operational standpoint, ICE enables a vertical integration business model that is more efficient than traditional construction models.

Technological Superiority

ICE technology allows DIRTT to differentiate itself from other players in the construction industry by automating much of the skilled labour that is required by conventional construction methods. Conventional construction often entails using former build plans and replicating old data for future projects. This leads to a standardization of products or, if customization is pursued, high costs and inefficiency. Therefore, there is a trade-off between mass production and customization when using conventional constructions methods.



Source: DIRTT

DIRTT's ICE software reduces this trade-off by automating production with 3D modelled data. Since production is automated, manufacturing remains efficient and the potential for human error is reduced. With ICE software, clients are also able to visually customize their designs, so they get a better sense of their designs when compared to traditional non-virtual blueprint plans.

Patents

The 3D virtual reality technology in a design environment is vital to the unique value proposition DIRTT offers. As of 2015, DIRTT's technologies are protected by 109 patents and 168 additional patents have been applied for. Specifically, the patents protect DIRTT's unique with 3D construction rendering design software, the integrated reconfigurable wall system of DIRTT Walls, and the object-oriented, record-base design software.

Jurisdiction	Granted Patents	Applications Pending
Canada	31	46
United States	58	57
European Union	20	35
Patent Cooperation Treaty	0	30
Total	**109**	**168**

Vertical Integration Efficiency

Although the patent-protected technological enhancement gives DIRTT a marketable point of differentiation, the most powerful advantage that ICE software provides is the streamlining of DIRTT's vertically integrated business model. Unlike most of its competitors, DIRTT handles the sales, order, engineering, manufacturing, delivery, and installation processes. Compared to contractors that split the processes between different companies, this gives DIRTT better insight into the different aspects of its supply chain. This model eliminates transaction costs between suppliers and gives DIRTT more control over its resources. This results in less issues with bullwhip effects in the supply chain, as well as more control over quality assurance. Because DIRTT handles all these processes, ICE software is also developed to account for the different types of DIRTT Solutions that may be manufactured, so clients become more likely to purchase additional ICE Edge software.

Growth Strategy

DIRTT has followed a 5-pronged growth strategy: (1) increase presence in existing markets, (2) expand to new geographic markets, (3) target new industry verticals, (4) continue investing in ICE technology and DIRTT Solutions, and (5) create strategic partnerships. Based on improving earnings and margins, we believe this strategy works. In the future, management's strategy should create more recurring clients for DIRTT, make revenue streams less prone to regional downturns, and further differentiate DIRTT's services.

Increase Presence in Existing Markets

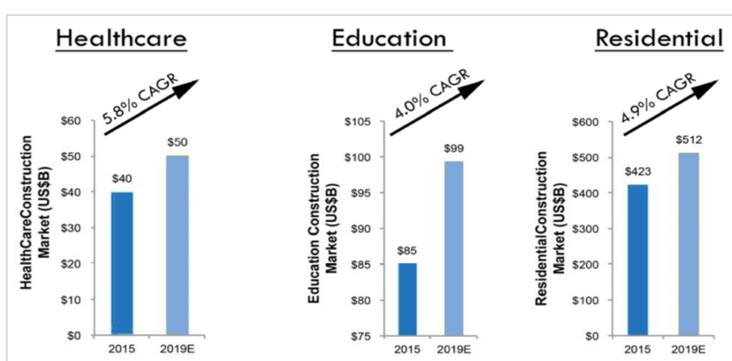
DIRTT aims to target existing clients for additional DIRTT Solutions, as well as companies in the same market as existing clients. As expansion to new markets slows, increasing repeat business is expected to be the key strategy in the growth of DIRTT's business. Historically, repeat clients include Google, Microsoft, Panasonic, Seattle Children's Hospital, and Suncor Energy. Growth in these markets is dependent on the marketing success of the DP network. DIRTT hopes to further support its DP network by further developing its proprietary technologies and expanding sales and marketing efforts to general contractors.

Expand to New Geographic Markets

Since 2014, 95.5% of revenue has come from North American-based DP partnerships. DIRTT plans to create new DP partnerships outside of North America to pursue clients in new geographic markets. DIRTT has previously partnered with DPs in South Korea, India, and Saudi Arabia. Currently, DIRTT is primarily looking for new DPs in the Middle East and the United Kingdom.

Target New Industry Verticals

Significant growth is expected in healthcare, education, and residential sectors. From 2015 to 2019, the expected compounded annual growth rate (CAGR) of these three industries range between 4.0% and 5.8%. DIRTT already has DP clients in these



Source: DIRTT

industries. Moving forward, DIRTT plans to target these three industries the most heavily.

