Alaska Air Group
Lean Six Sigma

About Alaska Airlines/Horizon Air

- Alaska Air Group (Alaska Airlines & Horizon Air)

- More than 12,000 Employees

- 80 years of history

- Passenger Air, Freight, Cargo, Mail Services

- Alaska Airlines - All Boeing Fleet

- #2 Carrier to Hawaii

- Over 22 Million Passengers Per Year

- Over 90 Destinations (US, Canada, Mexico)

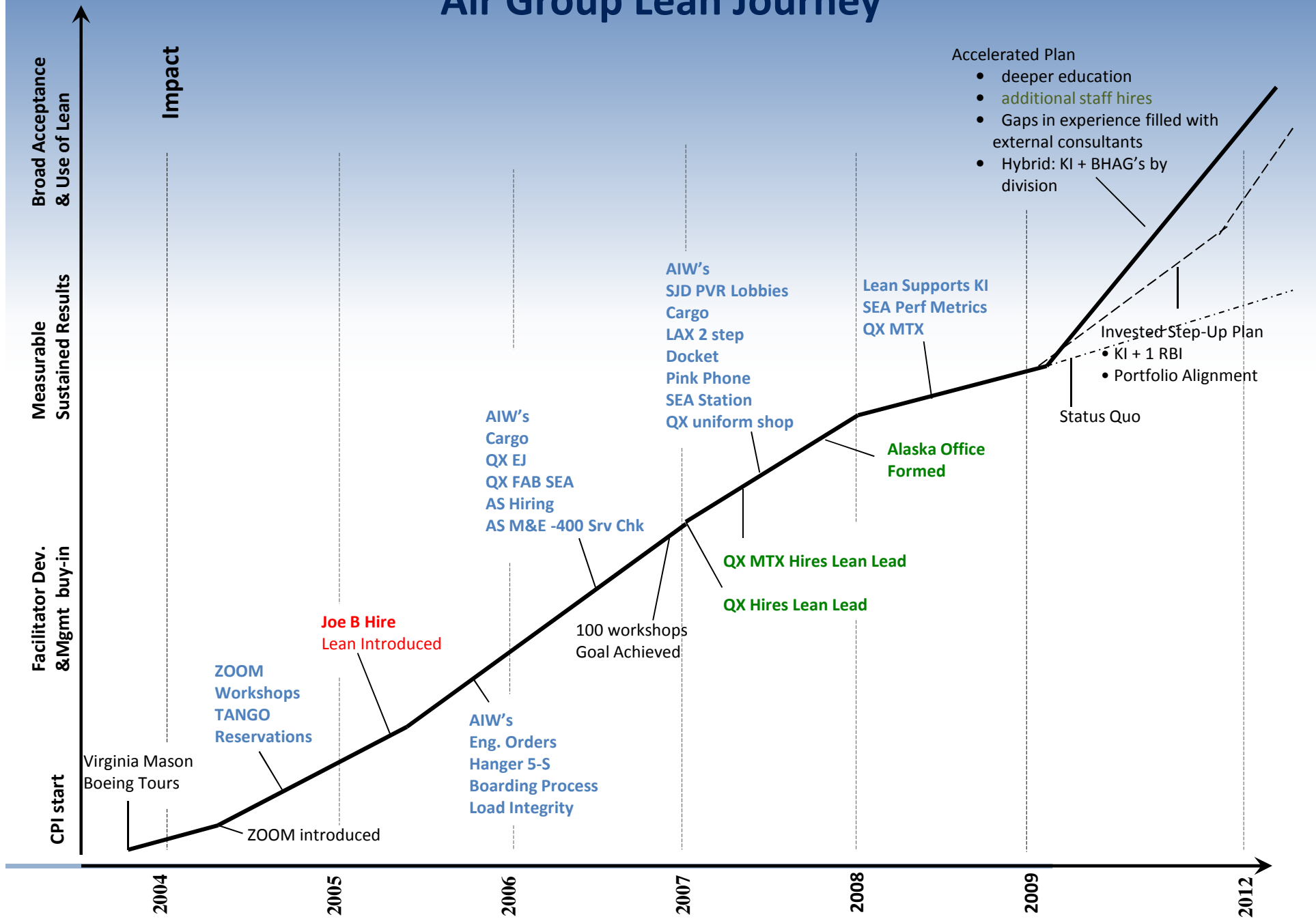- Five Years – Highest Customer Satisfaction (JD Powers)

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Alaska Airlines

Alaska Airlines

- 16.5 million passengers/yr.
- 8,700 employees
- 114 aircraft
- 62 cities served
- 415 daily departures

Horizon Air

- 6.8 million passengers/yr.
- 3,000 employees
- 54 aircraft
- 45 cities served
- 360 daily departures

LEAN SIX SIGMA

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Alaska Airlines

External Recognition

- JD Powers Award Five Years Running

- Good Faith Initiative for Veterans' Employment (G-FIVE)

- Employer Support Guard & Reserve (ESGR) Pro Patria Award and Above and Beyond Certificate for Alaska Air Group

- Alaska Airlines One of Three US Airlines Topping the Greenopia List of Most Eco-Friendly Airlines

- Seattle Times Number One Northwest Company 2012

- Mileage Plan Visa Ranks 1st in Frequent Traveler Award

- Horizon President Glenn Johnson Greater Seattle Business Association Corporate Citizen of the Year

- Disability Matters 2011 Marketplace Award

Air Group Lean Journey

Impact

Broad Acceptance & Use of Lean

Measurable Sustained Results

Facilitator Dev. &Mgmt buy-in

CPI start

Accelerated Plan
- deeper education
- additional staff hires
- Gaps in experience filled with external consultants
- Hybrid: KI + BHAG's by division

AIW's
SJD PVR Lobbies
Cargo
LAX 2 step
Docket
Pink Phone
SEA Station
QX uniform shop

Lean Supports KI
SEA Perf Metrics
QX MTX

Invested Step-Up Plan
- KI + 1 RBI
- Portfolio Alignment

Status Quo

AIW's
Cargo
QX EJ
QX FAB SEA
AS Hiring
AS M&E -400 Srv Chk

Alaska Office Formed

QX MTX Hires Lean Lead

QX Hires Lean Lead

100 workshops
Goal Achieved

Joe B Hire
Lean Introduced

ZOOM
Workshops
TANGO
Reservations

AIW's
Eng. Orders
Hanger 5-S
Boarding Process
Load Integrity

Virginia Mason
Boeing Tours

ZOOM introduced

2004   2005   2006   2007   2008   2009   2012

How today is going to run
(206) 669-2483

- Concepts as they apply to a Services World (Airline)

