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Optimizing the Food Aid Supply Chain from Procurement to Distribution

June 28, 2018
Food Assistance for Nutrition Evidence Summit
Washington D.C.
Chaired by Stephen A. Vosti, U.C. Davis

Please cite this presentation as:

Bonde H, Ergun O, Ibaale C, Lankas R, Levis J, Olsen G, Peters K, Safari B. Optimizing the Food Aid Supply Chain from Procurement to Distribution . PowerPoint slides presented at the Food Assistance for Nutrition Evidence Summit, Washington, District of Columbia, USA. June 27-28, 2018.

Introduction

Gregory Olson, Program Operations Division Director,
Office of Food For Peace

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Panel Overview

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

- –Koen Peters, WFP
- –Ozlem Ergun, Northeastern U.
- –Hemant Bonde, Capgemini
- –Jack Levis, UPS

Q&A Session

Panel Part 2: Challenges and Opportunities in the Last Mile

- –Benjamin Safari, CRS
- –Richard Lankas, World Vision International
- –Charles Ibaale, WFP

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

We asked:

- What is the biggest challenge in international supply chains?
- What role does cost-effectiveness plays in the making of supply chain/logistics decisions? How is it measured, what tools are used?
- What are the biggest research or information gaps that prevent you from making informed, cost-effective decisions? What should be the next research priority?

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

Koen Peters, Project Manager, Supply Chain Planning Unit

WFP

wfp.org

World Food Programme

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

Ozlem Ergun, Professor, Mechanical and Industrial Engineering

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Optimizing the Food Aid Supply Chain: From procurement to distribution - Supply Chain Optimization Tool

[6/28/2018]
Food Assistance for Nutrition Evidence Summit
Washington D.C.

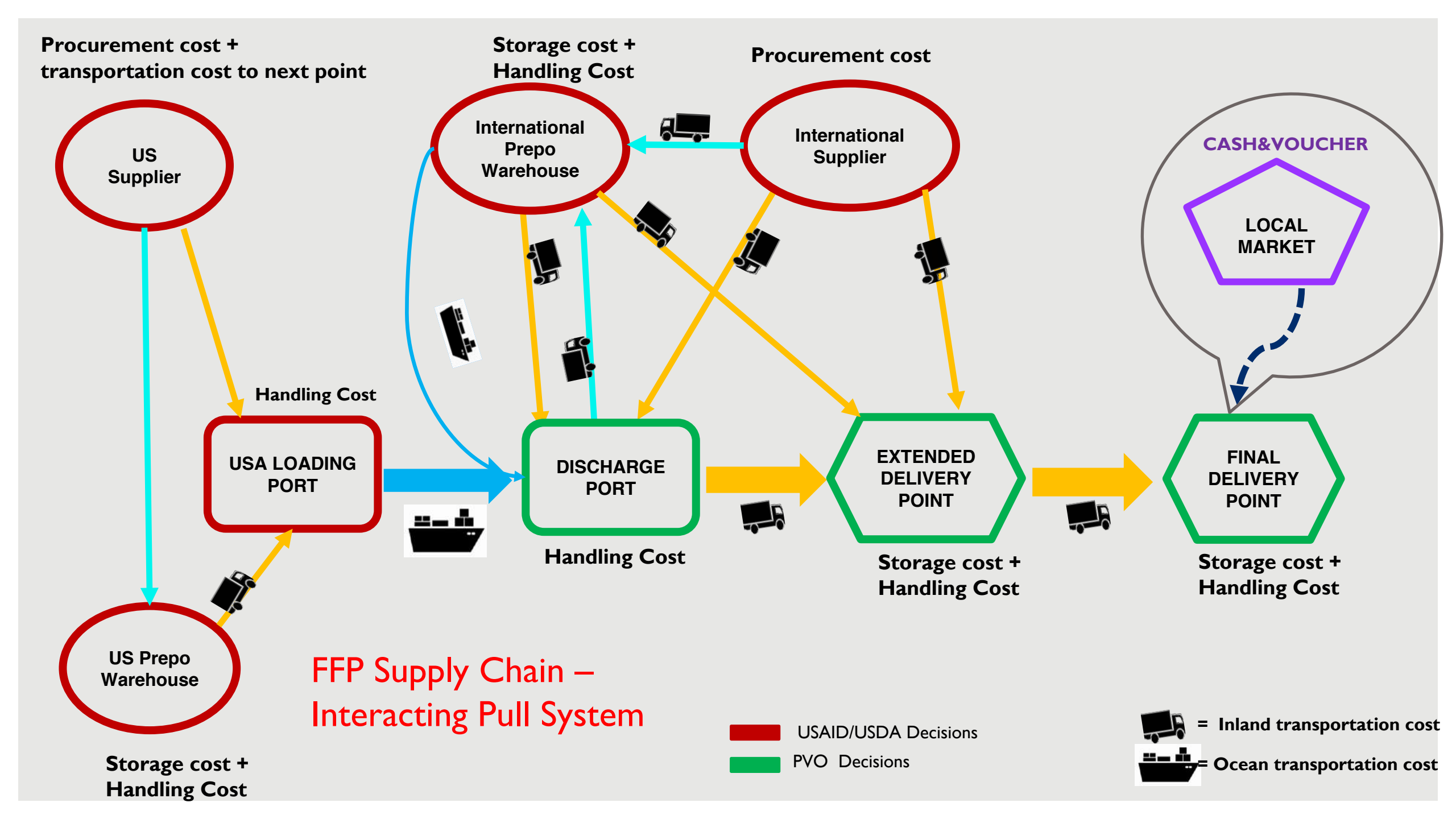
Ozlem Ergun
Weijia Jing
Keziban Rukiye Tasci
Stephen Vosti

Panel questions

1. In one word (or phrase), please tell us what you consider the biggest challenge in international supply chains.
2. Can you explain what role cost effectiveness plays in the making of supply chain/logistics decisions? How do you measure it, what tools do you use?
3. Based on your experience, what do you think the biggest research or information gaps are that prevent you from making informed, cost-effective decisions? What should be the next research priority?

Agenda

- Data analysis and basic findings
- Tool framework
- Outputs from the scenarios


Procurement cost +
transportation cost to next point
US
Supplier
Storage cost +
Handling Cost
International
Prepo
Warehouse
Procurement cost
International
Supplier
CASH&VOUCHER
LOCAL
MARKET
Handling Cost
USA LOADING
PORT
DISCHARGE
PORT
EXTENDED
DELIVERY
POINT
FINAL
DELIVERY
POINT
Handling Cost
Storage cost +
Handling Cost
Storage cost +
Handling Cost
US Prepo
Warehouse
FFP Supply Chain –
Interacting Pull System
USAID/USDA Decisions
PVO Decisions
= Inland transportation cost
= Ocean transportation cost
Storage cost +
Handling Cost

Supply Chain Cost Effectiveness

Objective

- Deliver the right commodity with the right volume to the right place at the right time in a cost-effective way by identifying the right transfer modality ratios and prepositioning options for all operations.

Supply chain optimization tool

- The tool identifies the optimal choices in transfer modality, prepositioning levels, procurement, ocean transportation and inland transportation, for satisfying pre-determined demand.

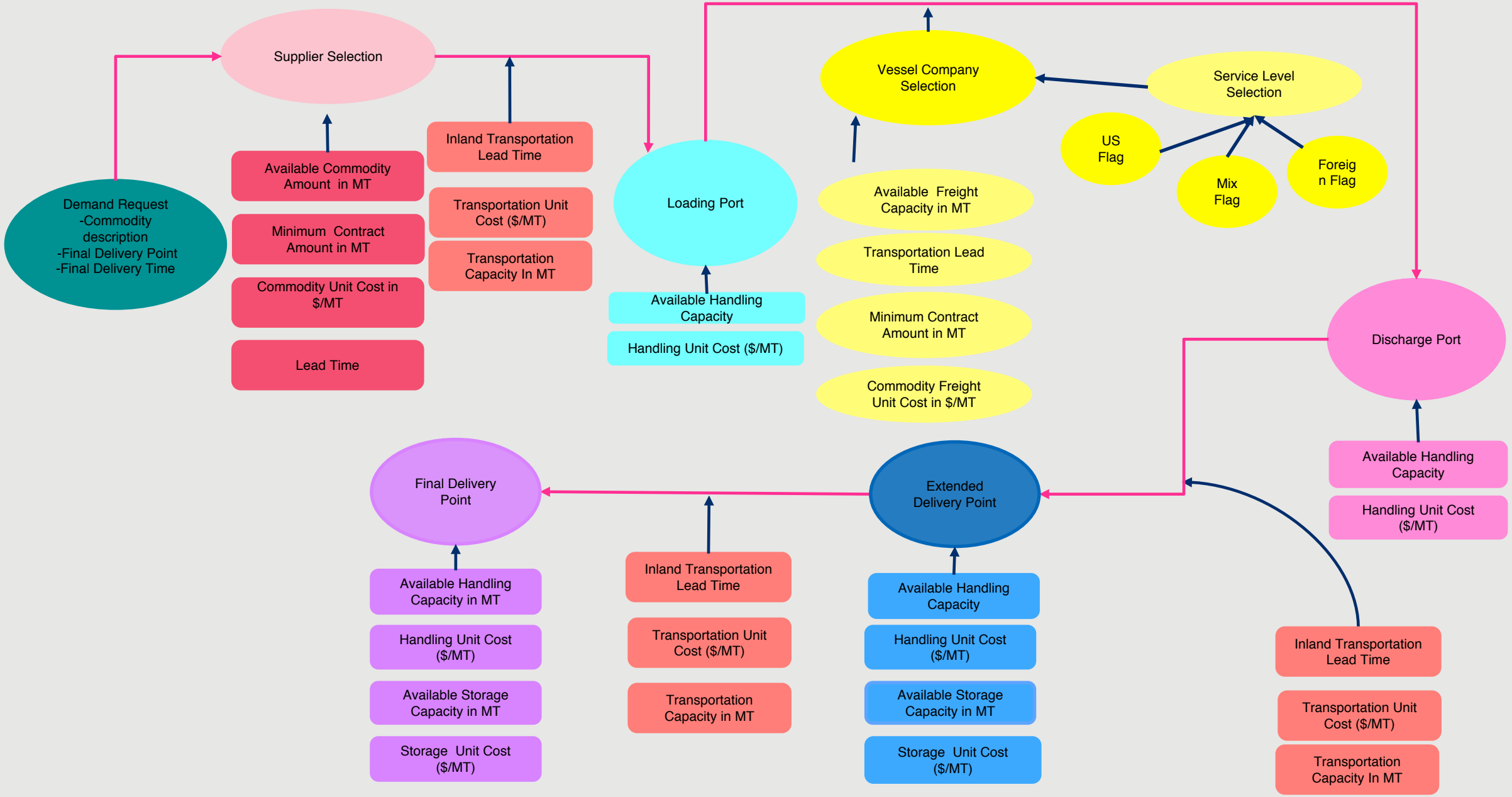
Data Sources

- USAID
- USDA
- USAID partners' data (WFP and CRS)