Continue Investing in ICE Technology and DIRTT Solutions

DIRTT plans to invest additional resources to further develop its ICE technology and DIRTT Solutions, specifically with the intent to broaden DIRTT's appeal to the healthcare, education, and residential sectors. By continuously investing in ICE technology, the development team can make the software more accessible and make features specific to the targeted industries. Additional R&D investment in DIRTT Solutions will be used to further the flexibility and interactivity of its products. These products are unveiled at DIRTT's annual showcasing conference, DIRTT ConneXt.

Create Strategic Partnerships

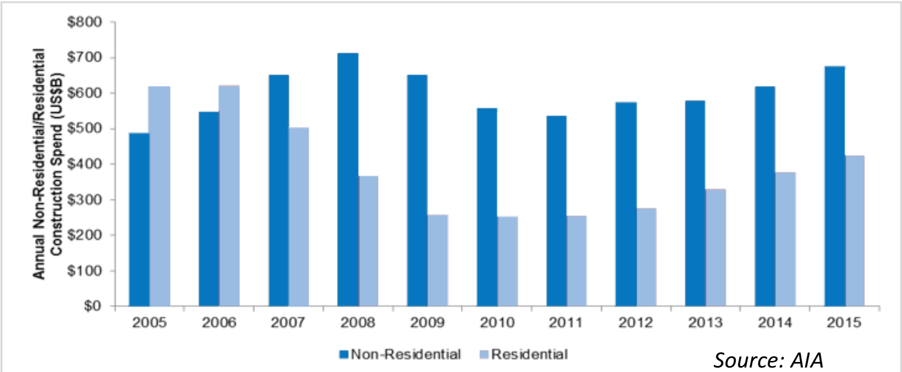
DIRTT hopes to partner with industry leaders to monetize their innovative solutions. In 2015, DIRTT collaborated with Corning Incorporated, one of the world's leading materials science innovators, to integrate Corning Willow Glass within interior construction solutions. This collaboration is expected to improve construction accuracy, increase delivery speed, reduce freight costs, and enhance acoustic performance. If DIRTT finds new partnerships similar to that with Corning Incorporated, DIRTT can increase production efficiency and improve brand recognition.

Macro Environment

Industry Overview

Construction is a mature global industry. Construction consists of building new structures, modifying existing structures, conducting structural maintenance, and repairs. In 2015, the total US construction market was valued at US$1.1 trillion. 61% was attributable to non-residential building and 39% was attributable to residential building.

Over the past 7 years, the construction industry has managed to maintain a steady level of growth in terms of construction spending. While growth continued throughout 2016, the growth rate of the industry has tempered. Overall commercial construction activity increased from 2014 to 2015 by 17%, whereas the estimated activity increase from 2015 to 2016 dropped to 5.8%. The AIA Consensus Construction Forecast Panel, a group of construction industry experts, project that industry activity will increase by 5.6% in 2017. While slower than previous years, this is well above US GDP growth rate, especially for a mature industry. Considering the Trump Administration's claims toward mass construction, the growth rate in the US may be greater than previously expected.



Source: AIA

Non-Residential Construction

Throughout Q3 2016, the number of US office construction projects have decreased, but the overall amount of land being used rose from 100.6 million ft^2 to 105.4 million ft^2. In terms of retail construction, store closings were at the highest since 2009. This correlates to the 1.3% overall rent increase from Q2 to Q3. Compared to office construction and retail construction, industrial construction had a greater increase in activity. Overall vacancy decreased from 6.1% to 5.8%, the amount of land being used increased from 193.1 million ft^2 to 204.3 million ft^2, and the number of deliveries increased from 48.3 million ft^2 to 45.9 million ft^2.

Since DIRTT's clients operate in a wide range of industries, non-residential construction trends will have a direct effect on DIRTT's business. The decrease in the number of projects and the increase in overall land usage for office construction could mean that DIRTT may have less contracts but the average project may be greater in value. Since a notable segment of DIRTT's client base is the financial services industry, the trends in office construction have implications on DIRTT's business. In terms of retail, DIRTT's clients include The Bay and Nordstrom. Assuming there is repeat business, the increasing land usage trend in retail construction may have effects on DIRTT's business with these clients. The increasing land usage could result in an increased demand for structural support products such as DIRTT Timber Frames.