- Examples of workshops and Activities

- A few exercises to keep you from falling asleep

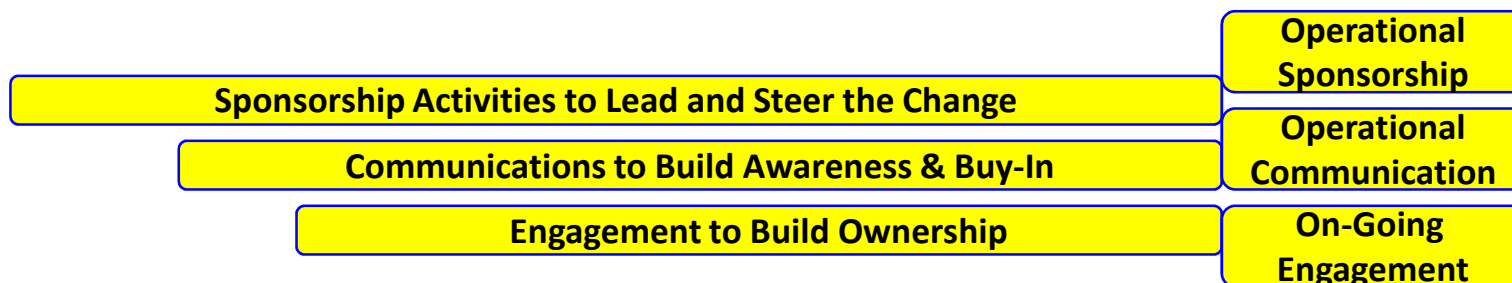- My expectations – Lot's of Q&A

Activity

- **Find a Partner in the crowd**

- **Stand Back to back**

- **While back to back, Make FIVE changes to your personal appearance (example, change rings to different fingers).** *When you are done, let your partner know*

- **When you are both ready, turn and take turns determining if you can find the changes the other made**

- **How many did you find? Who got all 5?**

Process Improvement & Change

Individual's Transition Through a Change

ACCEPTANCE

HANDS-ON TRYOUT

MENTAL TRYOUT

SELF CONCERN

AWARENESS

Management Activities

Sponsorship Activities to Lead and Steer the Change	Operational Sponsorship
Communications to Build Awareness & Buy-In	Operational Communication
Engagement to Build Ownership	On-Going Engagement

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Guiding Principals

- **Ideas from employees are tested using Lean Six Sigma methods to create ownership at all levels of the company**

- **Measurable results matched to company goals and initiatives**

- **Strong and visible support from sponsorship**

- **Business owners own resources and are accountable for results**

- **Simplified tool set matches process improvement to the degree of complexity required (5S, Rapid Improvement Event, Accelerated Improvement Workshop, Six Sigma Project)**

- **Eliminate Waste while retaining people. Lean Six Sigma is not a tool for headcount reduction**

Process Improvement Methods

5-S Workshop Lead Time: 1 week, 1 – 5 days per event

- The process of creating a workplace where unnecessary things have been removed and the items that are left are in locations based upon their frequency of use. This process can apply to parts, tools or information. The intention of workplace organization is to minimize the amount of time spent looking for or sorting the things you need to complete a given task.

Accelerated Improvement Workshop: 35 + days lead time, 3 – 5 days per event

- A rapid, rigorous, process, where people who do the work reorganize it to achieve major reductions in cost and flow time. Data gathering and planning are keys to having a successful event. These events can vary in length from 1 day to 2 weeks. Primarily rely on the "learn it-do it" model to achieve changes. A Subset of AIW's are Consults and Rapid Improvement Events

