

REVOLUTIONIZING REVERSE LOGISTICS

An Analysis of Closed-Loop Supply Chains & Strategic Partnerships

The Dell logo is rendered in a bold, blue, sans-serif font. The letter 'E' is stylized with a white diagonal line through it, and the letters are closely spaced.The Arizona State University logo features the letters 'ASU' in a bold, maroon font. The letter 'A' is stylized with a yellow sunburst pattern. To the right of 'ASU', the words 'Arizona State University' are written in a maroon, sans-serif font, stacked in two lines.

THE TEAM



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BOTTOM LINE, UP FRONT

The Growing Intersection

The intersection between sustainability and reverse logistics is growing, which prompts the need for a closed-loop supply chain and the optimization of close customer relationships.

Closed Loop Supply Chain

Minimization of waste has an effect on the current shortages & supply chain disruptions. Dell can take use of this type of sustainability initiative to incentivize the end users to remain loyal to the Dell brand.

First Mile Back

The last mile is the focus of forward logistics, however the first mile back to the firm in reverse logistics is yet another contact point for the consumer. Oversight and enhancement of customer relationships will create lasting value and create a resilient supply chain.



MARKET TRENDS & CONDITIONS

TECHNOLOGY AND INDUSTRY TRENDS

Waste Reduction & Product Recycling

- **Changing Product Design:** Redesigning products and packaging to minimize waste and maximize recyclability.
- **Closed Loop Supply Chain:** Optimizing products and procedures to incentivise customers to return and upgrade products.
- *GlobalTranz, 2020*



Shift to Cloud-Based Digital Services

- **Predictive Analytics:** AI and machine learning can be applied to automate processes with environmental impact and predict maintenance.
- **Cloud Services:** Shift from solely hardware reliant data storage to hybrid and cloud systems
- *JD Supra, 2020 and SiliconAngle, 2020*



ESG Reporting & Transparency

- **Increasing Transparency:** Transparency in reporting keeps companies on track to meet green commitments and drives competition.
- **Fosters Trust with Stakeholders:** Transparency fosters trust with the public as demonstrated by companies with superb reporting.
- *KPMG, 2020*



SUSTAINABILITY & REVERSE LOGISTICS INTERSECTION

Reverse Logistics Performance

Economic Performance

- Monetary returns & firm opportunities

Environmental Performance

- Focus on the impact on the earth

Social Performance

- Stakeholder consideration

The Triple Bottom Line

Government Regulations

Sustainability Driven Legislation in the European Union

- Circular Economy Package
- USB-C chargers & the European Commission

Allowance of Participation in Development of Environmental Law

- Currently over 150 countries

Growing Awareness of Returns & Waste

Growing Returns & Waste

- 3.5B products returned every year, 4B lbs of waste, and 11MMT of GHG emissions
(ECG & Optoro)

Growing Awareness & Company Reporting

- 80% of G-250 conduct sustainability reporting
(KPMG, 2020)

"The main goal of sustainable development is to draw attention to environmental, social and economic aspects"

-Ali, Barakat, Zalavadia (2018)

"We gave industry plenty of time to come up with their own solutions, now time is ripe for action"

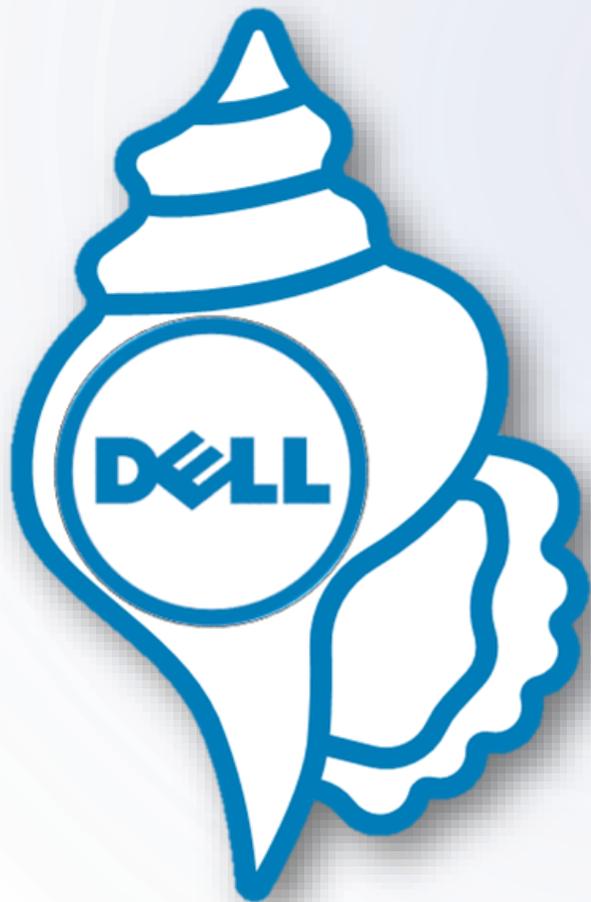
-VP Margrethe Vestager (2021)