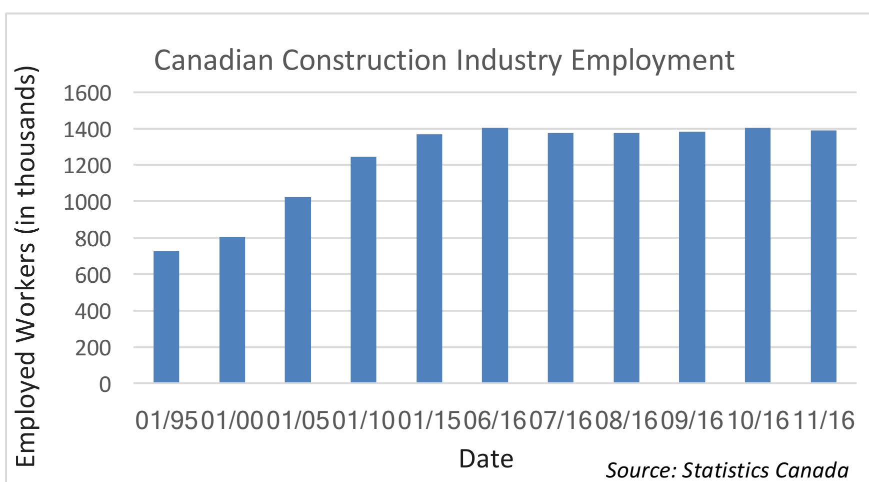
The performances of many construction companies, including DIRTT, are positively related with the energy sector. The Architecture Billing Index (ABI), a leading economic indicator of commercial construction activity, shows that the amount of billing and the number of new projects in 2016 slightly decreased compared to activity in 2015.

Increased US Spending Trends

In 2015, total US non-residential and residential construction spending was US$674 billion and US$423 billion, respectively. By 2019, spending is forecasted to rise to US$796 billion and US$512 billion, respectively. Long-term trends of deteriorating infrastructure, population growth, and changing needs for buildings imply that there will be growth in construction activity.

Conventional Construction Costs

Conventional construction costs are mainly affected by labour costs, material costs, and financing costs. One of the biggest issues the North American construction industry faces is the lack of available labour. Labour costs are also expected to rise in 2017. Since 2015, the employment levels of North American construction workers have remained virtually the same. As the need for construction activity grows, many



companies may have trouble meeting the market's demand. This may potentially lead to a decrease in production speed and a rise in consumer prices. DIRTT is less susceptible to this issue because of its ICE technology and vertically integrated production structure. Since a large amount of DIRTT's production is automated, DIRTT does not have to expand its employee base as aggressively as its competitors.

Catalysts

Governments Looking Toward Private Sector for Sustainable Solutions

As part of the platform for the UN 2030 Agenda for Sustainable Development, governments are looking to increase collaboration with the private sector by enabling environments for businesses to create economic growth in a sustainable fashion. As a leader in sustainable construction, DIRTT can benefit from future initiatives driven by the UN's 2030 strategy.

DIRTT has continuously invested in innovative sustainable construction projects. On February 9th, 2017, DIRTT announced an innovation called Leaf that can transform new and existing DIRTT interior wall systems into foldable, collapsible structures. While foldable walls are nothing new, Leaf breaks new ground in that it can be retrofitted onto any DIRTT environment ever created, thereby protecting clients' existing investments. Leaf retrofits existing installations, providing DIRTT with an additional revenue stream from existing clients.

Considering DIRTT's award-winning reputation for sustainability, management's focus on continuous development for sustainable solutions, and the UN's pushes for sustainable collaboration between the public and private sector, DIRTT may be able to significantly increase its exposure in the government services industry. Government projects in the US may not be driven by DIRTT's sustainability appeal considering newly-appointed Environmental Protection Agency (EPA) Administrator Scott Pruitt has a history of advocating against climate action. The Trump Administration will probably have lesser climate action initiatives than the previous government, but this does not necessarily imply any negative effects on DIRTT's US business.

Increases in sustainable collaboration between the public and private sectors may benefit DIRTT's business in Canada and outside of North America. The Canadian government has advocated for the 2030 strategy, so DIRTT may be able to expand its government services client base to include additional Canadian Crown corporations. Internationally, the advocacy for government collaboration can help DIRTT with its growth strategy to expand to new geographic markets, specifically in countries with more environment-friendly policies.

Rising Prominence of VR and AR Technologies

According to the International Data Corporation (IDC), the annual number of augmented reality (AR) device shipments worldwide is projected to rise from 0.4 million to 45.6 million within the next 5 years. Although the rise in AR popularity within the retail market would have little to no impact on the construction industry, rising popularity within the enterprise market may boost interest in DIRTT. DIRTT's value proposition has been built on its ICE software, which has been enhanced with VR technology since 2014.

The difference between VR and AR is that VR provides an entirely virtual reality experience, whereas AR provides a reality that is visually mixed with real world and virtual elements. While VR and AR technologies are not same, they may be similar enough for the DIRTT team's experience with VR to be an asset as the industry moves toward using AR services.