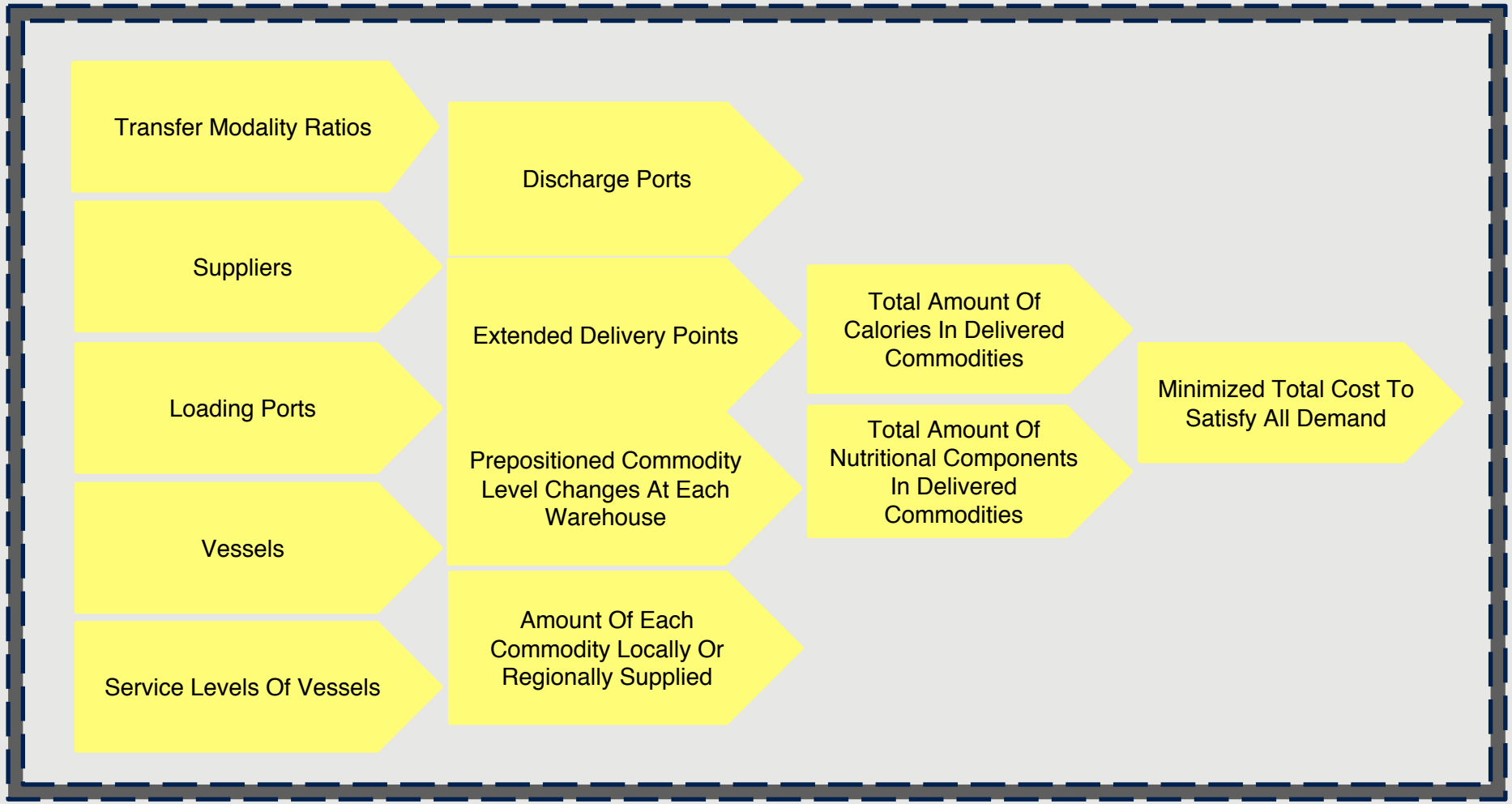
Preliminary Insights

- Analyses of ocean freight cost and capacity variability over time and location
  - A systematic optimization of service level choice decisions in ocean transportation might decrease total operational cost without violating US flag rules.
- Analyses of commodity procurement cost and capacity variability over time and lead times
  - Advance purchasing of a select set of commodities that are used heavily within Title II operations may reduce procurement costs and delivery times.
- Supply chain planning with longer than 2-3 month lead times are necessary for effective operations
- Prepositioning/advanced purchasing with good forecasts will help with both timely delivery and cost effectiveness even when actual demand information arrives late
  - Expected impact is higher for sudden-on-set emergencies
- Accurate data tracking and visibility of procurement, transportation, and warehouse flows are essential for continuous system improvement

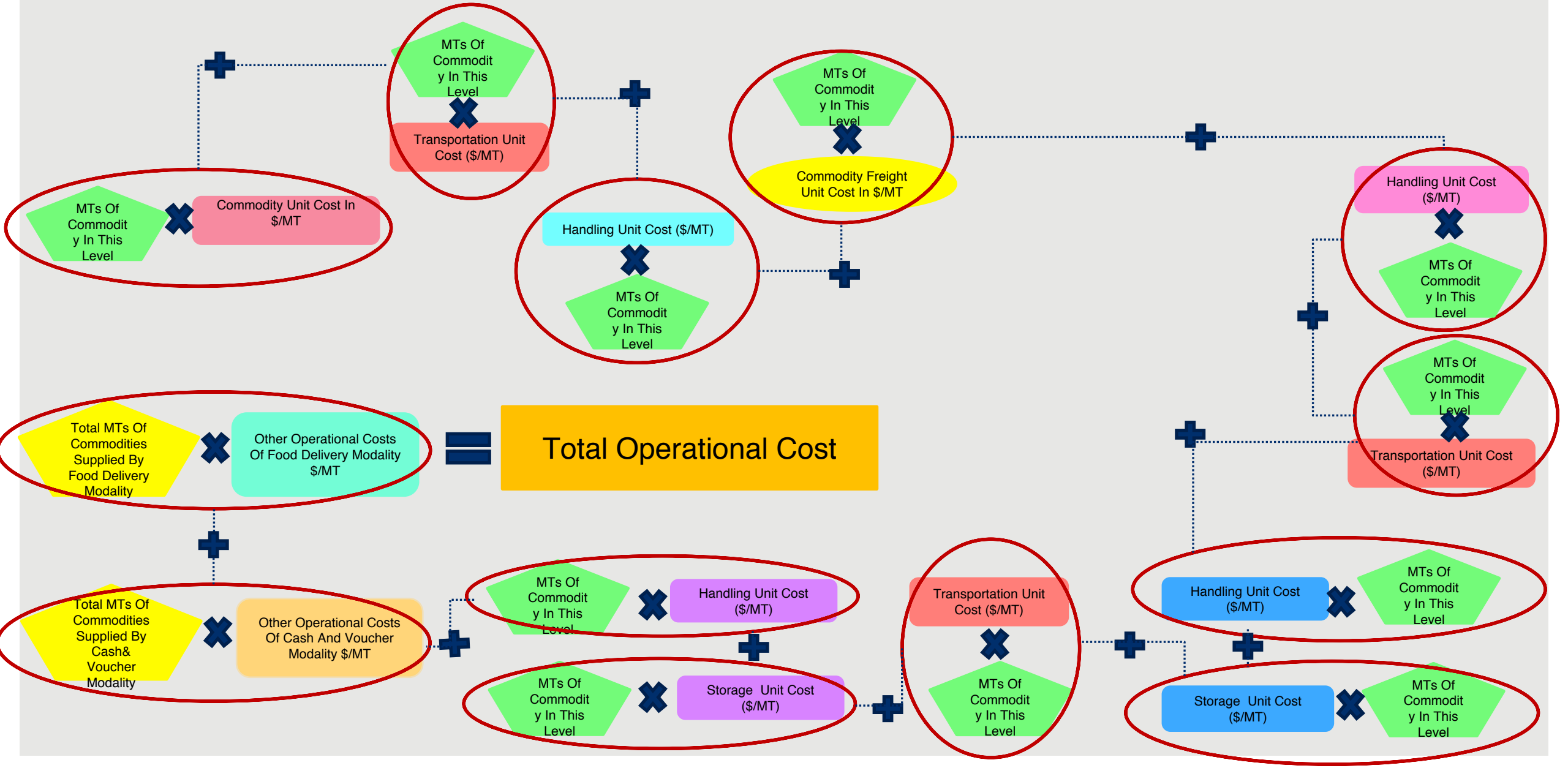
Supply Chain Optimization Tool Framework



