

# Human Factors – The Mortal Dispatcher

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## Human Factors Definition

### Human Factors

- Multidisciplinary field devoted to optimizing human performance and reducing human error
- It incorporates the methods and principals of the behavioral and social sciences, engineering and physiology
- Is the applied science that studies people working in concert with machines
- Embraces variables that influence individual and team performance
- Recognizes that inadequate system design or inadequate operator training can contribute to human error, which leads to system performance degradation
- States that inadequate design and management of tasks can contribute to group errors, which lead to system performance degradation

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## DRM History

In order to fully appreciate the human factors philosophy, it is necessary to address its origins which are rooted in CRM, crew resource management. CRM traces its roots back to 1979 when NASA psychologist John Lauber coined the term. The concept focused on a need for better crew communication and coordination after several high profile accidents. DRM as we know it today is an adaptation of CRM.

- Flight Crews work with Aircraft and their associated systems
- Dispatchers work with computers and their associated software systems

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## Elements of Human Factors

**P** – People (Mental and Physical)

**E** – Environment (Physical/Socio-technical)

**A** – Actions (Tasks, Objectives)

**R** - Resources

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## The Dirty Dozen

- Pressure (Too Much)
- Stress (Too Much)
- Fatigue (Too Much)
- Distractions (Too Many)
- Lack of situational Awareness
- Lack of resources
- Lack of communication
- Lack of Teamwork
- Lack of assertiveness
- Lack of knowledge
- Complacency (Too Much)
- Norms “the way we do things round here”

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## Dirty Dozen: Causes and Counter-measures

### **PRESSURE**

#### Causes

- Deadlines
- Lack of TIME
- Taking on more tasks
- Personal pressures (Home)
- Line Check
- Doing non work related tasks

#### Counter-measures

- Be Assertive, Say "NO"
- Ask for help
- Work ahead in slow times
- Take a break

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## Pressure

“We have a schedule to keep”



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## Dirty Dozen: Causes and Counter-measures

### **STRESS**

#### Causes

- Dealing with emergency
- Time pressure
- Family relations
- Personal finances
- Illness
- Bereavement

#### Counter-measures

- Breathe and relax
- Get more sleep
- Change diet
- Exercise
- Wellness Programs



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## Stress

“I could have sworn I set my alarm for AM and not PM”



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## Dirty Dozen: Causes and Counter-measures