Every year, DIRTT hosts a sales, marketing, and industry showcase called DIRTT ConneXt. DIRTT ConneXt 2016, which was held in June, allowed the DIRTT team to reveal its newest technology: ICEreality with AR. Considering the rising popularity of AR technology within the enterprise market and the fact that DIRTT was already well positioned with its experience in VR technology, DIRTT may be able to gain an even greater technological advantage over its competitors with AR-enhanced ICEreality.

Management Team

Mogens Smed – Chief Executive Officer, Co-Founder

Mogens Smed has more than 40 years of experience in the interior construction industry. Smed launched and grew SMED International Inc. into a publicly traded company that generates over $300 million in annual revenue. In 2000, SMED International was sold to Haworth Inc. Smed is also the CEO of Evans Console, a private company that provides command-control infrastructure products. Smed currently holds 0.58% of shares outstanding, equivalent to a market value of $2.65 million.

Scott Jenkins – President

Scott Jenkins has more than 18 years of experience working with technology companies. the financial management industry, and accountancy. Jenkins' experience includes acting as the CFO of Pure Technologies Ltd., an infrastructure monitoring technology company, and working in KPMG LLP. He was also a Director for PASC, a company that supports people with developmental disabilities in Calgary, Alberta. Jenkins joined the DIRTT team in 2007. Considering his experience with technology development, Jenkins may be instrumental in guiding the company's future ICE projects. Jenkins currently holds 0.30% of shares outstanding, equivalent to a market value of $1.39 million.

Derek Payne – Chief Financial Officer

Derek Payne has more than 22 years of experience in the financial management industry and accountancy. Payne acted as the Treasurer of Petrowest Corporation, a diversified energy industry service provider. Payne was the CFO of Filterboxx Water & Environmental Corp., which deals with packaged water and wastewater treatment facilities. He was also the Treasurer and VP, Finance and Corporate Services of WestJet Airlines Ltd. Payne currently holds 0.03% of shares outstanding, equivalent to a market value of $127,780.

Tracy Baker – Chief Operating Officer

Tracy Baker has more than 17 years of experience in the financial management and accountancy. She was a consultant for the TSX Venture Exchange as well as Veritas DGC, a public oil and gas service company. Baker was also the Senior Manager of the Small Business Division at PricewaterhouseCoopers LLP. Baker joined the DIRTT team since 2004. Baker currently holds 0.37% of shares outstanding, equivalent to a market value of $1.69 million.

Shareholder Base and Liquidity

Shareholder Summary

As of December 31st 2016, there were 84,781,704 common shares outstanding. There were also 5,436,983 options outstanding, of which, 2,709,860 were exercisable. Most shares outstanding are held by mutual funds (84.38%), followed by individual investors (5.91%), banks (4.00%), and then others (5.71%). The fact that most of the shares outstanding are held by mutual funds indicates institutional quality for DIRTT.

Trading Volume and Liquidity

As of January 10, 2017, DIRTT's stock had an average daily trading volume of 148,556. With the current stock price of $6.92, this is equivalent of $1,028,007 worth of stock being traded on a daily basis, which is healthy for its market capitalization.

Risks

History of Losses

DIRTT has incurred losses since its inception and has only been profitable for the fiscal years of 2009, 2010, 2014, and 2016. These losses were primarily due to high D&A and interest expenses. This history of losses should serve as a warning that there can be no assurance DIRTT will achieve or sustain levels of profitability in the future.

Intellectual Property Risk

DIRTT's success is partially dependent on the company's ability to maintain trade secrets, obtain patents, and operate without infringing upon the proprietary rights of other parties. Considering DIRTT currently has over 100 patents that are being applied for, there is no certainty about how many will get approved or how long it will take for future patents to get approved.

Product/Software Defect Risk

DIRTT's products and software are complex and must meet stringent technical requirements before reaching market. Although, products may contain undetected errors and defects. ICE itself may contain bugs and other defects that may interfere with its intended operation. In such cases, the company's reputation would be damaged and clients could reject future products. Additionally, DIRTT would have to expend resources on correcting the errors, bugs and defects.

Commodity Price Risk

DIRTT is subject to a commodity price risk that mainly relates to any fluctuations in material prices used in the supply chain, such as aluminum. Fluctuations in material prices could materially affect the business. DIRTT has made efforts to mitigate this risk by seeking long-term arrangements with its supplier base.

Third Party Reliance

DIRTT's business model is based on a reliance on its DP network. While DPs have a contractual obligation to fulfill certain duties to DIRTT, the DP network consists of third parties that operate independently from DIRTT. Although there is active support from DIRTT to the DP network, DIRTT relies on the DPs' abilities to promote DIRTT Solutions. DIRTT also relies on the availability of key suppliers for raw materials and components. While no single vendor supplies more than 10% of raw materials, certain materials are only availability from a limited number of vendors.

