

# *Helping teams thrive NASA style*



*"I consider myself a 'social ecologist,' concerned with man's **man-made environment** the way the natural ecologist studies the biological environment." – Peter Drucker*

# Why "Team" Social Context is so Potent

What is unique about our species?



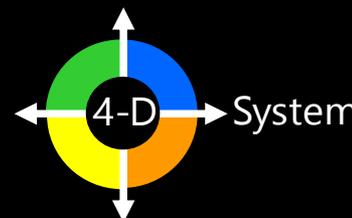
We are "hyper-tribal..."



...relying on our collective mind for our beliefs.



4-D processes measure and manage Social Context **fields!**



That is why 4-D Team development is so potent!

# What is a "Field?"



# Physical Fields and Social Fields

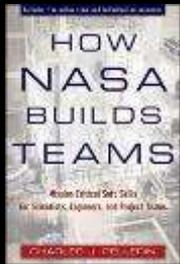
One equation → everything on earth for millennia

$$W = \int_{k < \Lambda} [Dg][DA][D\psi][D\Phi] \exp \left\{ i \int d^4x \sqrt{-g} \left[ \frac{m_p^2}{2} R \right. \right. \\
 \left. \left. - \frac{1}{4} F_{\mu\nu}^a F^{a\mu\nu} + i \bar{\psi}^i \gamma^\mu D_\mu \psi^i + \left( \bar{\psi}_L^i V_{ij} \Phi \psi_R^j + \text{h.c.} \right) - |D_\mu \Phi|^2 - V(\Phi) \right] \right\}$$

quantum mechanics
spacetime
gravity

other forces
matter
Higgs

To measure and manage peoples' behaviors, everywhere



+



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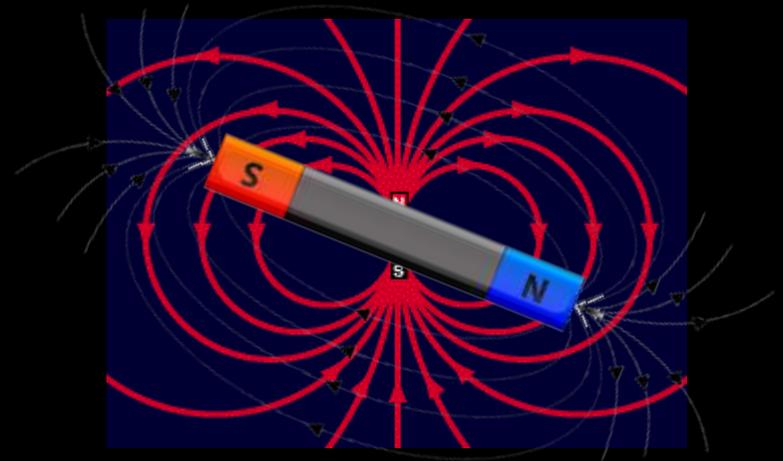
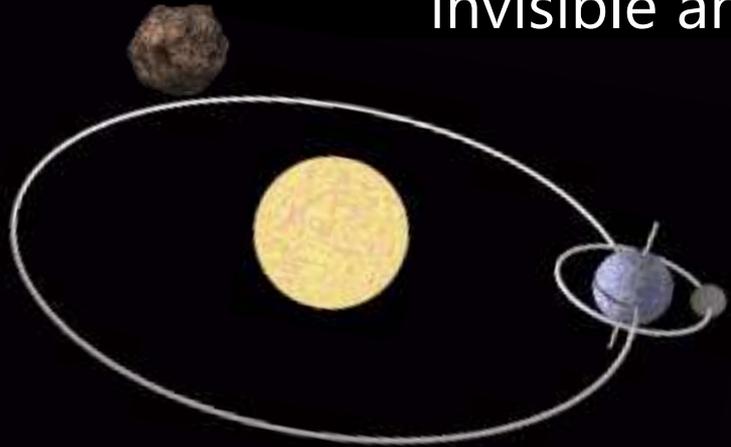
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Social Context Management – Context Shifting	
What's your Situation (problem statement)?	
What's your desired Outcome?	
What emotions do you experience when you think about your situation?	Old Model
What has, linking Story lines have you been "turning"?	
What Crisis, empowering Story lines will replace your feel ones?	New Model
What emotions will you now express?	
Whom do you need to appreciate and for what?	What unpleasant realities must you acknowledge?
What shared "interests" with the other party will you address?	What Outcomes are you committed to, and at what level?
Whom should you include to help you attain your Outcome?	Key Virtues, Resources, Rationalities, or Beliefs you must exert?
What agreements have you broken, and will you process them?	Are essential Rules, Accountability, and Authority clear & communicated?
Summarize actions will you now take and/or requests will you now make? Will these achieve your Outcome?	