### **Fatigue**

#### **Causes**

- Long Shifts
- Reduced Sleep
- Circadian rhythm issues

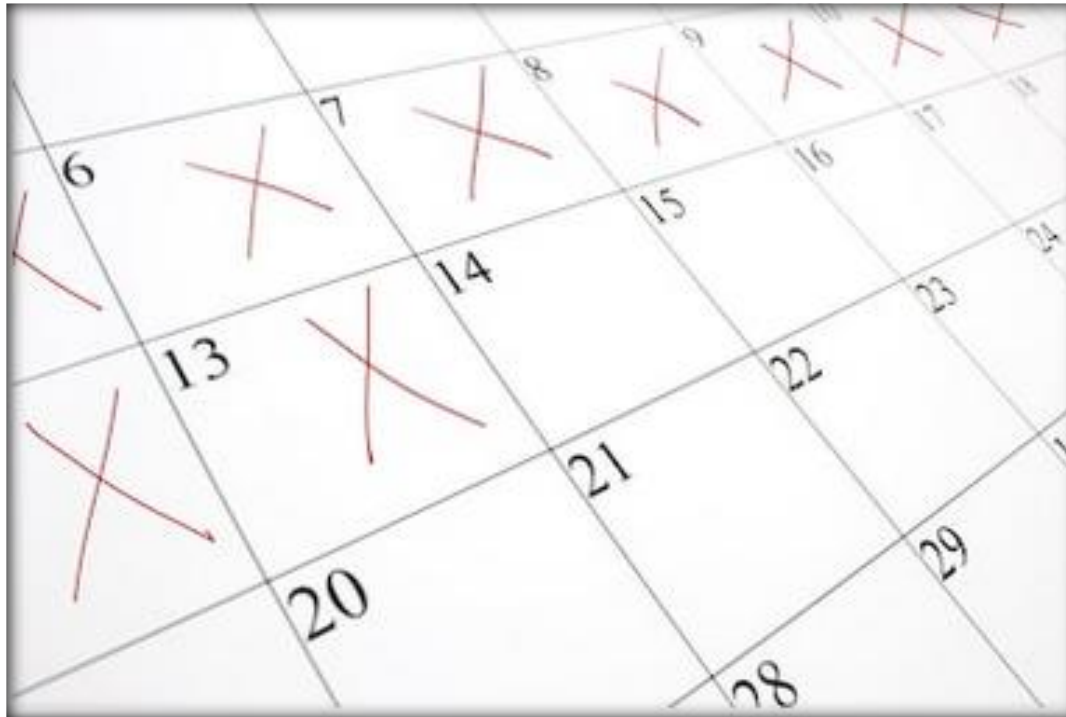
#### **Counter-measures**

- Regular Sleep
- Healthy Diet
- Reduced alcohol consumption
- Exercise

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## Fatigue

“It’s only my 12<sup>th</sup> day in a row”



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## Dirty Dozen: Causes and Counter-measures

### **Distractions**

#### **Causes**

- Loud noises
- Request for assistance
- Doing non work related tasks

#### **Counter-measures**

- Return to the task
- Work back several steps
- Start over if necessary
- Eliminate outside noise
- Stay focused

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## Distractions

### PEDs and Dispatchers



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## Dirty Dozen: Causes and Counter-measures

### Lack of Situational Awareness

#### Causes

- Stress
- Fatigue
- Pressure
- Distractions
- Time constraints
- Complacency
- Lack of attention
- "Tunnel Vision"

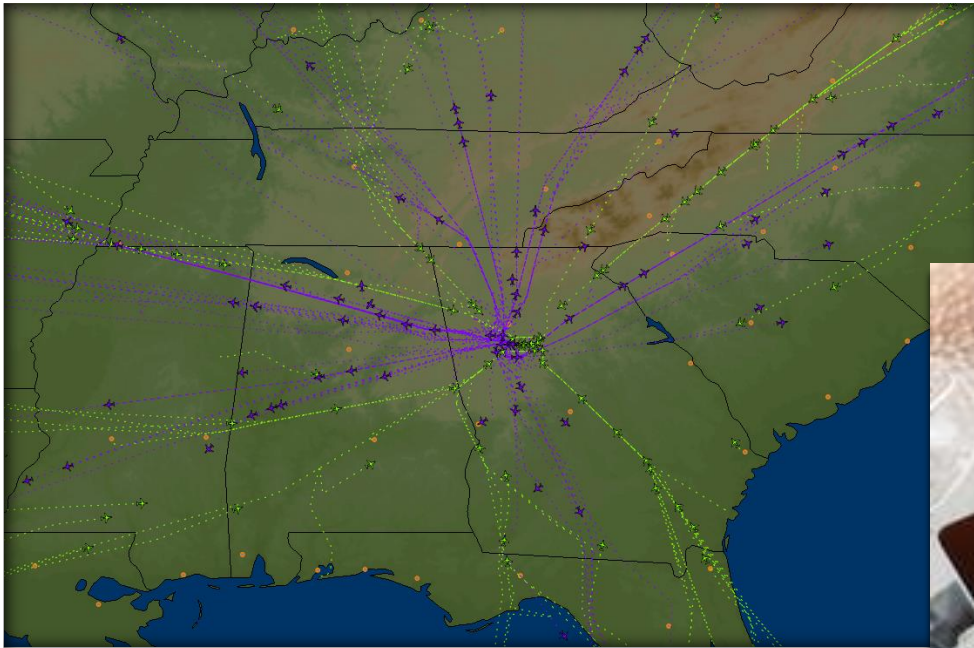
#### Counter-measures

- Develop foresight
- Professionalism
- Asking, "What if?"
- Vigilance
- Scan
- Diligent Monitoring

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## Lack of Situational Awareness

Get the scan down



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## Dirty Dozen: Causes and Counter-measures

### Lack of Resources

#### Causes

- Old Technology
- Insufficient tools
- Insufficient staff
- Insufficient data
- Insufficient knowledge
- Insufficient support

#### Counter-measures

- Adequate Technology
- Sufficient tools, staff, data, knowledge and support



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## Lack of Resources

I don't have to remember everything, I just need to know where to find it



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## Dirty Dozen: Causes and Counter-measures

### Lack of Communication

#### Causes

- Slang
- Too much/not enough information
- Abbreviations (ACARS)

#### Counter-measures

- Write down complex messages
- Keep verbal messages short
- Use proper/professional language
- Check understanding
- Be clear/concise

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## Lack of Communication

“What is our dispatcher trying to tell us?”