"Waste occurs at every node in the reverse supply chain: damaged goods, disposal of inventory..."

-Optoro (2016)



PROPOSED SOLUTIONS



HOW FRONT-END DESIGN IMPACTS BACK-END SUSTAINABILITY

- Fully customizable modular design
- Focused on user ease-of-access
- Enables potential for strategic partnerships with suppliers and 3PLs
- Optimizes closed-loop supply chains

CONSUMER REPAIR EXPERIENCE: “THE FIRST MILE BACK”



Partnership with Amazon Home Services

- Dell-certified independent contractors available on demand
- Proximity to clients, easily purchasable universal parts
- Meet increasing demand for speed and convenience
- Risk mitigation and preparedness with data sharing

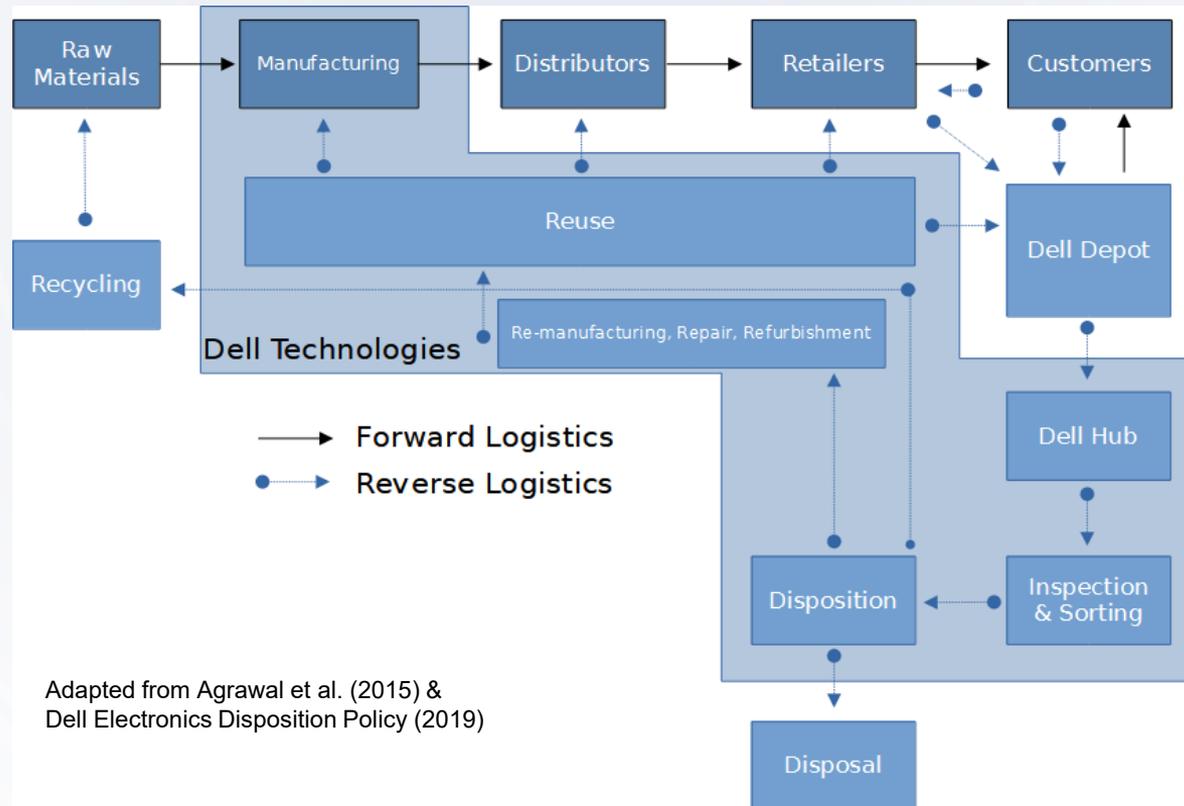
Dell-owned hubs reduction

- Decentralization reduces need for Dell-operated hubs
- Reduction in power consumption and carbon footprint

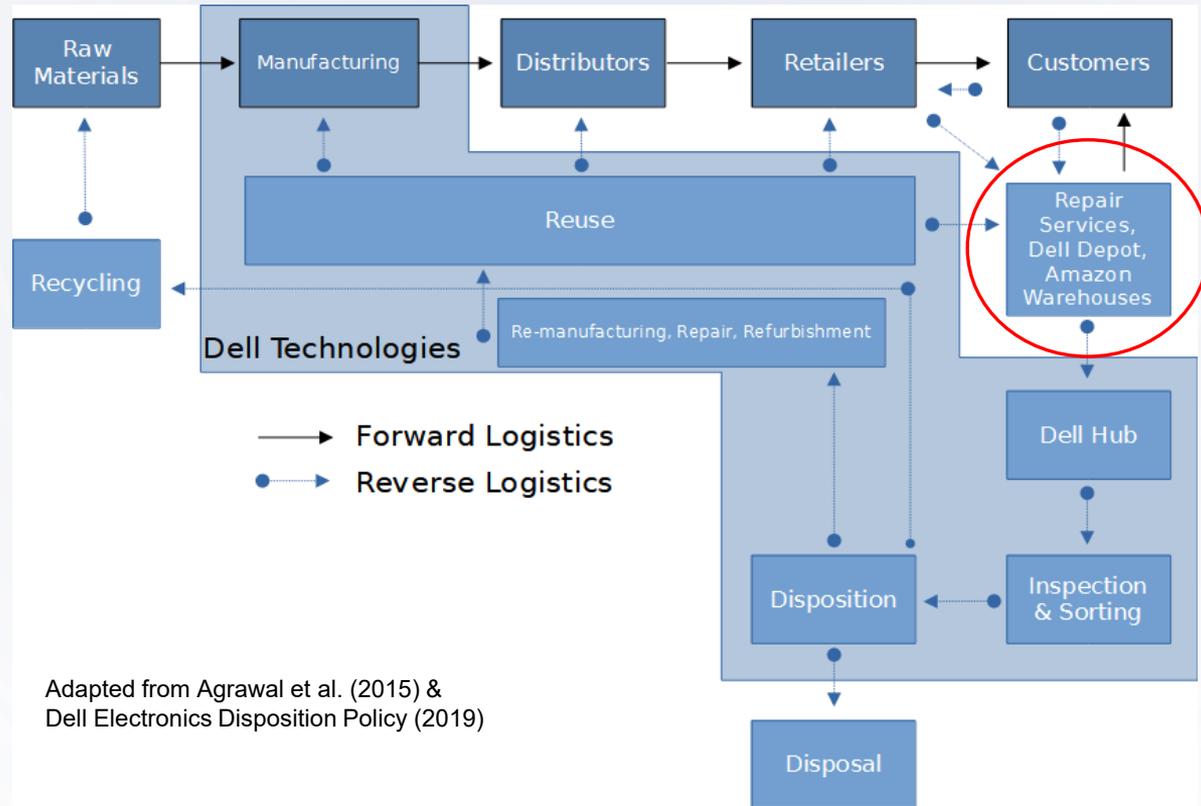
Dell certifications in trade schools and community colleges

- Career-oriented skills available to all income learners
- Qualified labor, workforce empowerment