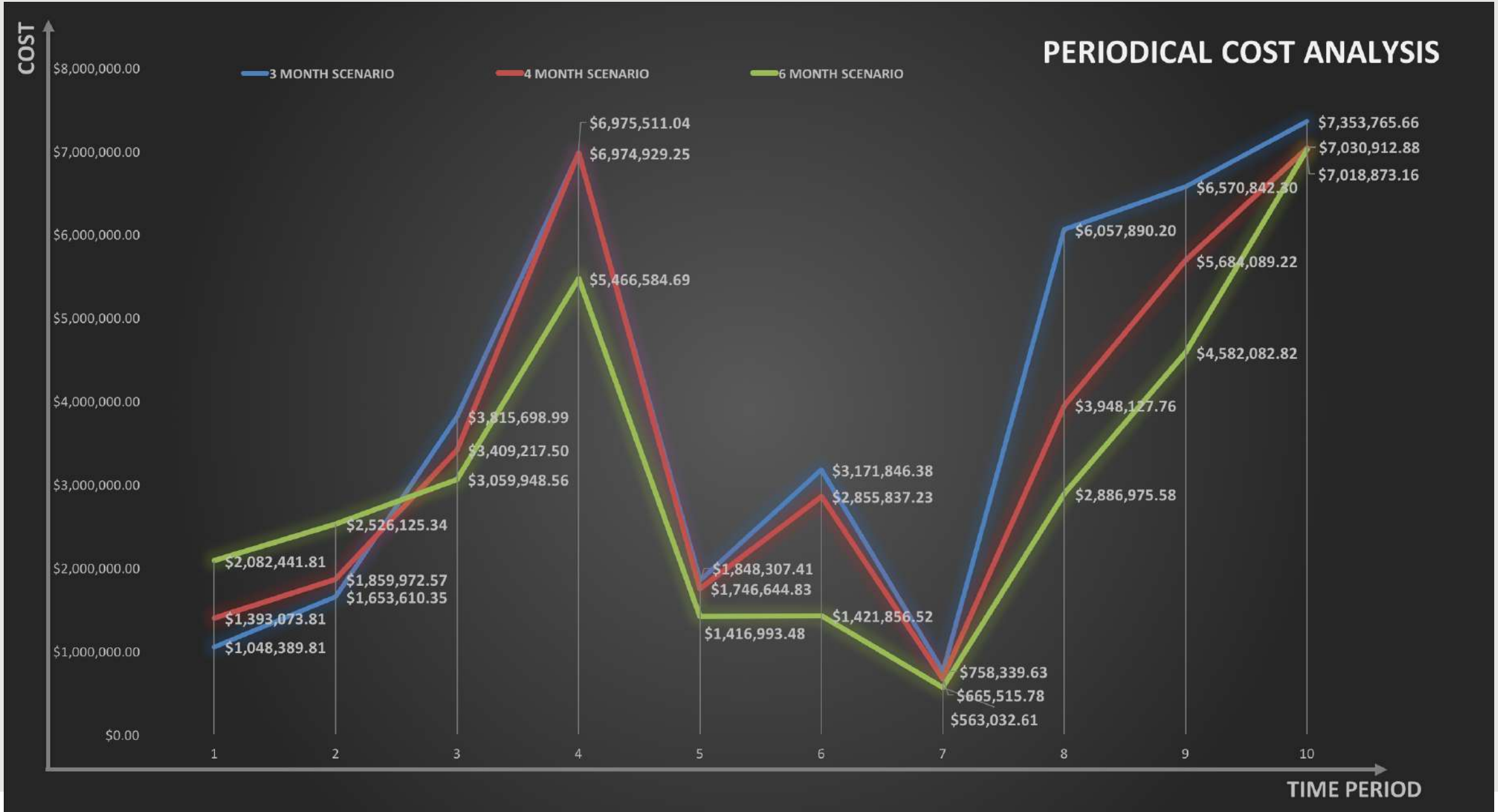
Outputs of the Supply Chain Optimization Tool for Each Time Period



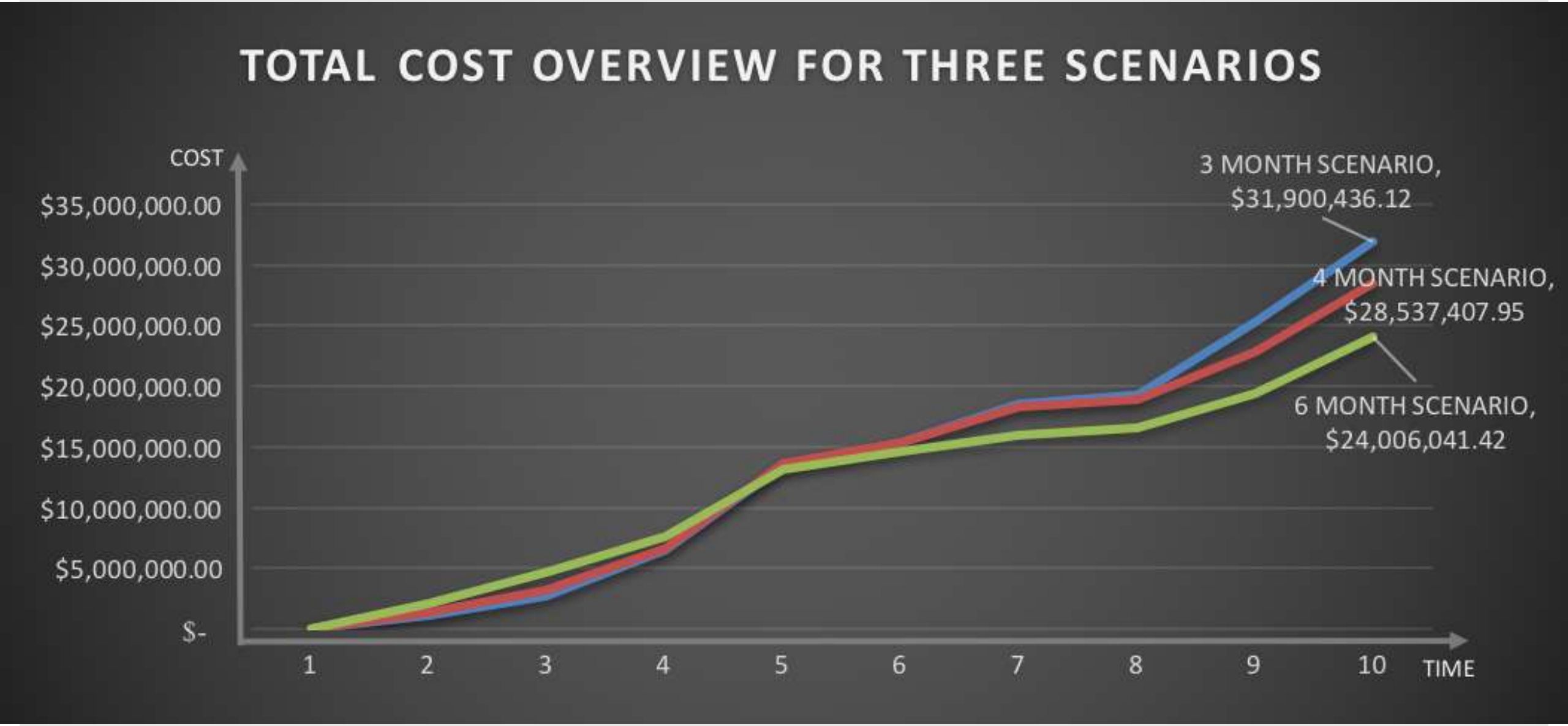
Total Operational Cost Calculation in Supply Chain Optimization Tool



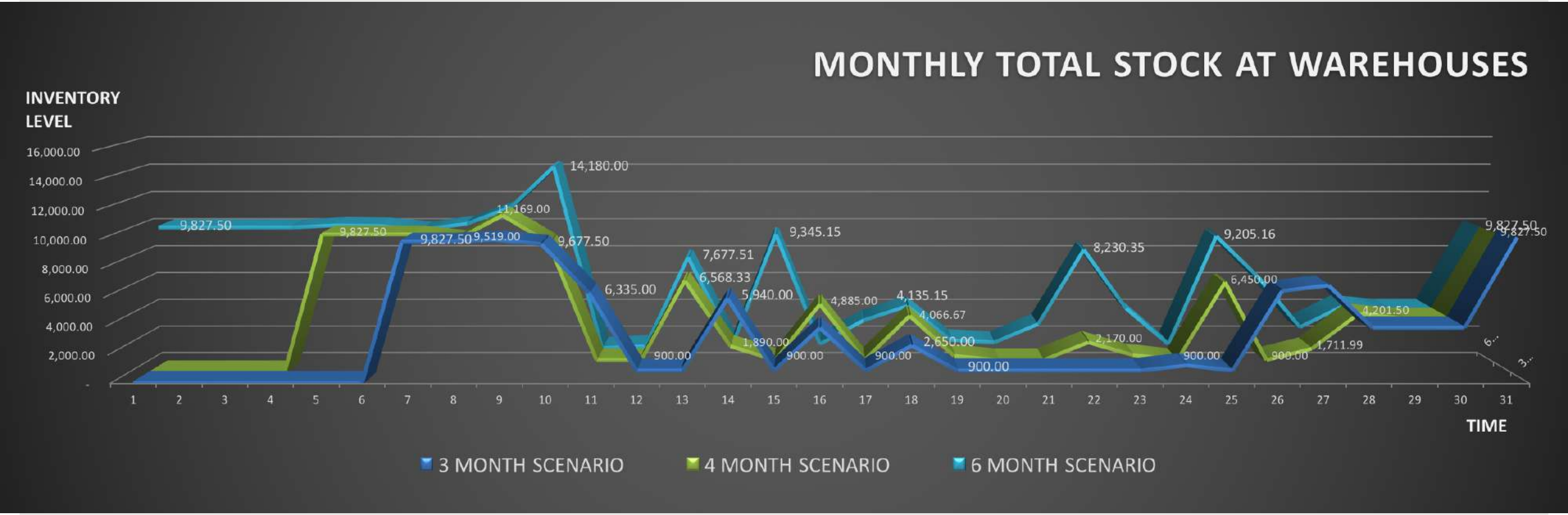
Ethiopia Case Study: Impact of Advanced Planning



Ethiopia Case Study: Impact of Advanced Planning



Ethiopia Case Study: Impact of Advanced Planning



Final Thoughts

- Potential improvement in on-time and cost-effective delivery is high with
  - –Advanced planning
    - Up to 25% improvement in cost-effectiveness with increased foresight from 3 to 6 months
  - –Effective pre-positioning
  - –Optimal procurement and transportation decisions

- Requirements
  - –Demand foresight or advanced purchasing with good forecasts
  - –Large scale data tracking and analysis
  - –Supply chain optimization tools are necessary for system wide and overtime effective decision making

Thank you!

