

May 4, 2017

## Let's do More with Less!

*What Lies Ahead For The Domestic Transportation Industry*

---

### **Presentation to Northwestern University BAC**

**John G. Larkin, CFA** | Managing Director | 214.706.9455 | [jglarkin@stifel.com](mailto:jglarkin@stifel.com)

**John Engstrom** | Associate Analyst | 214.706.9456 | [engstromj@stifel.com](mailto:engstromj@stifel.com)

**Roxanna Islam** | Associate Analyst | 214.706.9485 | [islamr@stifel.com](mailto:islamr@stifel.com)

**Stifel does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.**

**All relevant disclosures and certifications can be found on pages 7 - 12 of this report.**

# Let's do More with Less!



# Four questions come to mind?

- 1. Will we need anyone other than a few PhD's in Mechanical Engineering or Operations Research (design, manufacture, install, and maintain) to manage individual automated links in our transportation network 10-20-30 years from now?**
- 2. What will we do with the displaced workers?**
- 3. How much more efficiently will we utilize our existing infrastructure, as a result of the application of Hi- and Low-tech productivity enhancers?**
- 4. Which governmental entity will take the lead in quarterbacking this comprehensive effort?**

# Hi- and Lo-Tech Productivity Enhancers (1 of 2)

---

## Automated freight storage, order picking, and loading/unloading of trailers/containers/igloos?

- Facilitates 24/7/365 operations – reduces dead time and resulting inefficiencies
- Payback easier to justify with lower cost automation and higher hourly wages

## LCV's/Higher GVW trucks? – are they finally coming?

- Marshalling yards an issue
- Overcoming opposition from rails, labor, and highway safety lobbyists will be difficult
- Safety is enhanced – less mobility – fewer vehicles
- Career path for best drivers

## Autonomous trucks? When can we expect them?

- A few technological challenges to be ironed out to ensure fail safe operations
- Same opposition as LCV's
- Platooning to come first
- Controlled environments and rural grade separated highways to come next
- Combine B and C?

# Hi- and Lo-Tech Productivity Enhancers (2 of 2)

## Intelligent highways and optimized transportation networks are helping/can help too.

- Peak hour tolls/off hour incentives
- Ramp metering
- IOT alternate routing
- Reversible lanes
- Dedicated bus lanes
- HOV lanes
- Automated tolling
- Transit

## Full range of last mile delivery options --- less dependent on one man/one automobile to/from brick and mortar store model

- Airborne warehouses
- Drones
- Parachutes
- Ground robots
- Pick-up points/lockers/automobile trunks
- Crowd sourcing alternatives
- Etc.

## Out of the box thinking

- Airships
- Hyperloop
- Inland waterway system
- Alternative to double-stack for shorter/lower density intermodal routes

# Benefits of Doing more with Less

---

- **Reduced environmental footprint**
- **Higher rates of return on reduced levels of public investment**
- **Lower cost of congestion**
- **Enhanced safety**
- **Economic development accelerates/increased tax revenue**

# Important Disclosures & Certifications

---

**I, John G. Larkin, certify that the views expressed in this research report accurately reflect my personal views about the subject securities or issuers; and I, John G. Larkin, certify that no part of my compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in this research report.**

**Our European Policy for Managing Research Conflicts of Interest is available at [www.stifel.com](http://www.stifel.com).**

The equity research analyst(s) responsible for the preparation of this report receive(s) compensation based on various factors, including Stifel's overall revenue, which includes investment banking revenue.

Our investment rating system is three tiered, defined as follows:

**BUY** – We expect a total return of greater than 10% over the next 12 months with total return equal to the percentage price change plus dividend yield.

**HOLD** – We expect a total return between -5% and 10% over the next 12 months with total return equal to the percentage price change plus dividend yield.

**SELL** – We expect a total return below -5% over the next 12 months with total return equal to the percentage price change plus dividend yield.

# Important Disclosures & Certifications (continued)

Occasionally, we use the ancillary rating of **SUSPENDED** (SU) to indicate a long-term suspension in rating and/or target price, and/or coverage due to applicable regulations or Stifel policies.

**SUSPENDED** indicates the analyst is unable to determine a “reasonable basis” for rating/target price or estimates due to lack of publicly available information or the inability to quantify the publicly available information provided by the company and it is unknown when the outlook will be clarified.

**SUSPENDED** may also be used when an analyst has left the firm.

Of the securities we rate, 46% are rated Buy, 43% are rated Hold, 1% are rated Sell and 10% are rated Suspended.

Within the last 12 months, Stifel or an affiliate has provided investment banking services for 20%, 8%, 0% and 8% of the companies whose shares are rated Buy, Hold, Sell and Suspended, respectively.

## Additional Disclosures

Please visit the Research Page at [www.stifel.com](http://www.stifel.com) for the current research disclosures and respective target price methodology applicable to the companies mentioned in this publication that are within Stifel's coverage universe. For a discussion of risks to target price please see our stand-alone company reports and notes for all stocks.