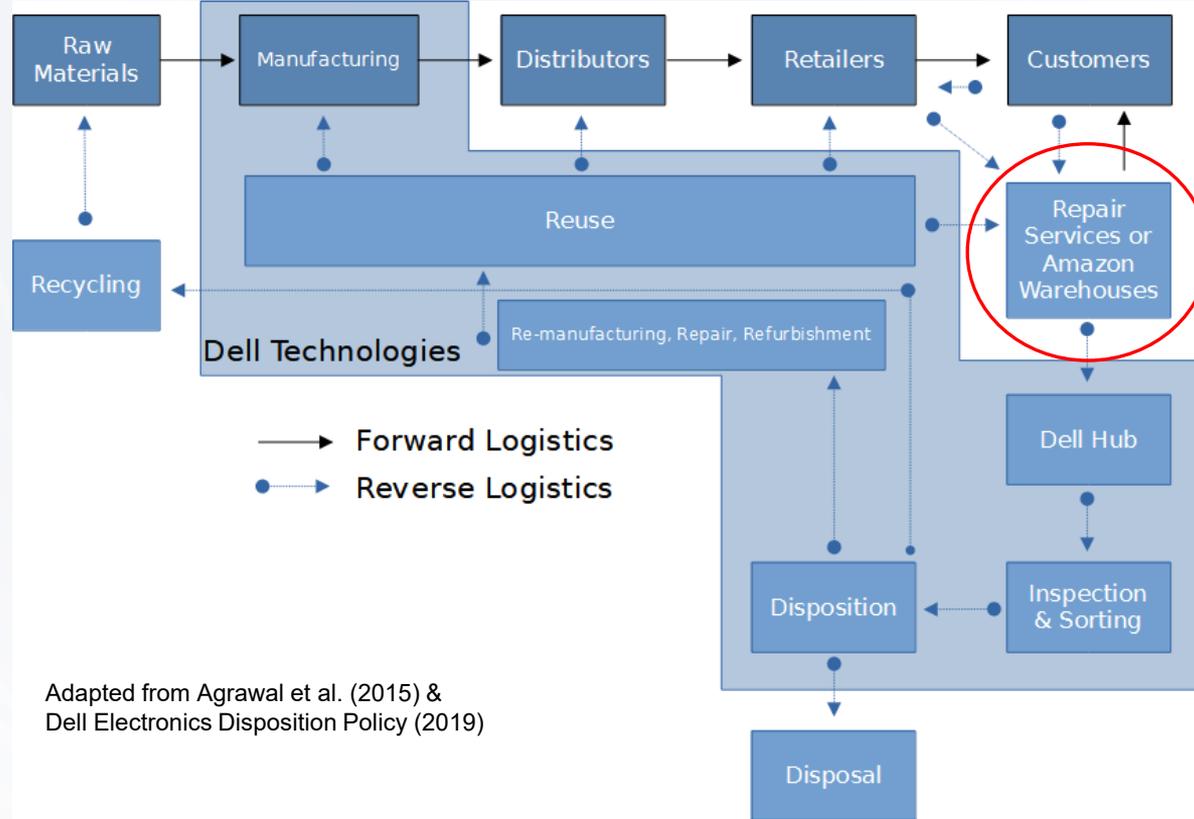
DELL REVERSE LOGISTICS - 2021 REALITY



DELL REVERSE LOGISTICS - 2026 VISION



DELL REVERSE LOGISTICS - 2031 VISION



Adapted from Agrawal et al. (2015) &
Dell Electronics Disposition Policy (2019)

THE DELL SHELL'S IMPACT ON SUSTAINABILITY

Carbon Footprint

Modularity allows for components with higher carbon footprints to be manufactured less often

Recyclability

Simpler upgrades coupled with incentives will lead to higher rates of product recovery and recyclability



ESG Reporting

Increased visibility into a component's end-life will allow for more accurate reporting

Aligning Green Goals

Dell will have increased bargaining power throughout the supply chain pushing us to a net zero carbon future



REVERSE SUPPLY CHAIN RESILIENCE

“The greatest danger in times of turbulence is not the turbulence – it is to act with yesterday’s logic.”

-Peter Drucker

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- Modularity decentralizes customer requirements, enabling easier accessibility to alternatives
 - Strategic partnerships with leading components manufactures increasing visibility
 - Decentralized warehouses increase redundancy ensuring business continuity

QUESTIONS?