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

Hemant Bonde, Supply Chain Practice Area Lead

Panel Part 1: Optimizing the food aid supply chain for improved cost-effectiveness

Jack Levis, Senior Director of Process Management

The Road to Optimization

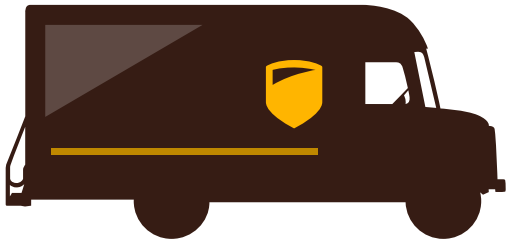
Jack Levis – Senior Director of Process Management

May, 2018

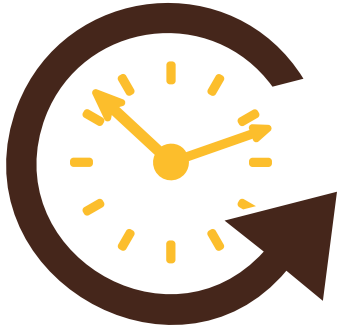
@jacklevis

WE ♡ LOGISTICS

1) Little Things Matter



1 mile is worth
$50M*



1 minute is worth
$14.6M*

1 minute of idle time
is worth $515K**

Big savings come from attention to detail

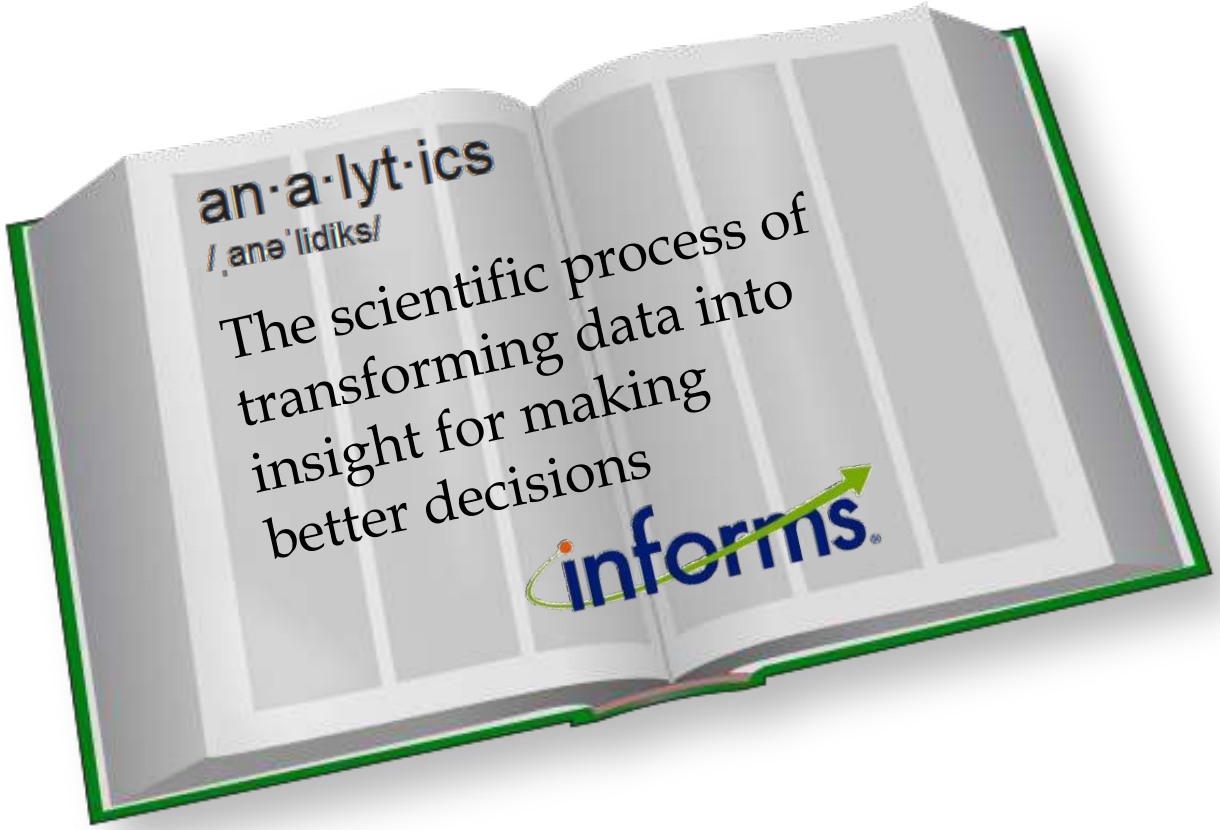
Note: Figures are per driver per day across the US for a year
* Small Package P/U and Delivery drivers
** Small Package P/U and Delivery, Freight and Tractor / Trailer drivers