Valuation

Discounted Cash Flow Analysis Assumptions

Revenue

Revenue in the model was broken down into the three geographic segments DIRTT operates in: Canada, United States, and Inter-North America, which encompasses DIRTT's international projects in Asia, Europe, and the Middle East. All revenue generated outside of North America was considered as a single segment since it has not made up more than 6% of revenue on an annual basis.

Based on DIRTT's forward-looking earnings reports, we assumed revenue growth in Canada to be 7% in 2017 and then level off at 3% in the following years. We assumed United States revenue to increase by 20% in 2017, decrease slightly to 15% in 2018, decrease to 5% in 2019, and then level off at 3% in the following years. We assumed Inter-North America revenue growth to increase by 10% in 2017, decrease to 7.5% in 2018, decrease to 5% in 2019, and then level off to 3% in the following years.

Terminal Growth Rate

We believe that DIRTT will grow with GDP in perpetuity, so we used a terminal growth rate of 2.0%.

COGS Margin

The COGS margin has consistently decreased from 65% in 2012 to 56.7% in Q3 2016. We are assuming COGS will decrease by 7% every year until 2019 and then level off to decrease by 5% for subsequent years to mirror the historically decreasing COGS margin. This decrease in the COGS margin is assumed to be due to increases in production efficiency enabled by ICE software and DIRTT's vertically integrated business model.

SG&A Margin

Unlike the COGS margin, the SG&A margin has fluctuated between 29.4% to 34.4%. For calculation purposes, we assumed the SG&A margin in the following years to be 31.0%

Weighted Average Cost of Capital (WACC) Calculation

The weighted average cost of capital (WACC) was calculated to be 7.28%. This took into consideration a risk-free rate of 2.0% based on the YTM of 5-year U.S. treasury bills, an equity beta of 1.29 obtained from Bloomberg, an implied expected risk premium of 4.29% obtained from Aswath Damodaran's website, an effective tax rate of 34.1%, and the company's current capital structure.

Comparable Company Analysis

We used the following companies for our analysis:

Aecon Group Inc. (TSX:ARE)

Aecon Group Inc. provides construction and infrastructure development services to private and public sector clients primarily in Canada, although it has clients outside of North America. Aecon operates in the infrastructure, energy, mining, and concessions segments. Infrastructure consists of constructing roads and bridges. Energy consists of constructing steam assisted drainage, field facilities, and liquefied natural gas plants. Mining consists of providing site development, ore storage, and environmental reclamation services. The concessions segment consists of making private partnership contract structures and private finance solutions.

Stuart Olson Inc. (TSX:SOX)

Stuart Olson Inc. provides general contracting and electrical building systems contracting to the institutional and commercial construction markets in Canada. Stuart Olson provides integrated project delivery and construction management. Stuart Olson also provides building systems maintenance.

SNC-Lavalin Group Inc. (TSX:SNC)

SNC-Lavalin Group Inc. provides engineering, construction, operations, and maintenance services worldwide. SNC provides solutions for projects dealing with the aluminum, gold, copper, iron ore, nickel, fertilizers, and sulphur. SNC also undertakes oil, gas, and infrastructure projects.

Valuation Summary

Using our discounted cash flow assumptions, we determined a target share price of $10.28. With the comparable company analysis, we determined a target share price of $7.76 using the EV/EBITDA and P/E multiples, weighted equally (25% each in the overall valuation). A 10% multiple premium was added to comparable companies to reflect their lower growth potentials. Using the discounted cash flow analysis and a comparable company analysis weighted at 50% each, our 12-month target share price for DIRTT is $9.02.

Recommendation

We believe that the market is currently undervaluing DIRTT. The proprietary ICE software and vertically integrated business provide DIRTT with a strong economic moat in a mature, but growing industry. Management's strategies appear to be working, since earnings and margins continue to improve. These strategies also look favorable in the context of UN-pressured sustainability and VR/AR technology trends. Although the market has priced in strong quarterly earnings, we believe there is still value unaccounted for. Based on our discounted cash flow analysis and comparable company analysis, we recommend DIRTT as a **buy** with an implied target share price of $9.02, representing a 30.3% upside.