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## Dirty Dozen: Causes and Counter-measures

### Lack of Teamwork

#### Causes

- Personalities
- Bias
- Communication
- Poor Leadership
- Poor Motivation

#### Counter-measures

- Ask for help
- Communicate clearly
- Motivate
- Ask questions
- Define roles
- Leadership

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## Lack of Teamwork

Give those problem flights to the junior guy



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## Dirty Dozen: Causes and Counter-measures

### Lack of Assertiveness

#### Causes

- Timid Personality
- Lack of Knowledge
- Confusion
- Lack of confidence
- Poor decision making

#### Counter-measures

- Be Calm
- Be Rational
- Study
- Speak with confidence
- Make sound decisions
- Be sure

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## Lack of Assertiveness

Sure, I can approve that MEL. I **THINK** it will be okay



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## Dirty Dozen: Causes and Counter-measures

### Lack of Knowledge

#### Causes

- Poor Study habits
- Inexperience
- Not staying current
- Not attending training

#### Counter-measures

- Study
- Stay current
- Personal development
- Training



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## Lack of Knowledge

I **THINK** this is correct, but I'm embarrassed to ask someone to help.  
I should know this!



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## Dirty Dozen: Causes and Counter-measures

### Complacency

#### Causes

- Routine operations
- Too easy
- Too relaxed
- Post high intensity
- Too much mental relaxation
- Too little stress
- Boredom

#### Counter-measures

- Maintain some stress
- Look for faults
- Follow written instructions
- Adhere to procedures
- Stay vigilant
- Cross Check

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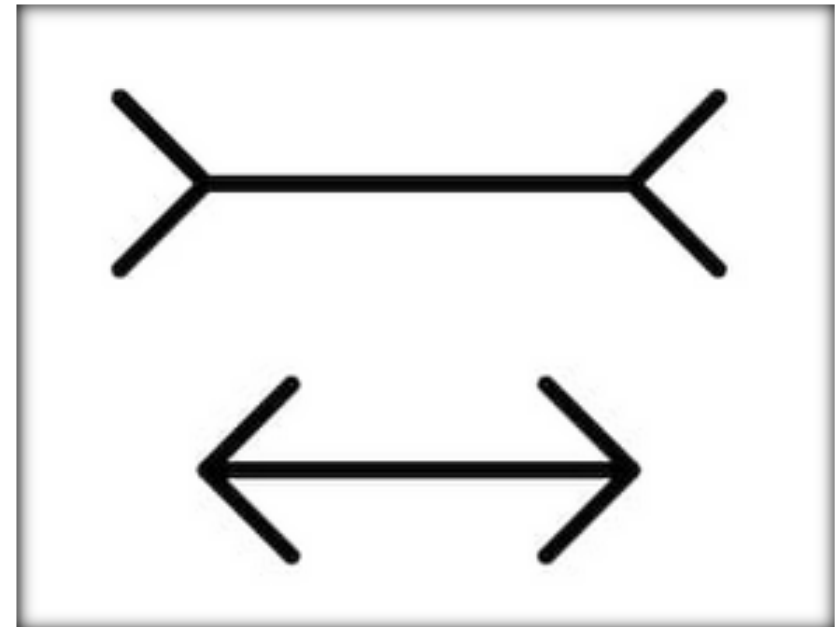
## Complacency