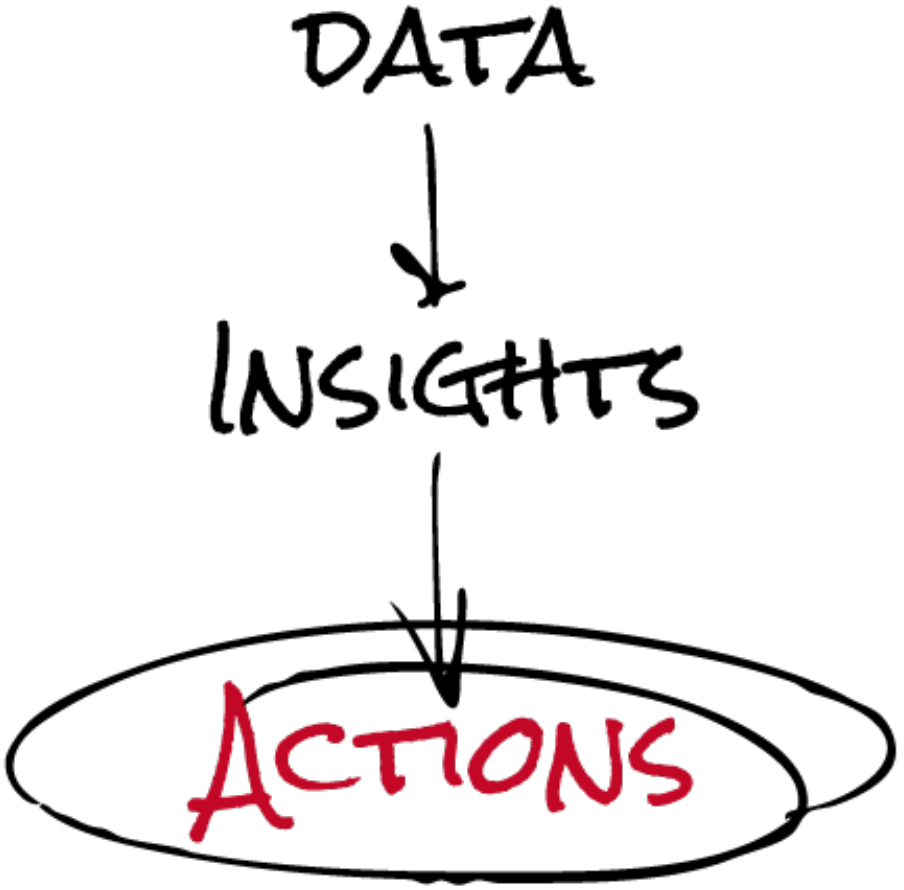
2) Don’t Accept OR

AND

Operations Technology and Analytics has been key in turning OR → AND

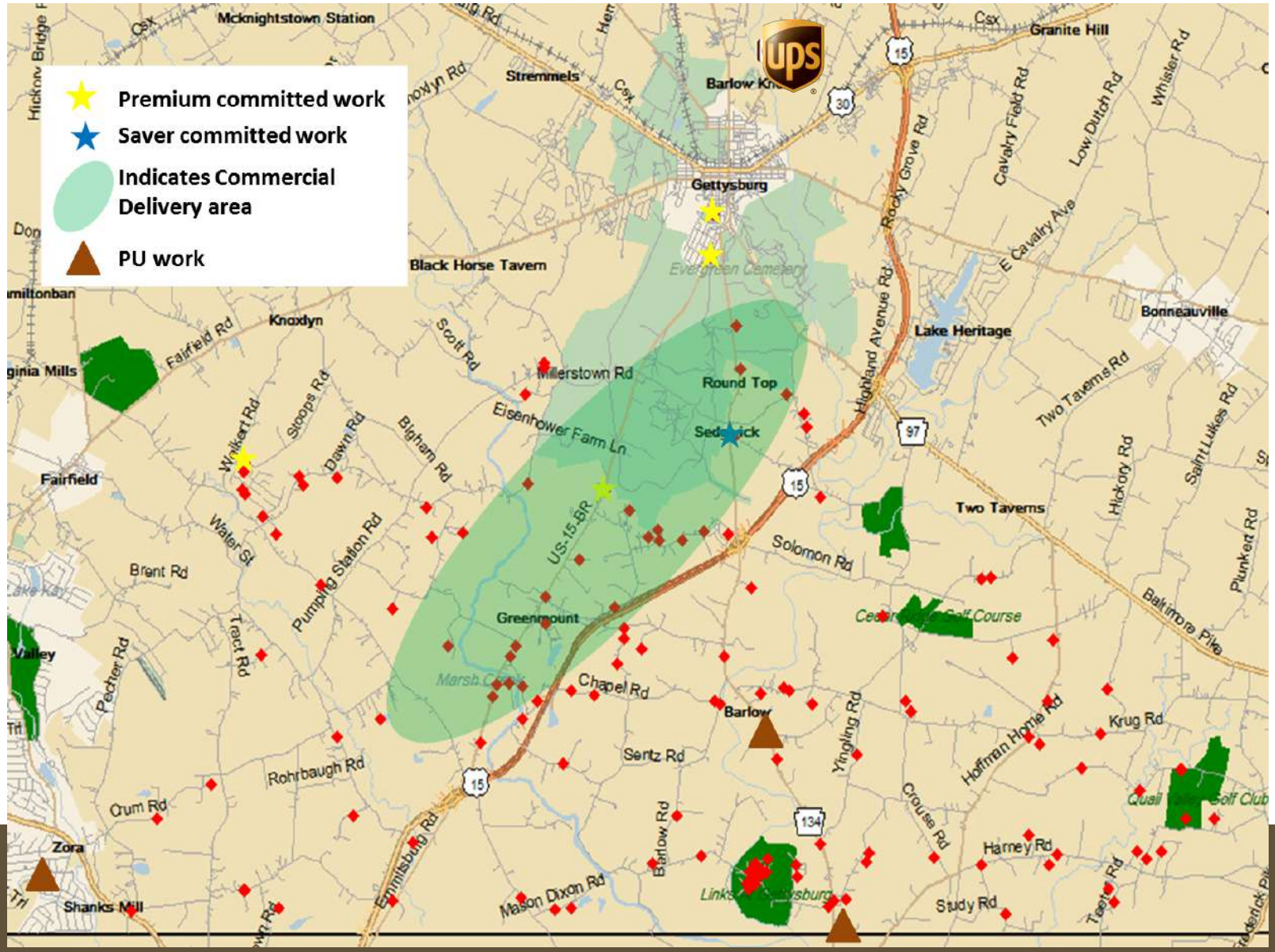
3) Invest in Data, Analytics, and Operations Technology





Insight that doesn't lead to a better decision is Trivia

4) Understand and Mitigate Complexity



Approximate age of the Earth (in Seconds):

145,065,600,000,000,000

Number of ways to deliver 120 stops:

6,689,502,913,449,135,000

Putting Complexity into Perspective

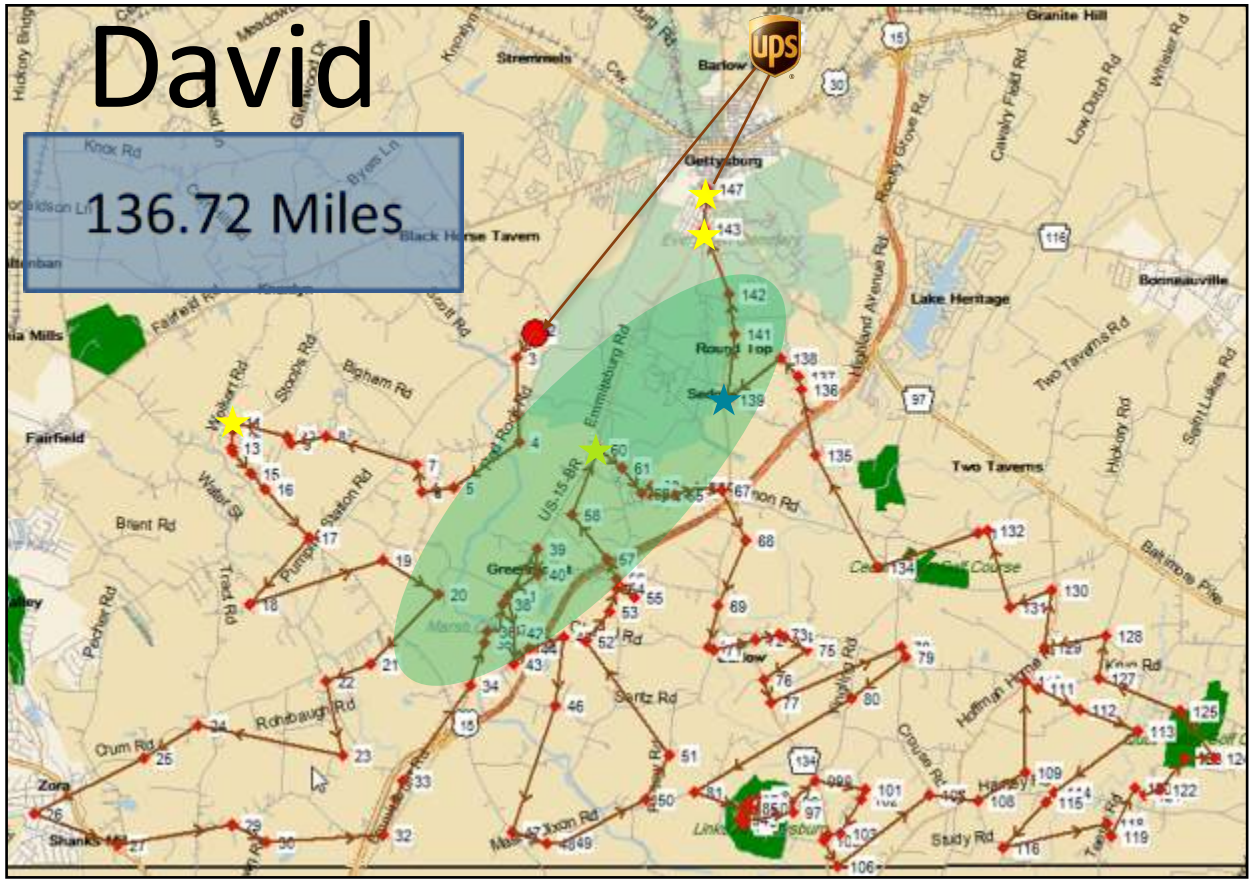
David Pogue @Pogue 23 Apr

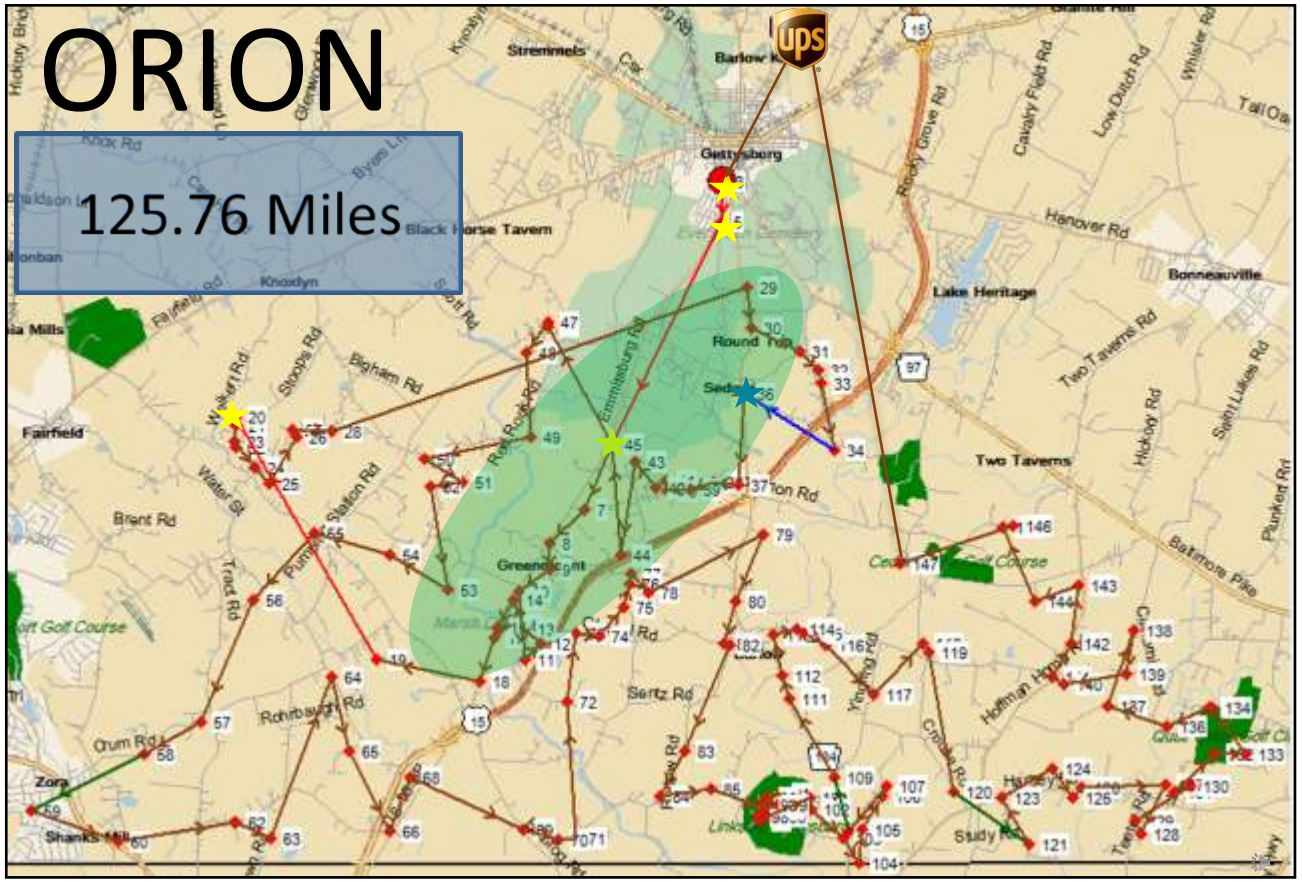
Shooting for NOVA: we're examining the UPS computer model that tries to calculate maximum speed, maximum addresses…
pic.twitter.com/a9MDq12XLU

Hide photo Reply Retweet Favorite More

24 RETWEETS 18 FAVORITES

Can David Pogue beat ORION?