# Social Context "*Fields*" (1)

*Social Context 'fields'* are like Mother Nature's, invisible and effective



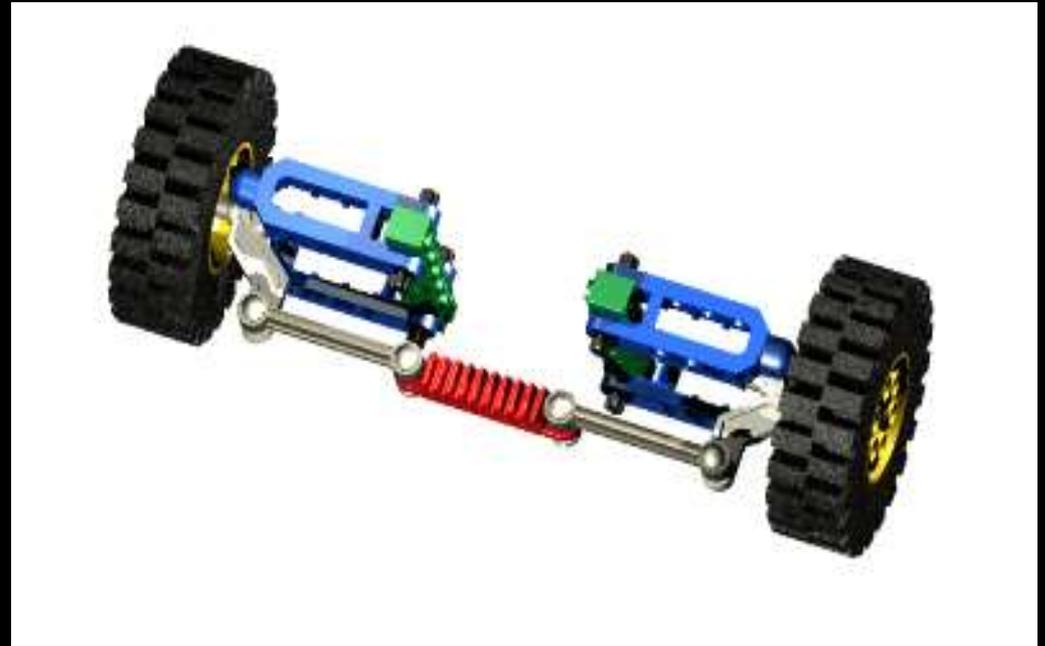
Just as **matter** and **magnetic** materials *both* create and respond to **physical** fields...



Human behaviors *both* create and respond to **Social Context** fields

# Social Context "*Fields*" (2)

Social Context *fields*  
"drive" peoples'  
behaviors



We ignore them...



...at our peril!



# Social Context "*Fields*" (3)

We can (and must) control our Social Context "*fields*"