Appendix 1: Pro Forma Income Statement

Income Statement

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	**173,566**	**139,795**	**187,329**	**236,625**	**273,456**	**320,968**	**362,256**	**379,394**	**390,776**	**402,499**
Cost of Goods Sold	112,865	86,499	109,286	135,169	152,970	166,980	175,267	170,710	167,040	163,449
Gross Profit	**60,701**	**53,296**	**78,043**	**101,456**	**120,485**	**153,988**	**186,988**	**208,684**	**223,736**	**239,051**
Transaction costs		836	508							
SG&A	53,720	48,074	58,951	69,573	86,739	99,500	112,299	117,612	121,141	124,775
EBITDA	**6,981**	**4,386**	**18,584**	**31,883**	**33,746**	**54,488**	**74,689**	**91,072**	**102,595**	**114,276**
D&A	10,669	8,258	9,886	12,548	15,660	17,870	19,213	20,770	22,471	24,269
SBC	681	395	1,398	3,109	4,126	4,332	4,549	4,776	5,015	5,266
EBIT	**-4,369**	**-4,267**	**7,300**	**16,226**	**13,960**	**32,286**	**50,927**	**65,526**	**75,110**	**84,741**
Interest expense (income)	4,037	5,224	1,068	-153	-289	-250	-250	-250	-250	-250
Other items	-84	5,708	-359	-1,804	613					
Income Before Income Tax	**-8,322**	**-15,199**	**6,591**	**18,183**	**13,636**	**32,536**	**51,177**	**65,776**	**75,360**	**84,991**
Income Tax	-1,178	1,296	637	291	5,719	11,095	17,451	22,429	25,698	28,982
Net Income	**-7,144**	**-16,495**	**5,954**	**17,892**	**8,117**	**21,441**	**33,726**	**43,346**	**49,662**	**56,009**
Shares Outstanding, Basic	39,230	36,267	72,151	81,170	81,976	81,976	81,976	81,976	81,976	81,976
Shares Outstanding, Diluted	39,230	36,267	74,042	83,010	84,781	84,781	84,781	84,781	84,781	84,781
Earnings Per Share, Basic	-$ 0.21	-$ 0.41	$ 0.08	$ 0.22	$ 0.10	$ 0.26	$ 0.41	$ 0.53	$ 0.61	$ 0.68
Earnings Per Share, Diluted	-$ 0.21	-$ 0.41	$ 0.08	$ 0.22	$ 0.10	$ 0.25	$ 0.40	$ 0.51	$ 0.59	$ 0.66

Appendix 2: Pro Forma Cash Flow Statement

Cash Flow Statement

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Net Income	**- 7,144**	**- 16,495**	**5,954**	**17,892**	**8,117**	**21,441**	**33,726**	**43,346**	**49,662**	**56,009**
Depreciation and Amortization	10,669	8,258	9,886	12,548	15,660	17,870	19,213	20,770	22,471	24,269
Other changes before working capital	- 355	3,958	2,838	6,377						
Cash Flows before Working Capital	**3,170**	**- 4,279**	**18,678**	**36,817**	**23,643**	**39,355**	**50,742**	**60,223**	**67,215**	**74,342**
Net changes in non-cash working capital relating to operating activities	6,221	- 1,623	- 6,248	- 4,519	- 1,874					
Accounts payable, accrued and other liabilities	2,045	3,180	1,359	395	3,146	- 3,011	1,249	- 687	- 553	- 541
Cash Provided By Operating Activities	**11,436**	**- 2,722**	**13,789**	**32,693**	**24,916**	**36,344**	**51,991**	**59,536**	**66,662**	**73,801**
Purchase of investments	- 4,742	- 3,953	- 4,798	- 7,512	- 8,735	- 9,172	- 9,630	- 10,112	- 10,617	- 11,148
Proceeds from sale of PP&E	8,500	9								
Purchase of PP&E	- 6,695	- 3,066	- 10,812	- 18,321	- 20,289	- 22,000	- 24,000	- 26,000	- 28,000	- 30,000
Other	- 4	8	61	87	451					
Cash Used in Investing Activities	**- 2,941**	**- 7,002**	**- 15,549**	**- 25,746**	**- 28,573**	**- 31,172**	**- 33,630**	**- 36,112**	**- 38,617**	**- 41,148**
Changes in Debt	- 12,177	5,152	1,048	- 2,541	5,075	3,235	3,558	3,914	4,306	4,736
Changes in Equity	12,303	30,119	6,175	47,163	773	1,419	1,703	2,043	2,452	2,942
Cash Provided By (Used In) Financing Activities	**126**	**35,271**	**7,223**	**44,622**	**5,848**	**4,654**	**5,261**	**5,958**	**6,758**	**7,679**
Foreign Exchange Impact					**- 570**					
Restricted Cash	1,000									
Beginning Cash Balance	205	8,826	34,373	39,836	91,405	93,025	102,852	126,474	155,856	190,658
Net Change in Cash	**8,621**	**25,547**	**5,463**	**51,569**	**1,620**	**9,826**	**23,622**	**29,382**	**34,803**	**40,331**
Ending Cash Balance	8,826	34,373	39,836	91,405	93,025	102,852	126,474	155,856	190,658	230,990