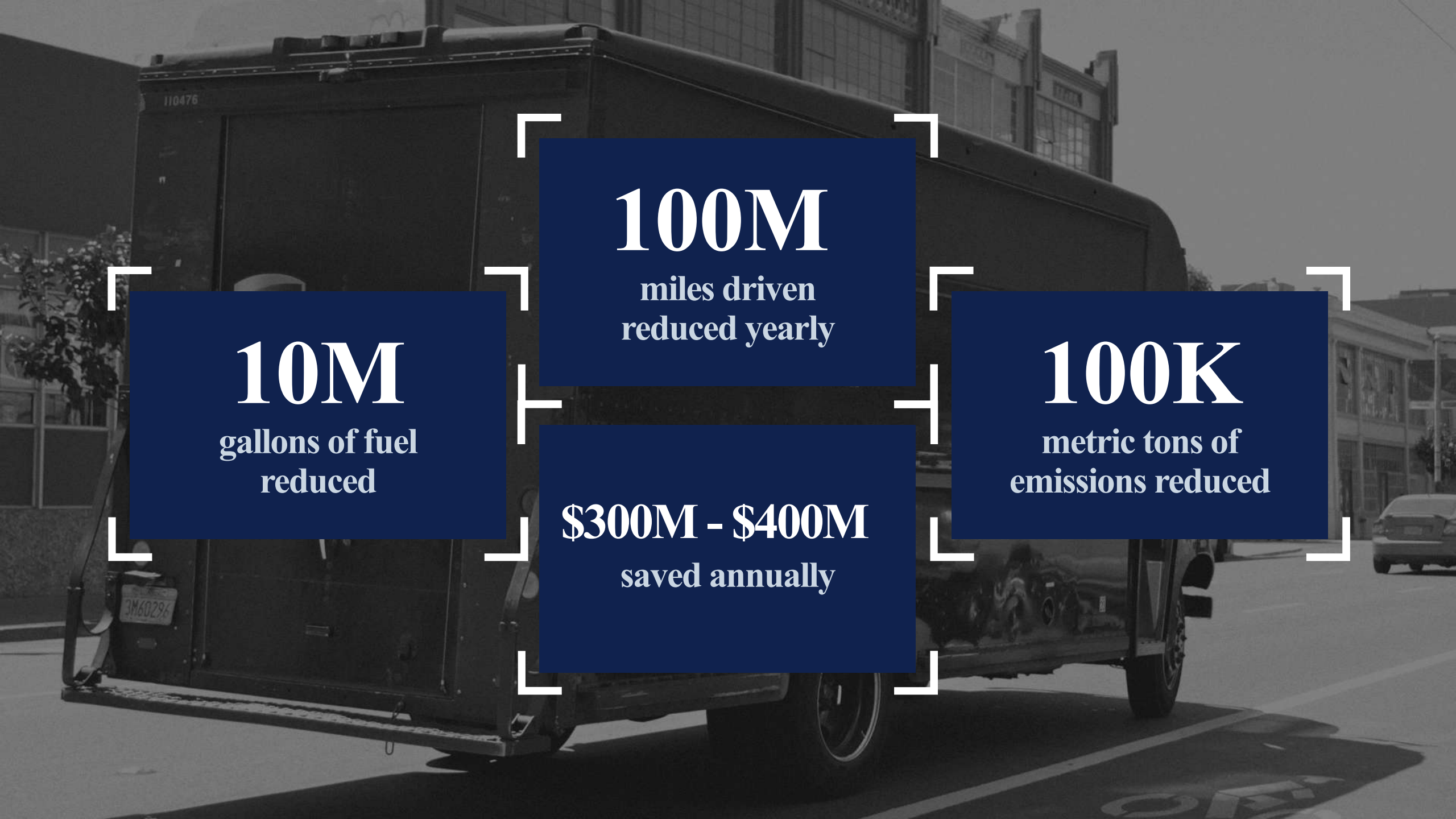
Subtle differences can mean large savings

5) Embrace Change Management

Making change stick

- Education
- Communicate vision
- Support from the top
- Quick wins
- Training and certification
- New metrics on system usage
  - Change Conversations

*If you don't **Change the Conversation**, you are a **Flavor of the Month***



100M
miles driven
reduced yearly

10M
gallons of fuel
reduced

100K
metric tons of
emissions reduced

$300M - $400M
saved annually

Panel Part 2: Challenges and opportunities in the Last Mile of Distribution

We asked:

- What is the biggest challenge in the last mile?
- Why is commodity tracking in the last mile important? What tools do you use?
- What are the biggest research or information gaps that prevent you from addressing the needs of the beneficiaries? What should be the next research priority?

Panel Part 2: Challenges and opportunities in the Last Mile of Distribution

Benjamin Safari, Director of the Global Supply Chain Management Unit

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Supply Chain Optimization: Solving The Last Mile

June 28, 2018
Food Assistance for Nutrition Evidence Summit
Washington D.C.

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Director – Global Supply Chain Management Unit
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CRS CATHOLIC RELIEF SERVICES 75 1943-2018

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Planning it right…
Any way possible.

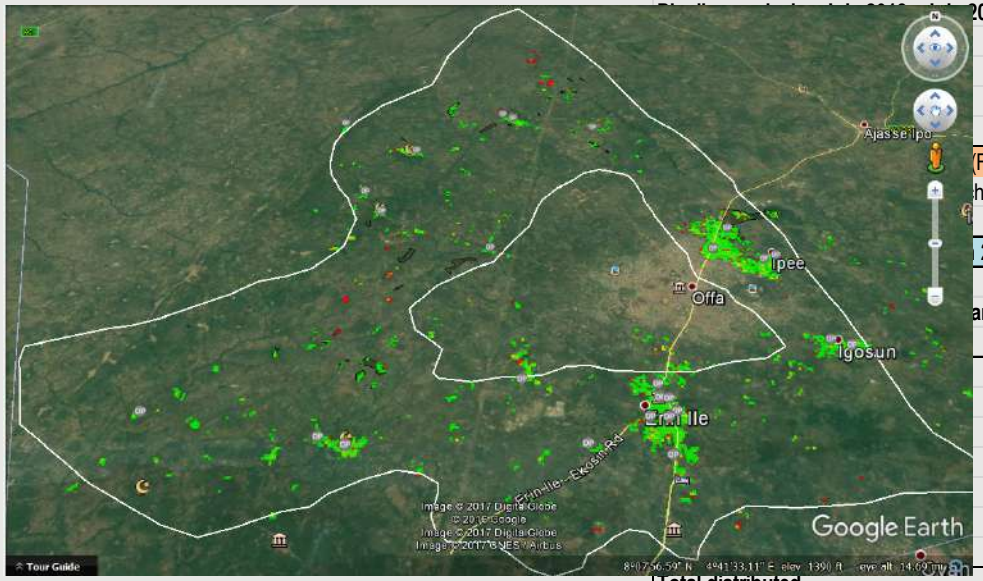
Specialized Food Products

USAID FROM THE AMERICAN PEOPLE

Specialized Food Products are fortified milled flours and fortified flours blended with a protein fortifier (usually soy) as well as calorie and nutrient dense, ready-to-use foods. They are formulated to prevent and treat acute malnutrition in children, to prevent stunting and as meal replacements for children and adults in emergency situations.

Objective	Treatment of Severe Acute Malnutrition	Treatment of Moderate Acute Malnutrition		Prevention of Malnutrition				Other
				Acute malnutrition		Micronutrient and chronic malnutrition		
Generic Term	Ready-to-Use Therapeutic Foods (RUTF)	Ready-to-use Supplementary Foods (RUSF) *High quantity**	Fortified Blended Foods	Lipid-based Nutrient Supplements (LNS) *Medium quantity**	Fortified Blended Food	Lipid-based Nutrient Supplements (LNS) *Low quantity**	Vitamin & Mineral Powder	High Energy Biscuit (HEB)
Products*			Corn Soy Blend Plus; Supercereal Plus	Wawa Mum	Corn Soy Blend Plus; Supercereal Plus			
Purpose	Treatment of uncomplicated severe acute malnutrition with continued breastfeeding	Supplement to treat moderate acute malnutrition with continued breastfeeding	Supplement to treat moderate acute malnutrition with continued breastfeeding	Supplement to the local diet for prevention of acute malnutrition with continued breastfeeding and prevent micronutrient deficiency and stunting	Supplement to the local diet for prevention of acute malnutrition with continued breastfeeding and prevent micronutrient deficiency and stunting	Supplement to the local diet with continued breastfeeding to prevent micronutrient deficiency and stunting	Fortification of home prepared foods, just before consumption, with continued breastfeeding to prevent micronutrient deficiencies	Temporary meal replacement; prevention for acute malnutrition and micronutrient deficiencies for vulnerable groups