Lean Six Sigma: 90 + days lead time, project vs. event based

- A rigorous data driven problem solving methodology that focuses on eliminating waste and reducing variability in a process. Uses statistical analysis to determine which inputs are effecting the outputs desired.
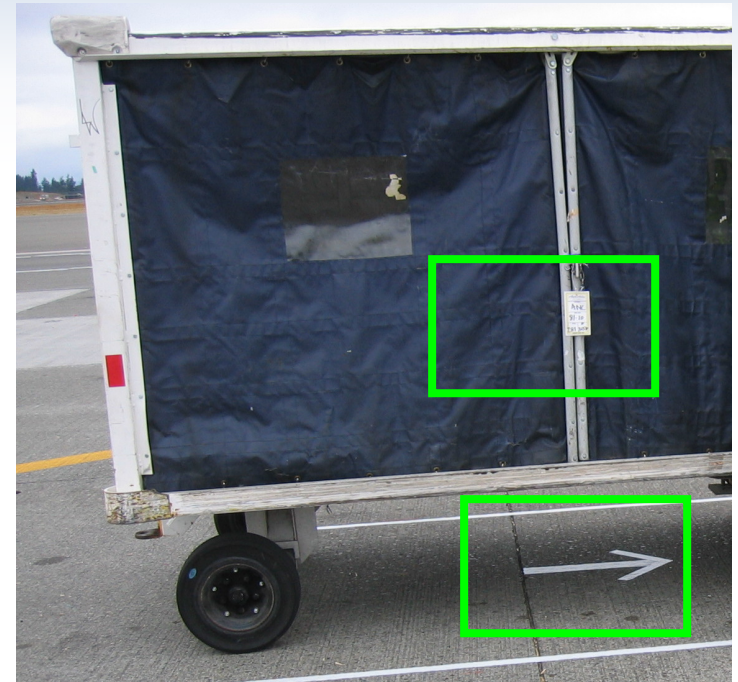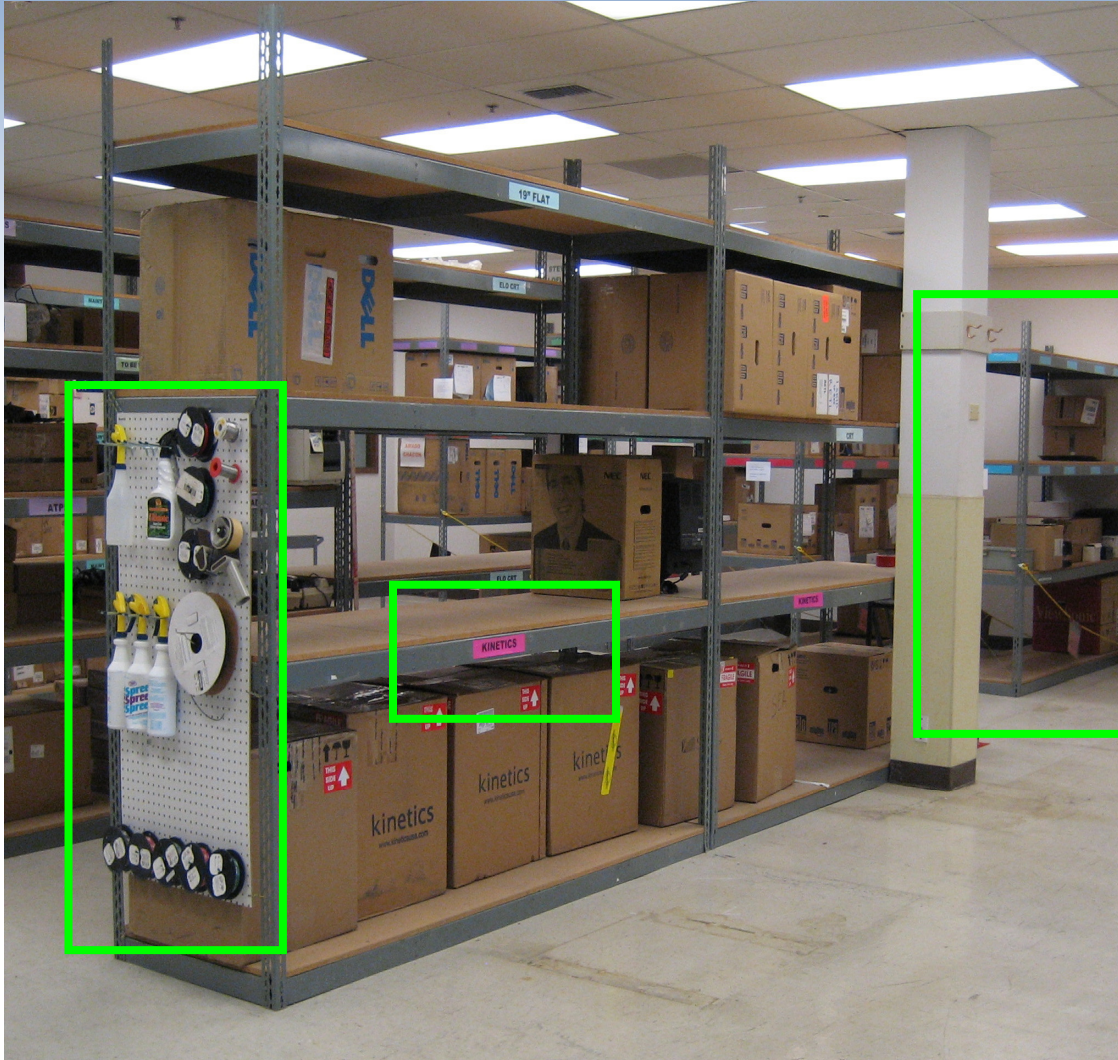
5S: SEA Ramp
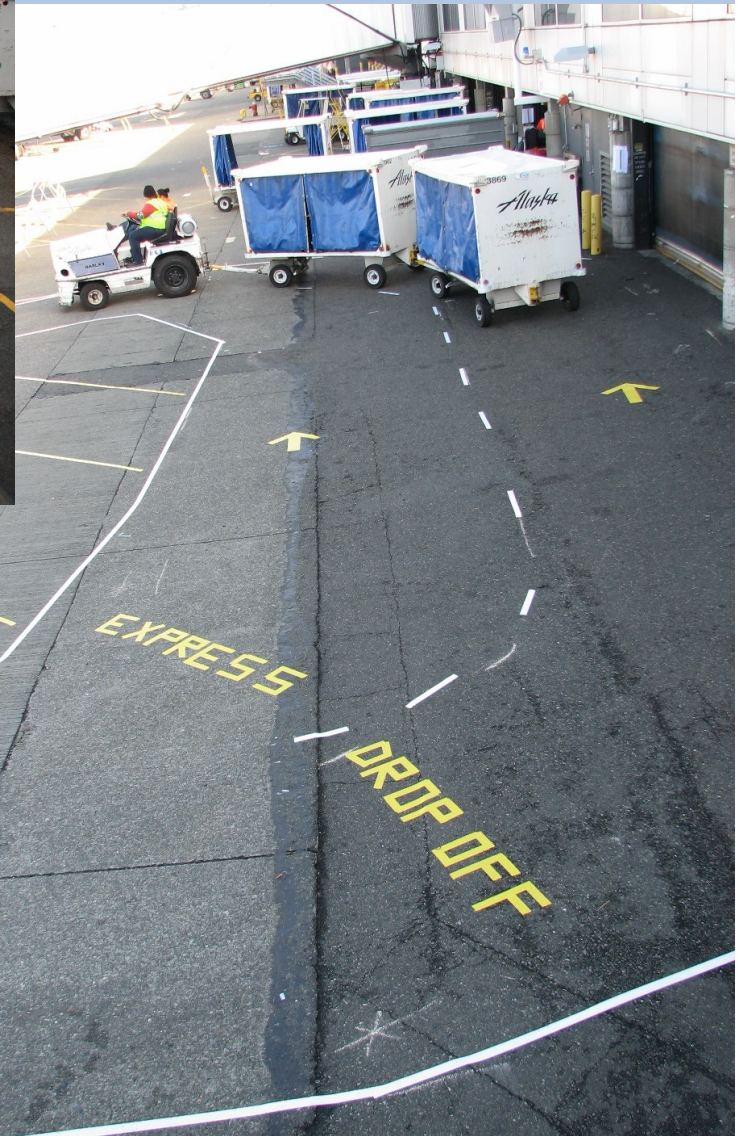
Before: Unorganized, Hard to Locate Items, No Standardization, Minimal Visual Controls