# "Social Context" Drivers

Team leaders' behaviors



*Individual* Development Assessments/Accelerators

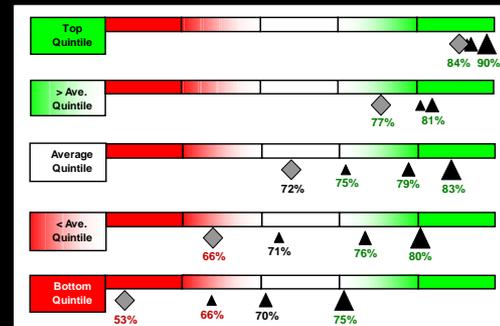


+0.4%  
/session

Team members' behavioral norms



*Team* Development Assessments/Accelerators



+4%  
/cycle

# Unmanaged *Social Contexts* are High Risk



*Challenger's*  
Deadly  
Explosion



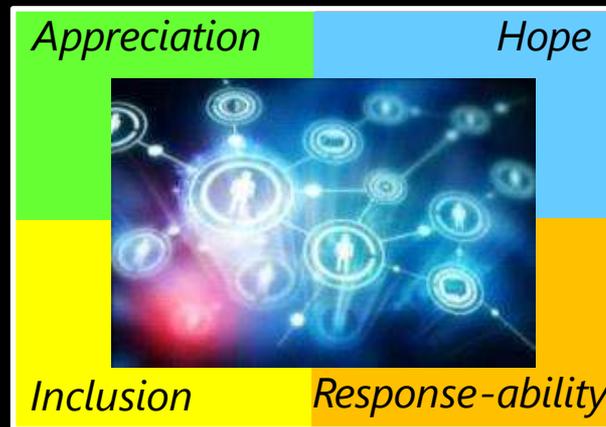
*Hubble's*  
Flawed  
Mirror



*KAL*  
Crashing  
17X norms



Individual's Technical /  
Academic Abilities



*Ignored Social Contexts*



# Challenger!



National Geographic – *Hubble's Cosmic Journey*



**Failing to understand the  
impact of teamwork is  
dangerous**