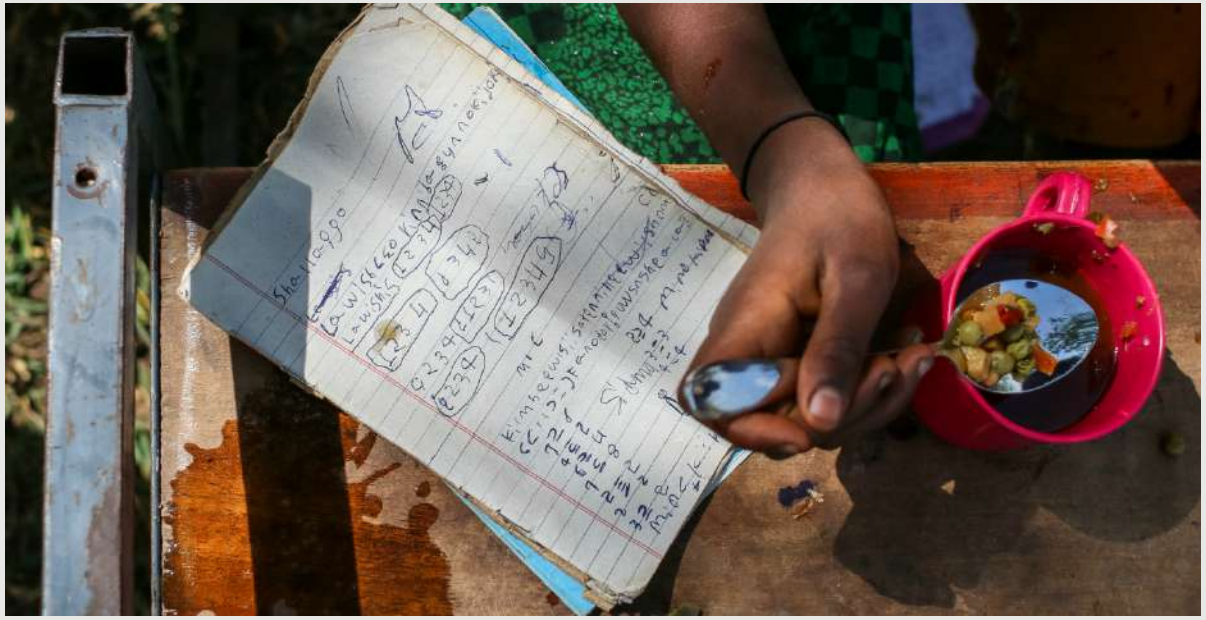
Project timeframe:	July 2017 - September 2024 (6 Years)
Feeding timeframe:	September 2018 - June 2023 (5 Years)
	2023 (5 years of feeding for a 6 year project)



	Recipients	Ration Type (BENEF)	Target Group / Ration Period	Ration (kg/period/beneficiary) USG DONATED SF-CM	PEAS	RICE*	LENTILS	VEGOIL	Periods	Quantities (NET KGS) USG DONATED SF-CM	PEAS	RICE*	LENTILS	VEGOIL	TOTAL USG
(FFE I)										653,879	0	74,229	105,071	39,354	872,532
h 2018 (Per Waybills)										0	70,000	380,000		200,000	650,000
										0	70	760	0	400	1,230
2018										653,879	69,930	453,469	105,071	238,954	1,521,302
ar 1 Distribution) - BASED ON FFE I RATIONS AND RECIPIENTS.															
	22,743	IND-wet	Week	0.53	0.06	0.35	0.09	0.04	11.0	131,341	15,010	87,561	22,516	10,007	266,434
	20,822	IND-wet	Week	0.53	0.06	0.35	0.09	0.04	11.0	120,247	13,743	80,165	20,614	9,162	243,930
	522	IND-wet	Week	0.53	0.06	0.35	0.09	0.04	11.0	3,015	345	2,010	517	230	6,115
	522	HH-Dry	Month					3.75	3.0	-	-	-	-	5,873	5,873
	9,097	HH-Dry	Term					3.75	1.0	-	-	-	-	34,115	34,115
	8,329	HH-Dry	Term					3.75	1.0	-	-	-	-	31,233	31,233
	0	HH-Dry	Term					3.75	1.0	-	-	-	-	-	0
Total distributed										254,602	29,097	169,735	43,646	90,618	587,699

Getting it there…
Any way possible.

Tracking it…
Any way possible.



Panel Part 2: Challenges and opportunities in the Last Mile of Distribution

Richard Lankas, Product Manager, Last Mile Mobile Solution

World Vision

Last Mile Mobile Solutions
World Vision International

Richard Lankas
www.lmms.org

LMMS is …

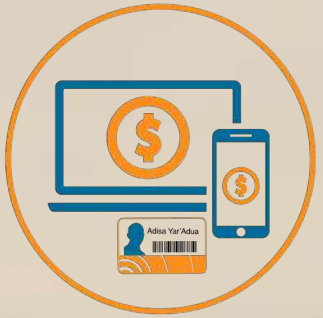
Digital Beneficiary Information Management System driven by passionate humanitarians

- *We believe choice is an inherent foundation of human dignity*
- *We believe all people should have control over who sees and has access to their data*
- *We believe people are more important than technology*

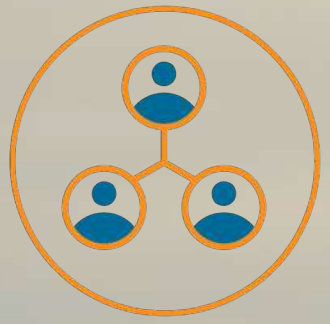
LMMS Portfolio Solutions

Digital Identity

Distribution: In-Kind



Distribution: Cash



Multi Agency

Management Insights & Analytics

NEXT UP

GET INVOLVED

ADOPT LMMS

PARTNER WITH US

INNOVATE WITH US

MORE INFO

Richard Lankas - Product Manager, LMMS
E: richard_lankas@wvi.org

Giselle Drouillard-Salom - Sales & Marketing Global LMMS
E: giselleds@wvi.org

Last Mile Mobile Solutions

Panel Part 2: Challenges and opportunities in the Last Mile of Distribution

Charles Ibaale, LESS Project, WFP Uganda

WFP LESS PRESENTATION

Food Assistance For Nutrition Evidence Summit

Organized by the Food Aid Quality Review (FAQR) Project and United States Agency for International Development (USAID)/Office of Food for Peace (FFP)

June 27-28, 2018, Washington D.C.

Presenter:

CHARLES IBAALE

DATA ANALYST (SUPPLY CHAIN)

UNITED NATIONS - WORLD FOOD PROGRAMME

CLEMENT HILL ROAD PLOT 17/19

KAMPALA – UGANDA

TEL +256781059246 / +256783138901

E-MAIL: Charles.ibaale@wfp.org

Affiliation / Bio data for Charles Ibaale

Title/Position.

Currently working as Data Analyst (Logistics/supply chain) with United Nations – World Food programme Kampala – in-charge of commodity accounting / LESS system. Worked with WFP for 17 years since year 2000 todate – Commodity tracking data management system.

Other functions ;

Executive Vice Chairperson for United Nations - WFP staff savings scheme-Uganda.

Member of Board of trustee- NSHAWA a charitable organization in Eastern Uganda.

Previous experience;

Worked as IT supervisor and accountant for 5 years in managing computerized accounting systems / Bank reconciliations/preparation of financial statements.

Countries visited / Supported in Data management/ Presentations

U.S.A , Washington - DC in 2018

Kenya, Nairobi in 2015/ 2018

Philippine, Tacloban in 2014

South Sudan, Juba in 2012

South Africa, Johannesburg in 2008

Chad , Ndjamena in 2006

What is LESS?

Integrated supply chain management, inventory accounting and real time tracking solution that supports end-to-end WFP's food supply chain from sourcing to delivery for distribution.

ith LESS

Core objectives of using WFP LESS last mile

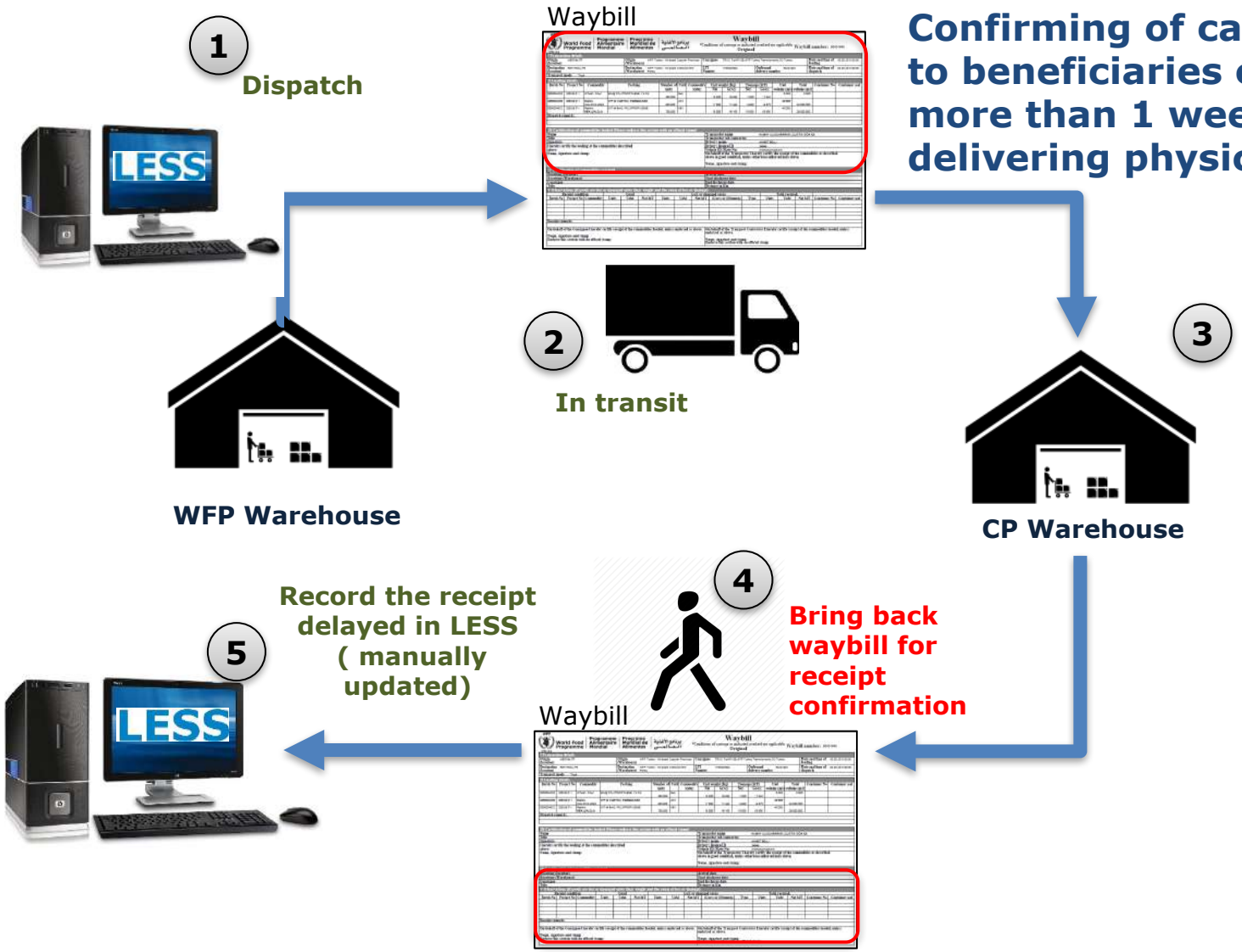
Uganda is the first country in the World Food programme to implement the LESS last mile project – implemented in March 2018.