# Important Disclosures & Certifications (continued)

---

The information contained herein has been prepared from sources believed to be reliable but is not guaranteed by us and is not a complete summary or statement of all available data, nor is it considered an offer to buy or sell any securities referred to herein. Opinions expressed are subject to change without notice and do not take into account the particular investment objectives, financial situation or needs of individual investors. Employees of Stifel, or its affiliates may, at times, release written or oral commentary, technical analysis or trading strategies that differ from the opinions expressed within. Past performance should not and cannot be viewed as an indicator of future performance.

As a multi-disciplined financial services firm, Stifel regularly seeks investment banking assignments and compensation from issuers for services including, but not limited to, acting as an underwriter in an offering or financial advisor in a merger or acquisition, or serving as a placement agent in private transactions.

## **Affiliate Disclosures**

“Stifel”, includes Stifel Nicolaus & Company (“SNC”), a US broker-dealer registered with the United States Securities and Exchange Commission and the Financial Industry National Regulatory Authority and Stifel Nicolaus Europe Limited (“SNEL”), which is authorized and regulated by the Financial Conduct Authority (“FCA”), (FRN 190412) and is a member of the London Stock Exchange.

# Important Disclosures & Certifications (continued)

---

**Registration of non-US Analysts:** Any non-US research analyst employed by SNEL contributing to this report is not registered/qualified as a research analyst with FINRA and is not an associated person of the US broker-dealer and therefore may not be subject to FINRA Rule 2241 or NYSE Rule 472 restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account.

## Country Specific and Jurisdictional Disclosures

**United States:** Research produced and distributed by SNEL is distributed by SNEL to “Major US Institutional Investors” as defined in Rule 15a-6 under the US Securities Exchange Act of 1934, as amended. SNC may also distribute research prepared by SNEL directly to US clients, including US clients that are not Major US Institutional Investors. In these instances, SNC accepts responsibility for the content. SNEL is a non-US broker-dealer and accordingly, any transaction by a US client in the securities discussed in the document must be effected by SNC. US clients wishing to place an order should contact their SNC representative.

**Canadian Distribution:** Research produced by SNEL is distributed in Canada by SNC in reliance on the international dealer exemption. This material is intended for use only by professional or institutional investors. None of the investments or investment services mentioned or described herein is available to other persons or to anyone in Canada who is not a “permitted client” as defined under applicable Canadian securities law.

# Important Disclosures & Certifications (continued)

---

**UK and European Economic Area (EEA):** This report is distributed in the EEA by SNEL, which is authorized and regulated in the United Kingdom by the FCA. In these instances, SNEL accepts responsibility for the content. Research produced by SNEL is not intended for use by and should not be made available to non-professional clients. The complete preceding 12-month recommendations history related to recommendation(s) in this research report is available at <https://stifel2.bluematrix.com/sellside/MAR.action>

**Brunei:** This document has not been delivered to, registered with or approved by the Brunei Darussalam Registrar of Companies, Registrar of International Business Companies, the Brunei Darussalam Ministry of Finance or the Autoriti Monetari Brunei Darussalam. This document and the information contained within will not be registered with any relevant Brunei Authorities under the relevant securities laws of Brunei Darussalam. The interests in the document have not been and will not be offered, transferred, delivered or sold in or from any part of Brunei Darussalam. This document and the information contained within is strictly private and confidential and is being distributed to a limited number of accredited investors, expert investors and institutional investors under the Securities Markets Order, 2013 ("Relevant Persons") upon their request and confirmation that they fully understand that neither the document nor the information contained within have been approved or licensed by or registered with the Brunei Darussalam Registrar of Companies, Registrar of International Business Companies, the Brunei Darussalam Ministry of Finance, the Autoriti Monetari Brunei Darussalam or any other relevant governmental agencies within Brunei Darussalam. This document and the information contained within must not be acted on or relied on by persons who are not Relevant Persons. Any investment or investment activity to which the document or information contained within is only available to, and will be engaged in only with Relevant Persons.

# Important Disclosures & Certifications (continued)

---

In jurisdictions where Stifel is not already licensed or registered to trade securities, transactions will only be affected in accordance with local securities legislation which will vary from jurisdiction to jurisdiction and may require that a transaction is carried out in accordance with applicable exemptions from registration and licensing requirements. Non-US customers wishing to effect transactions should contact a representative of the Stifel entity in their regional jurisdiction except where governing law permits otherwise. US customers wishing to effect transactions should contact their US salesperson.

## **Additional Information Is Available Upon Request**

© 2017 Stifel. This report is produced for the use of Stifel customers and may not be reproduced, re-distributed or passed to any other person or published in whole or in part for any purpose without the prior consent of Stifel. Stifel, Nicolaus & Company, Incorporated, One South Street, Baltimore, MD 21202.