# ***The Challenger's explosion*** reveals key information

***What was the root-cause?***



***Technical  
error***

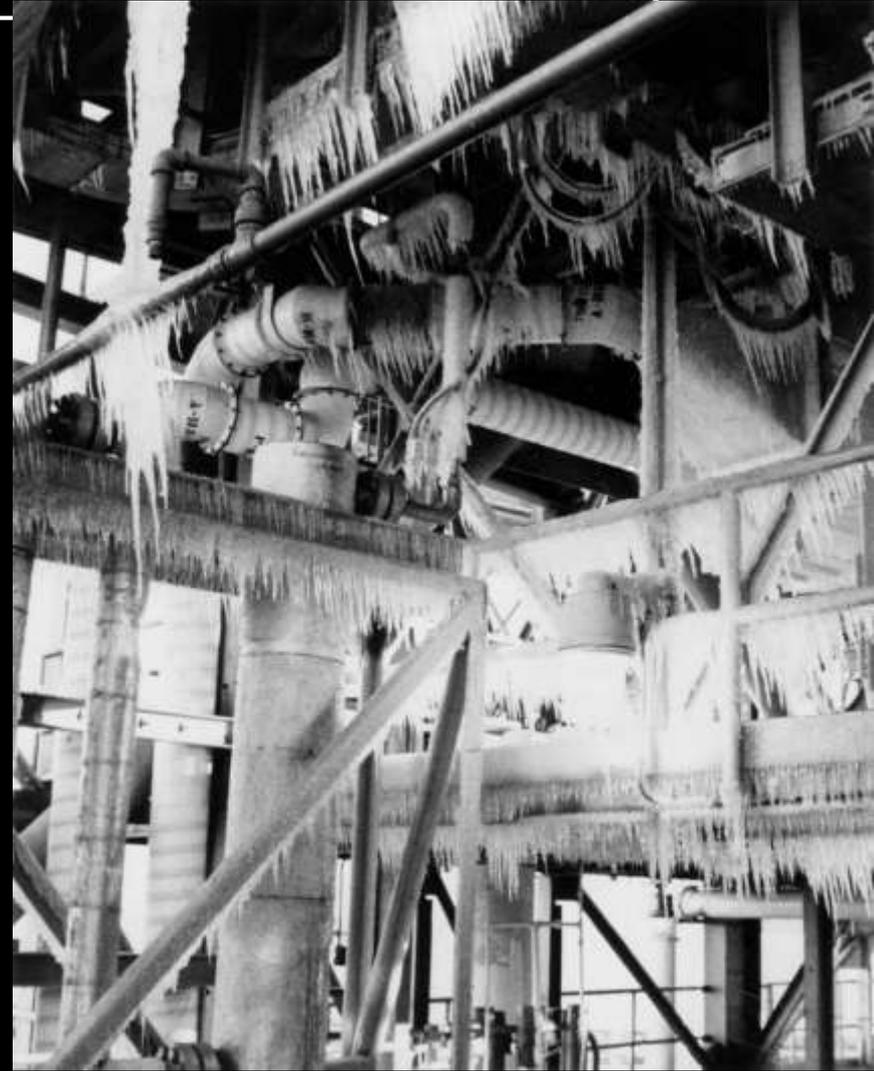


**What's the profile of a  
NASA engineer?**

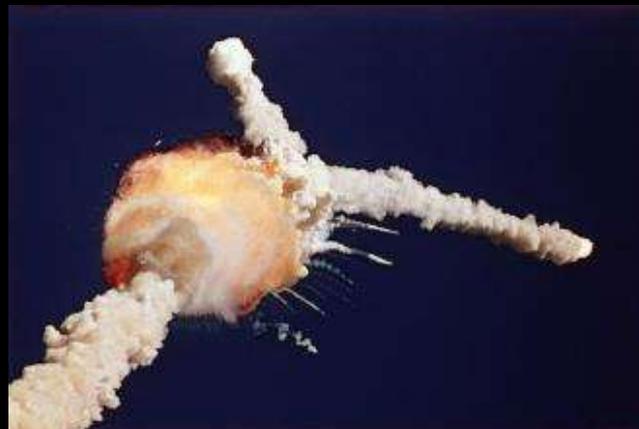
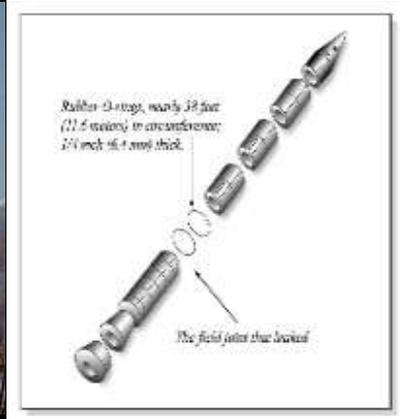
# The learnings from *Challenger*

## **Launch conditions:**

- Place: Florida
- Date: January 28, 1986
- Temp: -1 degree centigrade

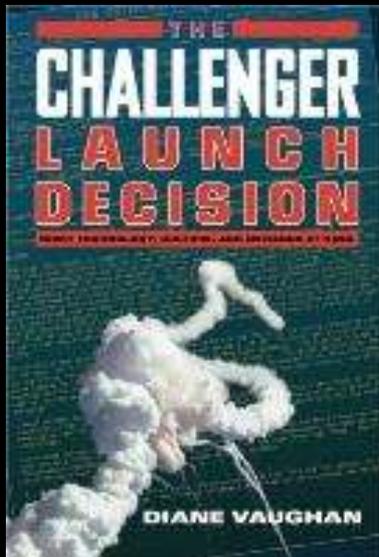


# Teachings from *Challenger*



**7 astronauts  
died**

# *The Challenger's explosion* provides key insights



**Diane Vaughan, Committee Chair:**  
***"Why did they continued to launch when all the information suggested otherwise?"***