After: Easy to Recognize Visuals, Standardized to Multiple Gates, Visual Sweep Now Possible, Equipment Can be Prepared for Next Flight
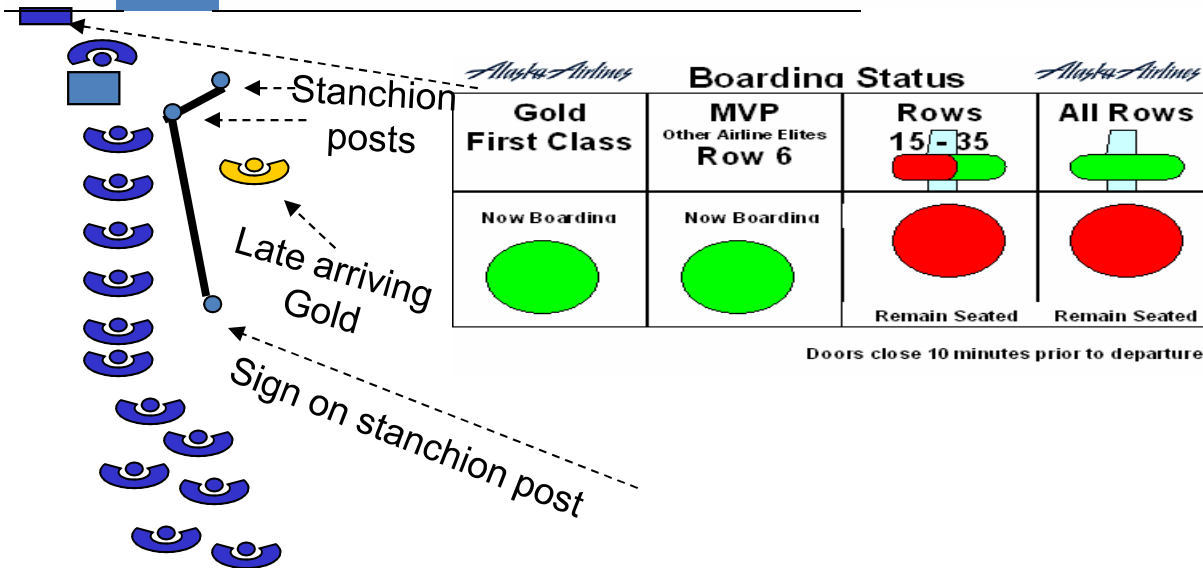
Visual Control Examples From 5S

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AIW: Boarding Process

A) **Improve the quality of the boarding experience** (Passengers, CSA's and FA's with an emphasis on passenger experience)

B) **Increase the speed of boarding** or maintain current speed while still doing A

C) **Do not add ongoing expense** to the boarding process (i.e. adding more CSA's & FA's to the process or building a front and back load jet-way a la United in Denver)

Stanchion posts

Late arriving Gold

Sign on stanchion post

Boarding Status

Gold First Class	MVP Other Airline Elites Row 6	Rows 15 - 35	All Rows
Now Boarding	Now Boarding		
(green)	(green)	(red) / Remain Seated	(red) / Remain Seated

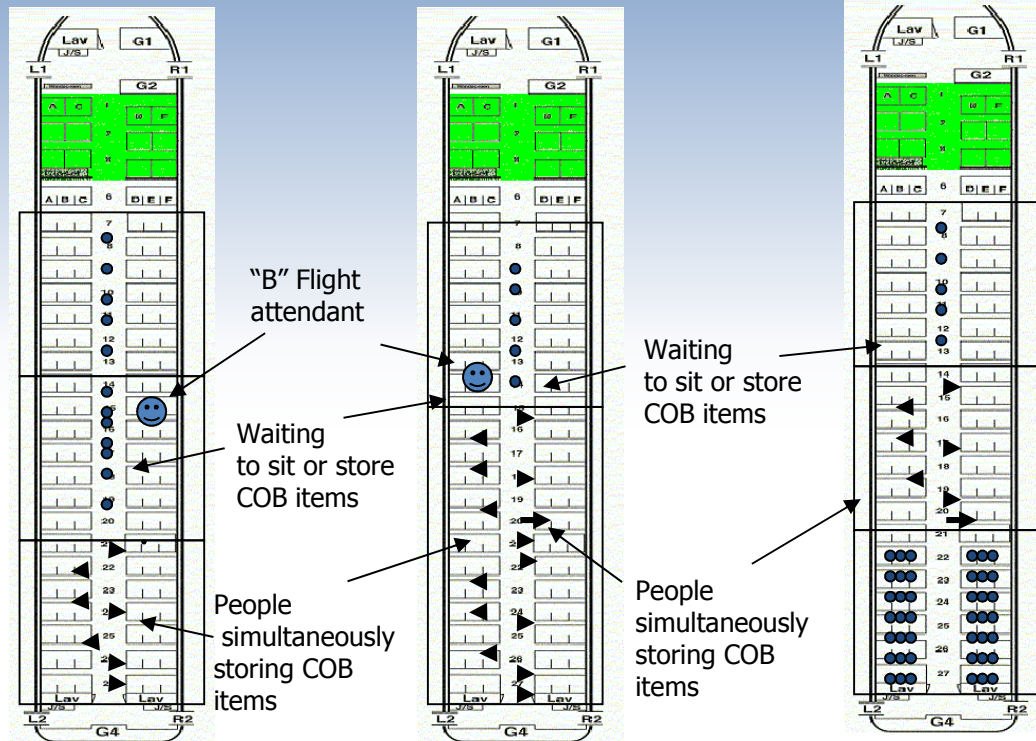Doors close 10 minutes prior to departure

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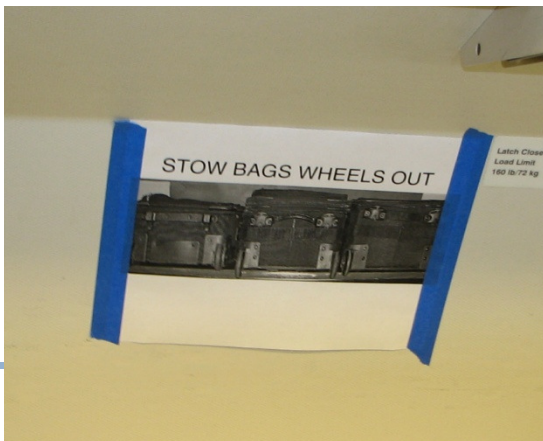# AIW: Boarding Process (2)

Why random boarding is faster than back to front boarding.

Randomized boarding results in more opportunities for passengers to simultaneously store carry on board items.

"B" Flight attendant

Waiting to sit or store COB items

Waiting to sit or store COB items

People simultaneously storing COB items

People simultaneously storing COB items

A (back to front at start)

B (random)

C (back to front mid Way through boarding)

STOW BAGS WHEELS OUT

Latch Closed
Load Limit
160 lb/72 kg

Six Sigma: Pilot Reserves

Where we started:

- Reserve guaranty was projected at $2.7M over plan for the end of 2010 (18 Pilots)