I have read these NOTAMS a thousand times

KLGA LAGUARDIA

Check All KLGA  UnCheck All KLGA

- 09/152 (A3019/18) - AD AP MIGRATORY BIRD ACT INCREASED REP STRIKES IMMEDIATELY TO PORT AUTH OPS 718-533-3700. 27 SEP 16:53 2018 UNTIL 30 NOV 22:00 2018. CREATED: 27 SEP 17:11 2018
- 09/151 (A3017/18) - TWY S ELEVATED GUARD LGT BIN RWY 13/31 AND TWY B OUT OF SERVICE. 27 SEP 15:19 2018 UNTIL 06 OCT 04:00 2018 ESTIMATED. CREATED: 27 SEP 15:19 2018
- 09/150 - AIRSPACE PYROTECHNIC DEMONSTRATION WI AN AREA DEFINED AS 1NM RADIUS OF LGA14302.5 SFC-400FT. 30 SEP 01:30 2018 UNTIL 30 SEP 03:00 2018. CREATED: 27 SEP 13:49 2018
- 09/148 (A3016/18) - TWY E BTN TWY DD AND TWY CC CLSD. 29 SEP 10:00 2018 UNTIL 29 SEP 20:00 2018. CREATED: 27 SEP 11:13 2018
- 09/147 (A3015/18) - TWY DD CLSD. 29 SEP 10:00 2018 UNTIL 29 SEP 20:00 2018. CREATED: 27 SEP 11:12 2018
- 09/146 (A3014/18) - RWY 04/22 NE 2000FT WIP CONST. 29 SEP 04:01 2018 UNTIL 30 SEP 16:00 2018. CREATED: 27 SEP 11:11 2018
- 09/145 (A3013/18) - RWY 04/22 CLSD. 29 SEP 04:01 2018 UNTIL 30 SEP 16:00 2018. CREATED: 27 SEP 11:10 2018
- 09/121 (A2993/18) - TWY D, TWY F WEST OF TWY BB CLSD DLY 1201-2359. 24 SEP 12:01 2018 UNTIL 01 OCT 23:59 2018. CREATED: 23 SEP 17:24 2018
- 09/086 (A2951/18) - TWY G CL LGT BIN TWY A AND TWY B U/S. 17 SEP 07:40 2018 UNTIL 31 DEC 18:00 2018. CREATED: 17 SEP 07:40 2018
- 09/084 (A2949/18) - TWY M CL LGT BIN TWY A AND TWY Z OUT OF SERVICE. 17 SEP 07:24 2018 UNTIL 30 NOV 18:00 2018. CREATED: 17 SEP 07:24 2018
- 09/083 - TWY M SFC PAINTED HLDG PSN SIGNS FOR RWY 13/31 NOT STD. 17 SEP 07:22 2018 UNTIL 30 DEC 18:00 2018. CREATED: 17 SEP 07:22 2018
- 09/082 - TWY V SFC PAINTED HLDG PSN SIGNS FOR RWY 13/31 NOT STD. 17 SEP 07:21 2018 UNTIL 30 DEC 18:00 2018. CREATED: 17 SEP 07:21 2018
- 09/079 - AIRSPACE SEE FDC 8/2048 ZNY 99.7 SECURITY. 18 SEP 12:00 2018 UNTIL 29 SEP 21:00 2018. CREATED: 16 SEP 22:03 2018
- 09/069 (A2934/18) - TWY B CL LGT BIN TWY G AND TWY Z U/S. 14 SEP 05:39 2018 UNTIL 05 NOV 12:00 2018. CREATED: 14 SEP 05:39 2018



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## Dirty Dozen: Causes and Counter-measures

### **Norms**

#### **Causes**

- Unsafe practices
- Unwritten “rules”
- Deviation from procedures
- Peer pressure
- Force of habit
- Culture

#### **Counter-measures**

- Tested rules and procedures
- Develop assertiveness
- Forum for discussing policy change

# Human Factors - The Mortal Dispatcher Norms

I've seen this deferral before. I remember the procedures

NUMBER INSTALLED		NUMBER REQUIRED FOR DISPATCH	
FLIGHT CREW MAY PLACARD		REPAIR CATEGORY	
ITEM NO.	NAME / DESCRIPTION		REMARKS OR EXCEPTIONS
21-23-01A	Lavatory and Galley Extraction Fan A/C 3209-3235		NO RELIEF APPROVED.
21-23-01B	Lavatory and Galley Extraction Fan (ALL A319 and A321 A/C and A/C 3236-3278) "DISP.APPR.REQ'D"	N 1	0 C (M)(O) May be inoperative provided: a) Cabin duct temperatures are available on ECAM, and b) Flight duration is acceptable to the Captain and Dispatcher.

MEL ITEM	TAB LOCATION	PLACARD TEXT
21-23-01A	N/A	N/A
21-23-01B	Adjacent To ECAM Display	LAV & GALLEY EXTRACTION FAN INOP

**(O) PROCEDURES**

21-23-01B

- Two amber crosses replace the cabin zone temperature indications on the COND SD page.
- The INOP SYS column on the STATUS SD page may display the LAV DET message.
- The cabin zone temperature regulation is lost:

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## Summary

Human Factors play an important role in the dispatch profession. Being able to recognize and identify behaviors that can negatively affect safety is key, as is knowing how to counteract those behaviors. The more we learn about ourselves and accept our imperfections, the better equipped we will be to face the challenges of our daily tasks.

## Sources:

- U.S. DOT AC No: 121-32A
- Eurocontrol Human Factors Module
- [faasafety.gov](http://faasafety.gov)
- [faa.gov](http://faa.gov)
- Photos courtesy of [shutterstock.com](http://shutterstock.com)