# *The Challenger's explosion* provides key insights

## **Reality:**

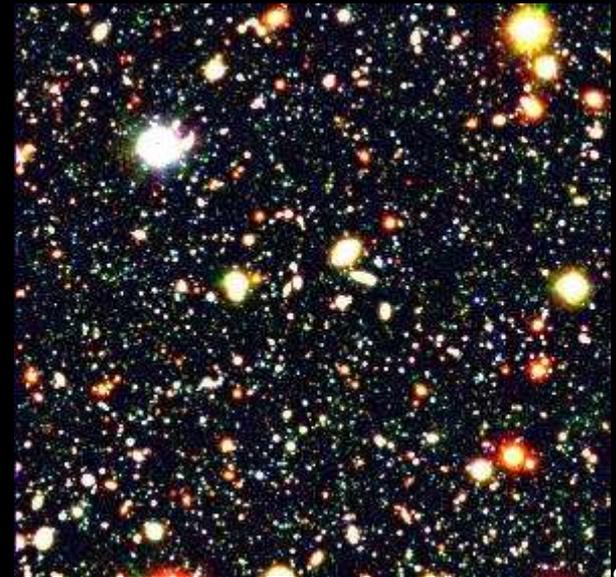
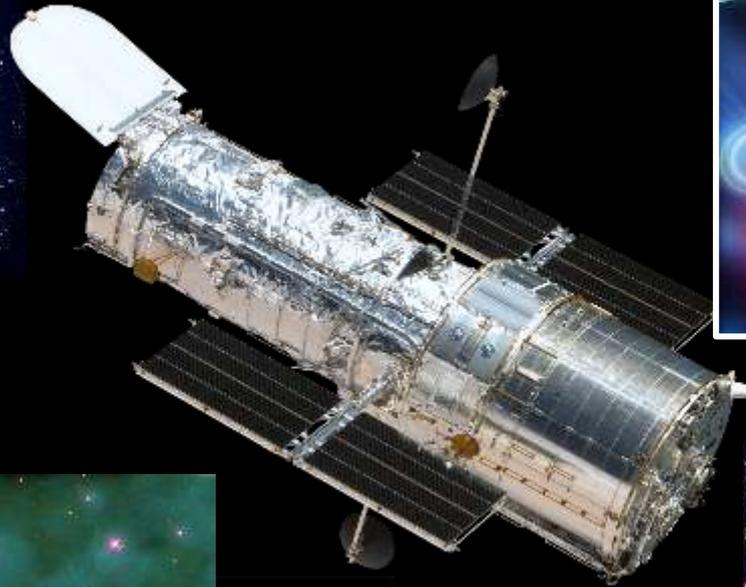
Only launch system for  
satellites (military, science,  
comercial) every delay costs  
millions

***Social context:***  
**Pressure to launch**



***Behavior:*** *"Normalization of deviance"*  
More technical arguments are needed  
each time to delay a launch, they  
became permissive

# *Hubble* Reveals Human Dynamics



# "Messier 100"

Hubble



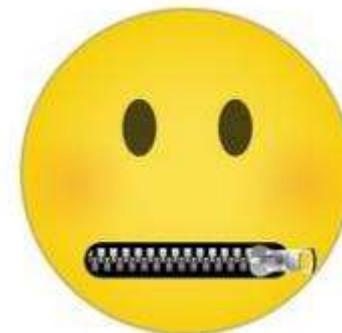
Ground Based



The author of this method was responsible for (arguably) the biggest screw-up in the history of science

# *Hubble* Reveals Human Dynamics

*Hubble's  
Flawed  
Mirror* –  
Useless \$2B  
Telescope



*Behavior: First rationalized suspicious test results, then withheld them*  
*Fifth Force: Unrelenting hostility toward the contractors' management; Blaming for multiple (\$400M) Overruns*

Failure Review Board: The root cause was a "*leadership failure*"

Take-away: With 4-D processes, a modest effort in *Social context management* would have prevented this disaster.

# Hundreds of Avoidable Fatalities

Korean Air Lines Crashing at 17X international norms, *for four years!*



Finally, Boeing placed observers in KAL's cockpits



***Fifth Force* management:** Only English in cockpit & Interpersonal training ("Crew Resource Management")

# Hundreds of Avoidable Fatalities

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Finally, Boeing placed observers in KAL's cockpits

*Behavior: First Officers ignored Captain's errors, "tuned-out;"  
Fifth Force: Korean Confucianism in the cockpits*

*They knew that safe flight requires two pilots, working as a team, constantly cross-checking each others' actions*

*Social Context Management: Only English in cockpit & Interpersonal training ("Crew Resource Management")*

# Social Contexts ↔ Behaviors

Would you **modify** your **behaviors** in each of these contexts:

Giving /  
receiving a  
marriage  
proposal?



Fiancé's  
family  
dinner?