- Reserve levels were set for higher block hours and lower operational performance
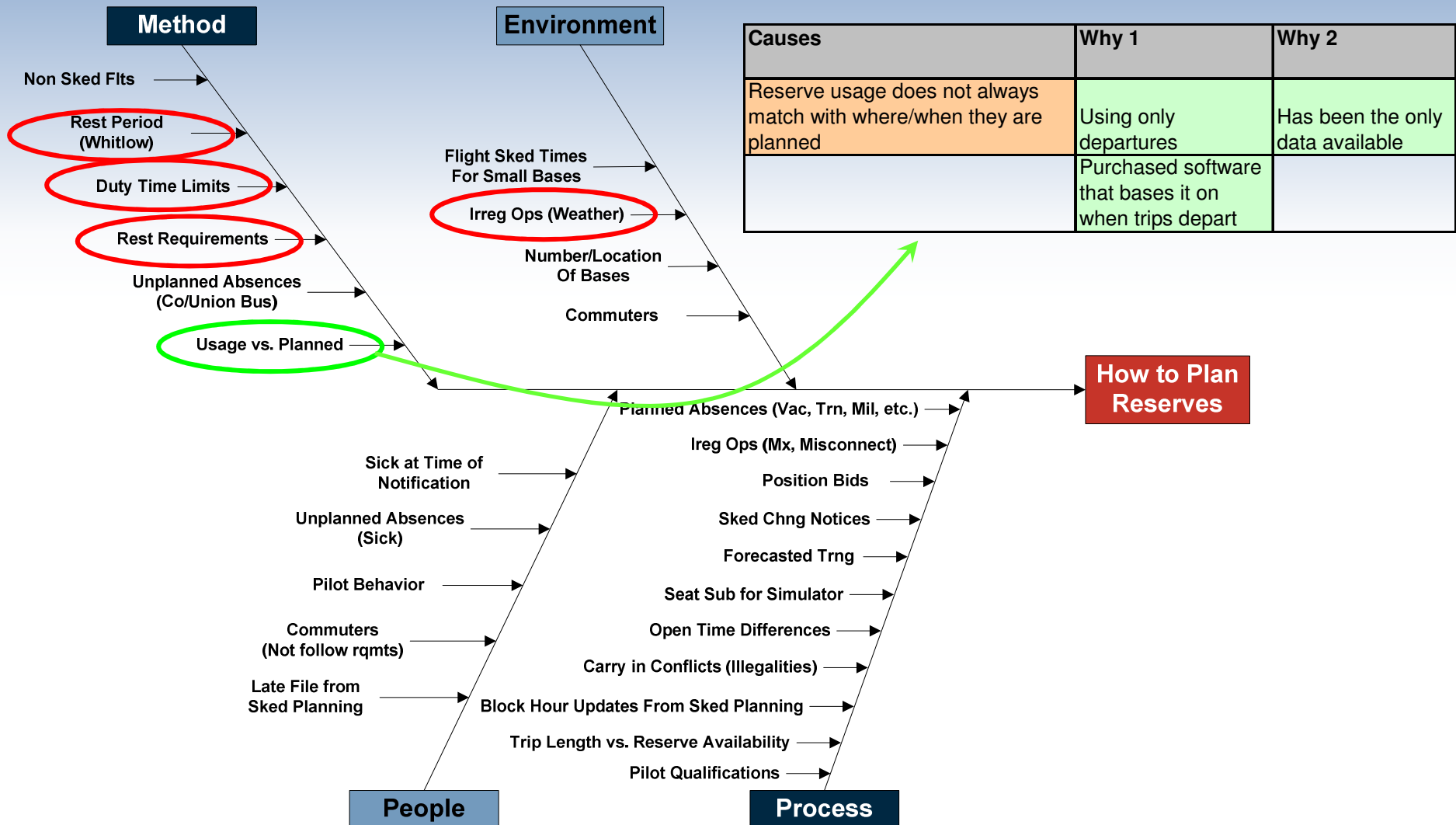
Where we ended:

- Reduced planned reserves by 7.1% (140 to 130)

- Reserve utilization increased 6.1%

- Pilot productivity increased 0.5 points

- Able to fly 4,892 block hours that may have gone uncovered in 2012

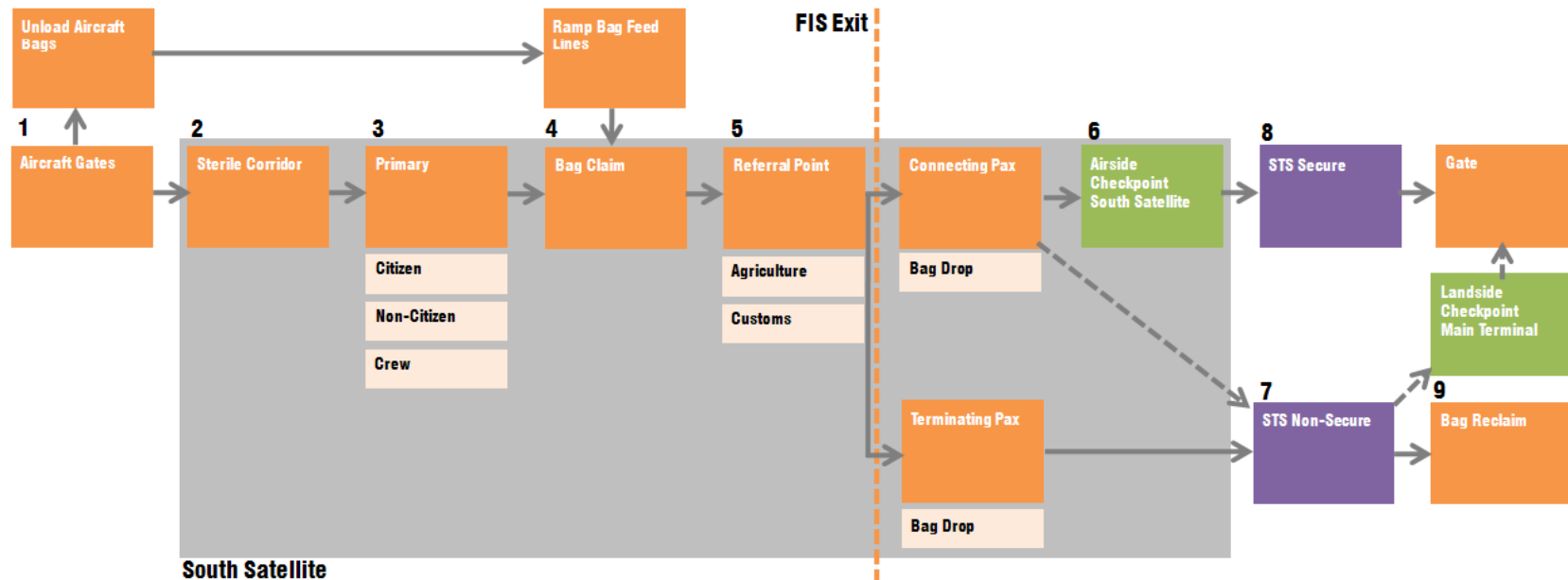- Developed a monthly and annual process for planning reserves

$$\frac{10 \text{ Pilots}}{x} \frac{\$210K}{\$2.1M}$$

Pilot Reserve: Critical Root Cause

Method

Non Sked Flts

Rest Period (Whitlow)

Duty Time Limits

Rest Requirements

Unplanned Absences (Co/Union Bus)

Usage vs. Planned

Environment

Flight Sked Times For Small Bases

Irreg Ops (Weather)

Number/Location Of Bases

Commuters

Causes	Why 1	Why 2
Reserve usage does not always match with where/when they are planned	Using only departures	Has been the only data available
	Purchased software that bases it on when trips depart	

How to Plan Reserves

Planned Absences (Vac, Trn, Mil, etc.)