Appendix 3: Pro Forma Balance Sheet

Balance Sheet

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ASSETS										
Cash and Cash Equivalents	7,826	34,373	39,836	91,405	93,025	102,852	126,474	155,856	190,658	230,990
Restricted Cash	1,000									
Accounts receivable	18,601	17,166	28,425	23,574	35,390	33,416	37,714	39,499	40,684	41,904
Inventory	8,062	11,376	15,097	21,619	25,611	25,161	28,811	30,400	29,747	29,107
Prepaid expenses and other current assets	985	1,058	1,853	1,614	2,542	3,210	3,623	3,794	3,908	4,025
Other Current Operating Assets	28,648	29,600	45,375	46,807	63,544	61,787	70,148	73,693	74,338	75,036
Property and equipment	31,498	29,986	35,661	48,236	54,950	59,080	63,867	69,097	74,627	80,358
Other Non-Current Assets	14,708	14,932	16,556	25,802	36,151	47,186	64,888	81,475	98,142	117,297
Total Assets	**82,680**	**108,891**	**137,428**	**212,250**	**247,670**	**270,905**	**325,376**	**380,121**	**437,765**	**503,680**
LIABILITIES										
Accounts Payable	12,638	12,550	23,990	23,597	28,172	25,161	26,410	25,723	25,170	24,629
Current Portion of Long-Term Debt	784	2,419	3,516	3,663	4,201	4,621	5,083	5,592	6,151	6,766
Accrued and Other Current Liabilities	9,961	11,572	10,787	10,757	12,712	4,012	4,528	4,742	4,885	5,031
Long-term debt	2,074	5,673	6,336	5,498	12,282	14,738	17,686	21,223	25,468	30,562
Other Non-Current Liabilities	31,276	10,496	518	1,559	1,209	1,209	1,209	1,209	1,209	1,209
Total Liabilities	**55,949**	**40,291**	**41,631**	**41,411**	**64,974**	**56,139**	**61,314**	**64,887**	**69,280**	**74,594**
SHAREHOLDER'S EQUITY										
Share Capital	67,976	124,285	149,352	200,886	205,132	211,429	222,451	225,500	224,074	223,400
Additional Paid-In Capital	5,748	6,192	3,661	9,277	8,771	13,103	17,652	22,429	27,444	32,710
Accumulated Other Comprehensive Gain (Loss	-318	1,293								
Retained Earnings (Accumulated Deficit)	-46,675	-63,170	-57,216	-39,324	-31,207	-9,766	23,959	67,306	116,967	172,977
Total Shareholder's Equity	**26,731**	**68,600**	**95,797**	**170,839**	**182,696**	**214,766**	**264,062**	**315,234**	**368,485**	**429,086**

Appendix 4: Revenue Analysis

Revenue Analysis

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Canada Revenue Growth		-32.8%	64.0%	5.3%	-1.6%	7.0%	3.0%	3.0%	3.0%	3.0%
United States Revenue Growth		-16.0%	22.0%	34.8%	17.0%	20.0%	15.0%	5.0%	3.0%	3.0%
Inter-North America Revenue Growth		9.8%	302.0%	-4.6%	78.1%	10.0%	7.5%	5.0%	3.0%	3.0%
Revenue Growth, YoY		**-19.5%**	**34.0%**	**26.3%**	**15.6%**	**17.4%**	**12.9%**	**4.7%**	**3.0%**	**3.0%**
Total Revenue	**173,566**	**139,795**	**187,329**	**236,625**	**273,456**	**320,968**	**362,256**	**379,394**	**390,776**	**402,499**
Canada Revenue %	22.3%	18.6%	22.8%	19.0%	15.6%	15.6%	15.6%	15.6%	15.6%	15.6%
United States Revenue %	76.6%	79.9%	72.7%	77.6%	79.2%	79.2%	79.2%	79.2%	79.2%	79.2%
Inter-North America Revenue %	1.1%	1.5%	4.5%	3.4%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Canada Revenue	38,705	26,002	42,636	44,911	44,203	47,297	48,716	50,178	51,683	53,234
United States Revenue	132,952	111,696	136,263	183,668	214,927	257,912	296,599	311,429	320,771	330,395
Inter-North America Revenue	1,909	2,097	8,430	8,045	14,326	15,759	16,941	17,788	18,321	18,871
Total revenue	**173,566**	**139,795**	**187,329**	**236,625**	**273,456**	**320,968**	**362,256**	**379,394**	**390,776**	**402,499**