LESS (Logistics Execution Support System) is an integrated supply chain management (SCM), inventory accounting and real time tracking solution that supports end-to-end WFP's supply chain: from sourcing to delivery for distribution.

Core Objectives of LESS last Mile Project

- Integrating elements of the entire food supply chain functions (Pipeline, Programme, Procurement, Logistics) together with Finance in one system.
- Providing accurate and real time information which facilitates and supports a positive business transformation.
- Re-enforce individual accountabilities: the person responsible for the activity records the related transactions immediately in the system, using their personal login;
- Develop a mobile solution and introduce Quick Responce Code – QR to record confirmation of receipts at distribution sites.
- Introduce GPS - Geo-referencing receipts at distribution sites to monitor positioning.
- Introduce Camera to capture images at distribution sites.
- Build donor confidence on accountability process.

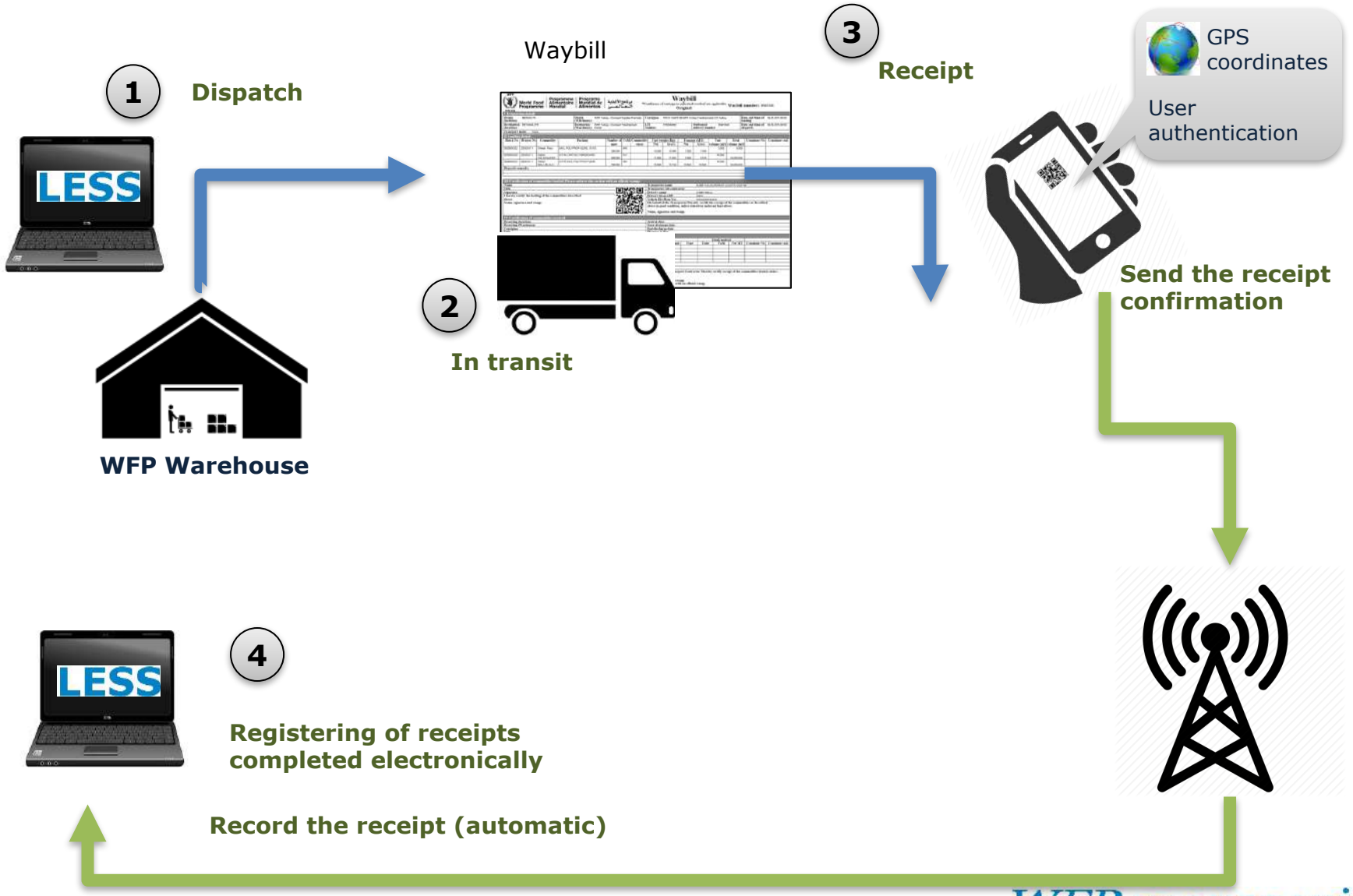
Before WFP LESS LAST MILE implementation – delays



Confirming of cargo delivered to beneficiaries could take more than 1 week – delays in delivering physical waybill

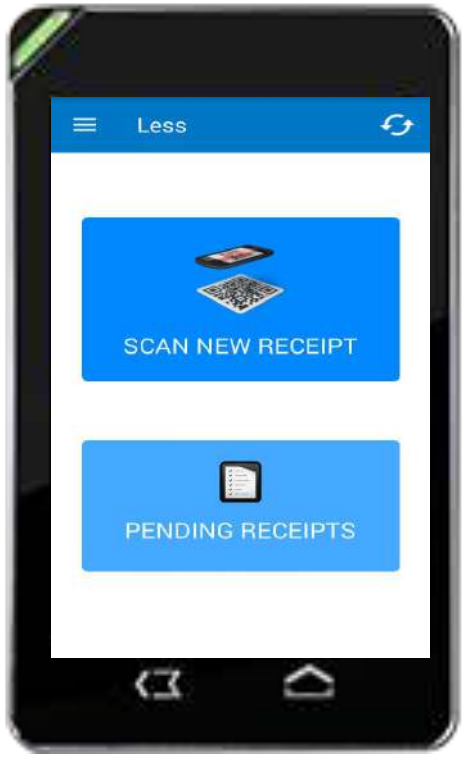
WFP moves with LESS

WFP LESS Last Mile Solution – Introduction of electronic device to confirm receipt of deliveries to Beneficiaries



WFP moves with LESS

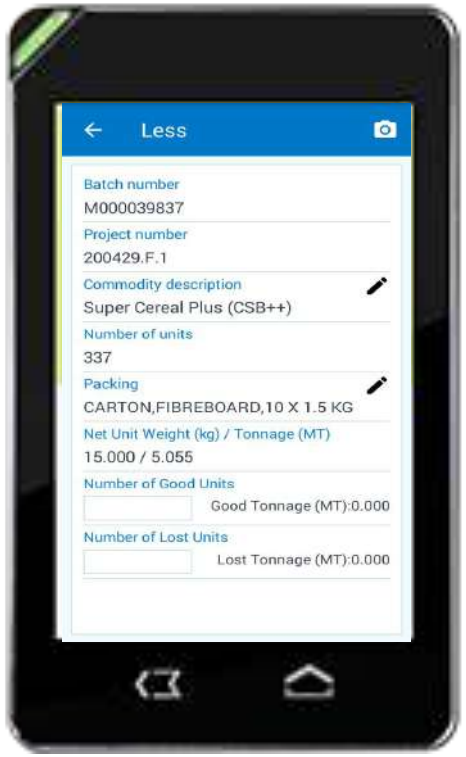
Mobile Application



Mobile Application

- The Application reads compressed data from QR code

Mobile Application



Images of LESS LAST MILE implementation in Uganda

- **USAID Donor visit in Oruchinga – Uganda (March 2018)**

Images of LESS LAST MILE implementation in Uganda

- DFID donor visit in Oruchinga – Uganda (March 2018)

Q&A

- What role does Supply Chain Optimization play in the cost-effectiveness of food aid programs?

- What are the needs and challenges specific to the Last Mile?

- One last question, Bridging the Gap:
  - Should more efforts be made to connect the upper supply chain decision-makers with the stakeholders involved in the last mile?