Ireg Ops (Mx, Misconnect)

Position Bids

Sked Chng Notices

Forecasted Trng

Seat Sub for Simulator

Open Time Differences

Carry in Conflicts (Illegalities)

Block Hour Updates From Sked Planning

Trip Length vs. Reserve Availability

Pilot Qualifications

Sick at Time of Notification

Unplanned Absences (Sick)

Pilot Behavior

Commuters (Not follow rqmts)

Late File from Sked Planning

People

Process

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Consult: Federal Inspection Center (SEA)

- Increased peak hour passenger capacity from 1,200 to 1,600 (2 new flights at peak)

- Reduced hold on board aircraft

- Reduce connect time to less than OAG published MCT (90 minutes)

Consult: Federal Inspection Center (SEA)

Follow the Passenger

Eighteen traveling parties followed from 15 flights Aug 31-Sept 2; 16 traveling parties followed successfully

Number of parties that exceeded the 75 MCT in FIS: four, where three were from same flight (AF 306 on 9/2/11)

Most time spent in Primary Inspection

Key areas driving the most time

Greater than 80% of time in FIS spent in the first four steps of the process

Deplaning 24%

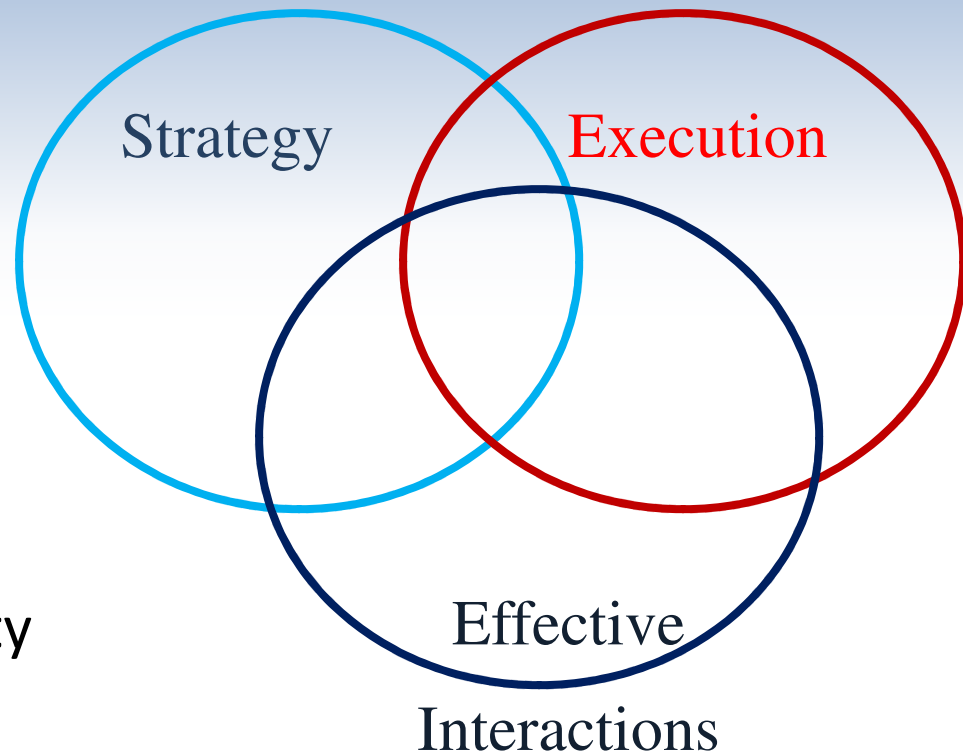Holds 5%

Primary Inspection 45%

Collecting Bags 12%

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Observation Exercise

Video 1

Video 2

Eliminate Waste Through Effective Interactions

W – Waiting

O – Over Production

O – Over Processing

D – Defects

M – Movement

I – Inventory

T – Transportation

E – Employee Creativity

Strategy

Execution

Effective

Interactions

Waste of Waiting

Waste of waiting for the "Next Step" – including delays caused by looking for information, people, supplies, and equipment

- Primary Causes:

    – No Work Instructions or Training

    – Batch & Queue

    – Lack of Urgency

Waste of Over-production

Waste caused by producing more, sooner, or faster than consumers buy

"Just-in-case" Is Not "Just-in-time"

Primary Causes:

- – Batch Production and Long Setup Times

- – Building to a Forecast

- – Lack of Standard Work

- – Inappropriate Measurements

Waste of Over-Processing

Waste of unnecessary, redundant, excessive processes and operations including inspection

Primary Causes:

- Not Identifying Customer Values

- Not Asking 5 Why's on Reason for a Process Step

- Variation

Waste of Correction / Defects

Waste that occurs when a process element does not conform to proper specifications including any rework & customer complaints

Primary Causes:

- Adjustments (All Adjustments Should Be Eliminated)

- Lack of Error Proofing

- Lack of Standard Work

- Poor Instructions and Training

- Inadequate Supplier Quality
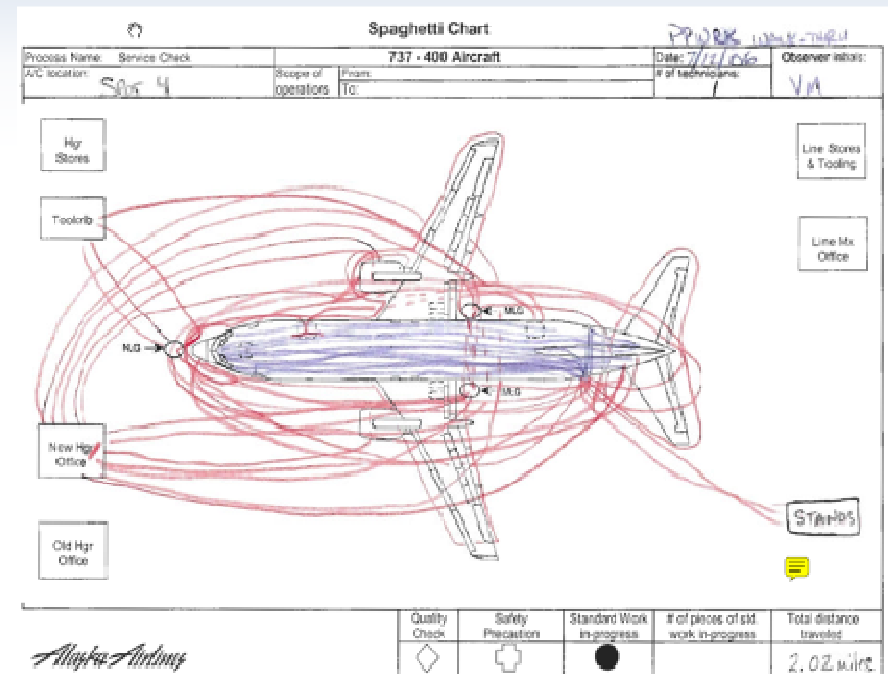
- Expectations Poorly Communicated, Not Obtained