Appendix 5: Discounted Cash Flow Analysis

Discounted Cash Flow Analysis

WACC Calculation	
Book Value of Debt	13,736
Market Value of Equity	587,363
Total Capitalization	601,099
Debt	
Pre-Tax Cost of Debt	0.8%
Effective Tax Rate	34.1%
After-Tax Cost of Debt	**0.5%**
Capital Asset Pricing Model	
Risk-Free Rate	2.0%
Equity Market Risk Premium	4.3%
Beta	1.29
Cost of Equity	**7.5%**
Debt Weight	2.3%
Equity Weight	97.7%
WACC	**7.37%**
Growth Rate	**2.0%**

Free Cash Flow Analysis

	2012	2013	2014	2015	Q1 2016	Q2 2016	Q3 2016	Q4 2016	2016	2017	2018	2019	2020	2021
EBIT	- 4,369	- 4,267	7,300	16,226	920	- 216	5,919	7,337	13,960	32,286	50,927	65,526	75,110	84,741
Tax Rate	14.2%	-8.5%	9.7%	1.6%	0.0%	0.0%	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%	34.1%
D&A	10,669	8,258	9,886	12,548	3,468	3,705	4,112	4,375	15,660	17,870	19,213	20,770	22,471	24,269
Change in NWC	8,266	1,557	- 4,889	- 4,124	- 1,338	9,981	- 10,233	2,862	1,272	- 3,011	1,249	- 687	- 553	- 541
Capital Expenditures	- 6,695	- 3,066	- 10,812	- 18,321	- 4,868	- 5,707	- 4,642	- 5,072	- 20,289	- 22,000	- 24,000	- 26,000	- 28,000	- 30,000
Free Cash Flow	**- 8,043**	**- 996**	**10,557**	**14,317**	**858**	**- 12,199**	**13,605**	**1,276**	**3,298**	**20,157**	**27,525**	**38,638**	**44,521**	**50,654**
Discount Period								*0.25*		*1.25*	*2.25*	*3.25*	*4.25*	*5.25*
Discounted Free Cash Flow								**1,253**		**18,442**	**23,453**	**30,661**	**32,904**	**34,866**

Share Price Calculation	
Free Cash Flow Sum	141,579
Terminal Value	648,785
Enterprise Value	**790,364**
Less: Debt	13,736
Add: Cash	93,872
Equity	**870,500**
Shares Outstanding	84,686
Implied Share Value	**10.28**

		WACC				
		6.37%	**6.87%**	**7.37%**	**7.87%**	**8.37%**
GROWTH	**1.6%**	$ 11.73	$ 10.65	$ 9.75	$ 8.99	$ 8.35
	1.8%	$ 12.13	$ 10.96	$ 10.00	$ 9.21	$ 8.53
	2.0%	$ 12.56	$ 11.30	$ 10.28	$ 9.43	$ 8.72
	2.2%	$ 13.03	$ 11.67	$ 10.58	$ 9.67	$ 8.92
	2.4%	$ 13.56	$ 12.08	$ 10.90	$ 9.93	$ 9.13

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Appendix 6: Comparable Company Analysis

Comparable Company Analysis

	Cash	Debt	Market Capitalization	EV	LTM EBITDA	Share Price	LTM EPS		EV/EBITDA	P/E
Aecon Group Inc. (TSX:ARE)	202,278	347,663	971,520	1,116,905	135,950	$16.79	$2.02		9.0 x	9.1 x
Stuart Olson Inc. (TSX:SOX)	28,330	118,289	151,027	240,986	28,640	$5.61	$0.03		9.3 x	205.7 x
SNC-Lavalin Group Inc. (TSX:SNC)	1,521,770	896,570	8,668,081	8,042,881	615,400	$57.65	$2.02		14.4 x	31.4 x
DIRTT Environmental Solutions Ltd. (TSE:DRT)	93,872	13,736	587,363	507,227	25,240	$6.92	$0.14		20.1 x	50.1 x

	HIGH	AVERAGE	LOW	IMPLIED TARGET EV		IMPLIED TARGET SHARE PRICE	
EV/EBITDA	14.4 x	10.9 x	9.0 x	274,856		$	4.19
				362,858	HIGH	$	5.23
				228,097	LOW	$	3.64
	HIGH	**AVERAGE**	**LOW**	**IMPLIED P/E**		**IMPLIED TARGET SHARE PRICE**	
P/E	205.7 x	82.1 x	9.1 x	82.1 x		$	11.33
				205.7 x	HIGH	$	28.39
				9.1 x	LOW	$	1.26

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