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Waste of Motion

Waste caused by non-value added movement of workers, production machines

Primary Causes:

- Poor Workplace Layout

- Poor Parts Presentation

- Bad Fixtures or Poor Tools

- Lack of Standard Work

- Poor Ergonomics

Waste of Inventory

Waste of materials, parts and the space required to store them when they are purchased or produced in advance of when they are required.

Primary Causes:

- "Push" (MRP) Vs. "Pull" Production

- Lack of Continuous Flow

- Batch Production

- Unnecessary Product Flow

- Constraints

- Monuments

- Financial Drivers

- Long Set-up Times

Waste of Transportation

Waste caused by unnecessary movement of material or product.

Primary Causes:

- Inefficient Facility Layout

- Long Setup Times

- Lack of Continuous Flow

- Lack of Right-Sizing

- Lack of Multi-skilled Workers

- Monuments

- Non-Value Added Operations

- Batch (Push) Mentality
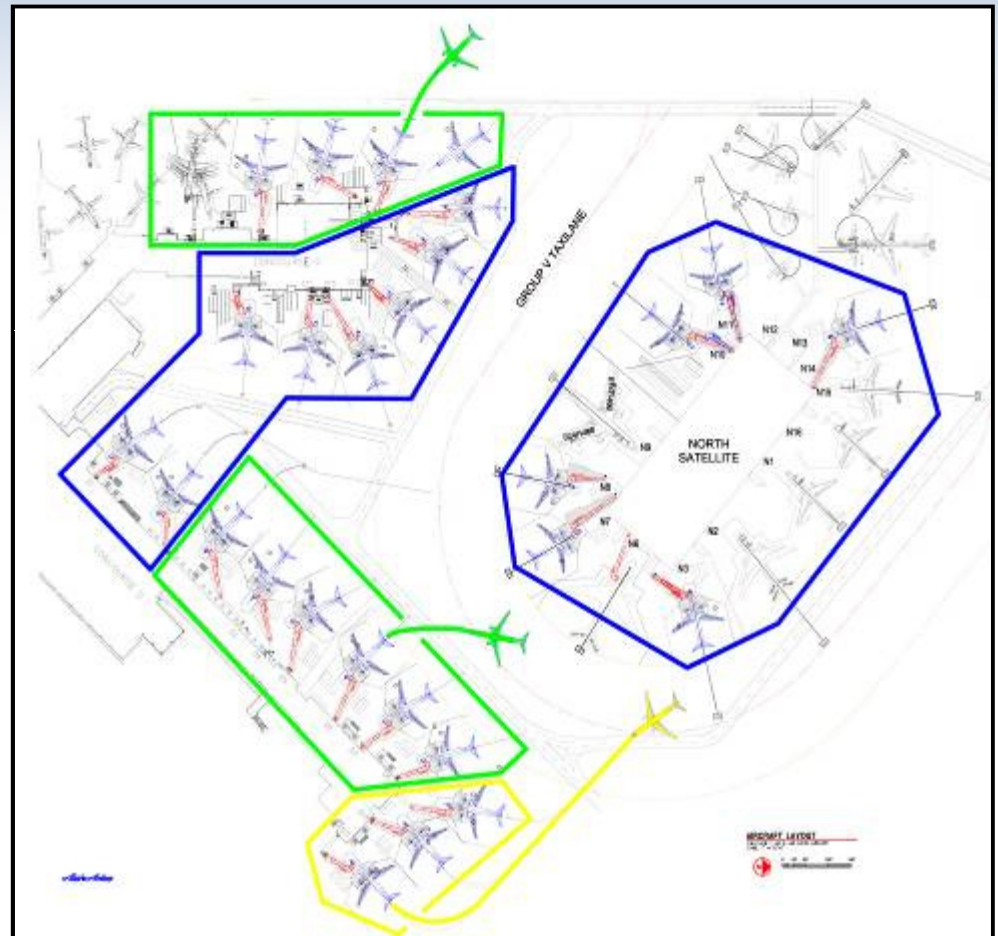
Waste of Employee Creativity

Waste caused by not using ideas, skills, and initiative of subject matter experts, key stakeholders, and the people who live and breathe the process.

Primary Causes:

  –Poor facilitation

  –Culture of suppression

  –Peer Pressure

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Exercise: Helium Stick

- **Need 10 Volunteers to come up on stage (quick)**

- **The rest of you are observer's**
- **What's your prediction?**

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Organizational Structure

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         ┌─────────┐
         │   CFO   │
         └────┬────┘
              │
              ▼
   ┌────────────────────┐                    ┌──────────────────────┐
   │    MD Strategy      │────────┬──────────▶│       Project        │
   │    Management       │        │           │     Management       │
   └────────────────────┘        │           │       Office         │
                                  │           └──────────────────────┘
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                                  │           │   Lean Six Sigma     │
                                  │           │      Projects        │
                                  │           └──────────────────────┘
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                                              │      Strategic       │
                                              │      Execution       │
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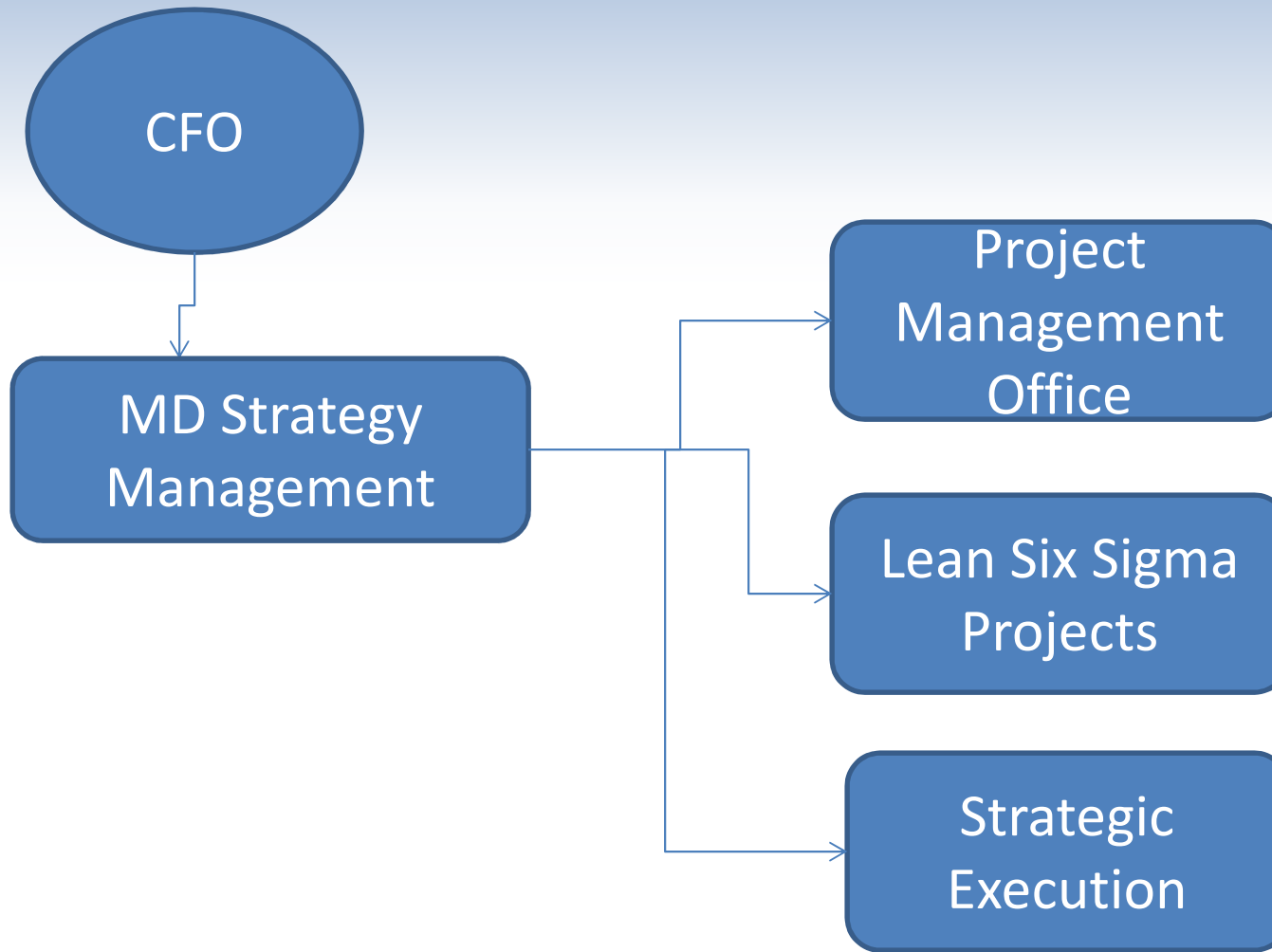
Key Partnerships

- **Financial Controllers**

- **Corporate Audit**

- **Company Officers**

- **Low Overhead with High Budgets: Corporate Real Estate & Supply Chain Management, Food & Beverage**

Lean & Finance Collaboration

Regulatory
Employees
Customers
Finance
Business

Idea Generation

Project Matrix
Initial Value Assessment → Prioritize Projects → LSS Project Initiation → FP&A Review

Costs & Benefits calculated adequately?
No → Recalculate Costs & Benefits
Yes → Financial Benefits Approved

Financial Benefits Approved → Project Execution → Change in scope, goal, size, or problem?
Yes → Recalculate Costs & Benefits
No → FP&A Control Review

FP&A Control Review → Track & report monthly → Budget Impact?
Yes → Book to Budget → Perform Post Audit
No → Stop

Reporting, Communication and Promotion

- **Web article updates**

- **Managing Directors Lunches**

- **Officer Lunches**

- **Executive Committee Monthly Scorecard**

- **Executive Committee Quarterly Visit**

- **Officer Quarterly Visits**

Lean Six Sigma JUNE Report Card

2012 High Level Goals:	Target	Progress YTD	Active Process Improvement Events (Sample)
Financial Benefit			**Hassle Free KI: Credit Card on File [Accelerated Improvement Workshop]** Paying for ancillary items during checkin (web or airport) requires entering payment information. When on board the aircraft, the customer must physically access their credit card again for any food/beverage purchases . Goal - Decrease the number of ancillary payment processes requiring a customer to pull out their credit card from 7 to 1. [HAND-OFF TO PMO]
10 X Department Costs	$7M	■	
AAG Skill Building			
Certify AIW Cert Candidates	10	3	**Productivity: Inflight Labor Negotiations [Consult]** Evaluate current state of contract and review against potential contract change outcomes such as existing staffing process, abcenses (sick leave, workers comp etc.) and reserve staffing. [CONSULT ONGOING]
Certify Green Belts Candidates	3	0	
Certify Black Belts	2	0	**Productivity: Reduction in Pilot RIG Hours [6 Sigma]** Improve Pilot RIG utilization through analysis of historical data. Target of $500K in Savings [MEASURE PHASE}
Initiative	Total	Completed	
Hassle Free KI Events	5	3	**Productivity: Unemployment Claims Process [Accelerated Improvement Workshop]** Short windows for turnover of claim paperwork and a lack of standards on which claims we will fight vs. pay for results in Alaska paying out for claims that we believe we should not. Additionally, Alaska and Horizon have two different processes. The team will restructure process and create standards. Estimated savings of $32K. [PRE-WORKSHOP]
Productivity Events	23	10	

	CS-A	Strat Mgmt / Finance	Marketing	QX C/S Airports	SCM	IT	Flight Ops	QX Flight Ops	Labor Relations	CRE	MTX	Legal	Inflight
% of Lean Support	37%	15%	12%	9%	7%	6%	5%	4%	1%	1%	1%	0.9%	0.3%
# of 2012 Events	13	4	7	8	4	5	4	2	1	4	1	1	3
Closed Events	2	2	4	2	0	2	1	0	0	0	0	0	0
YTD Financial Benefit													
# of Certified Staff	9	8	2	0	0	0	1	9	0	2	2	1	1
# in Training Pipeline	1	4	3	5	0	5	0	0	0	0	0	0	0

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Q&A