Bachelor /  
bachelorette  
party?

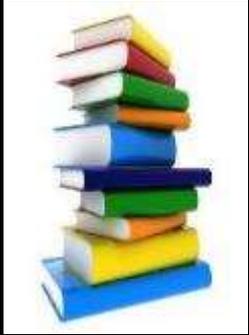


Hijacked on  
your  
honeymoon?





# "Analyzing" Invisible Fields

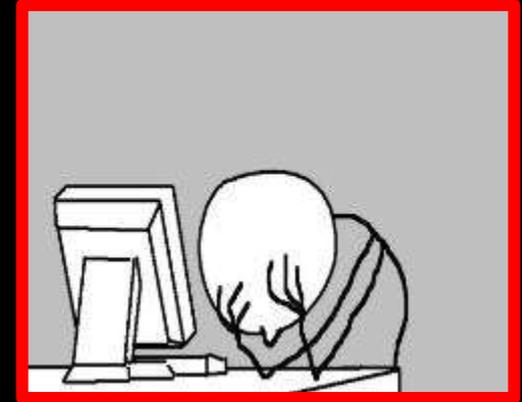


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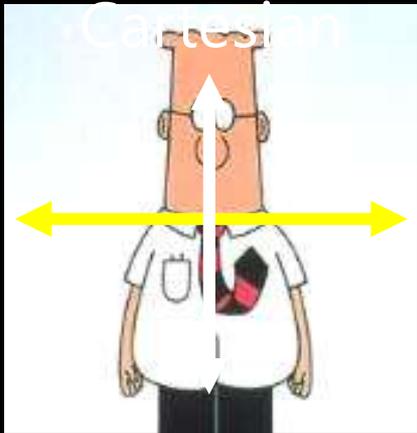
Anecdotes  
about  
business  
successes

&

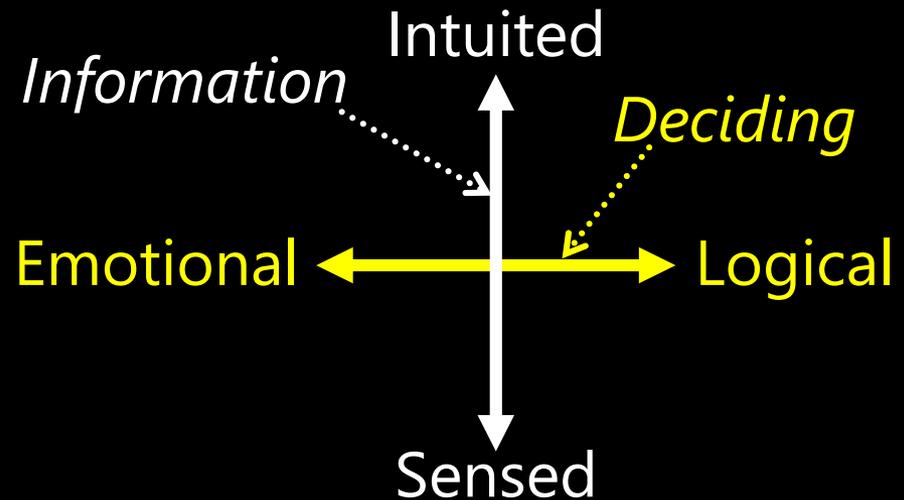
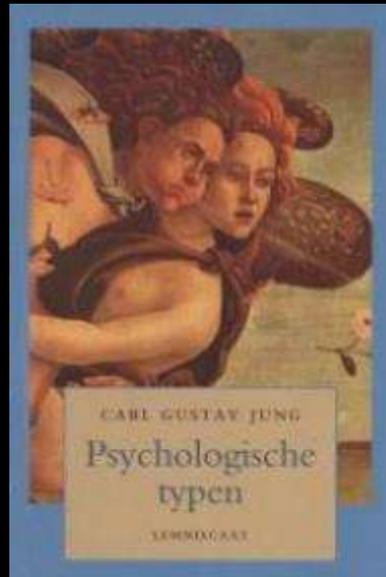
Lists of  
"n" things  
one must  
do



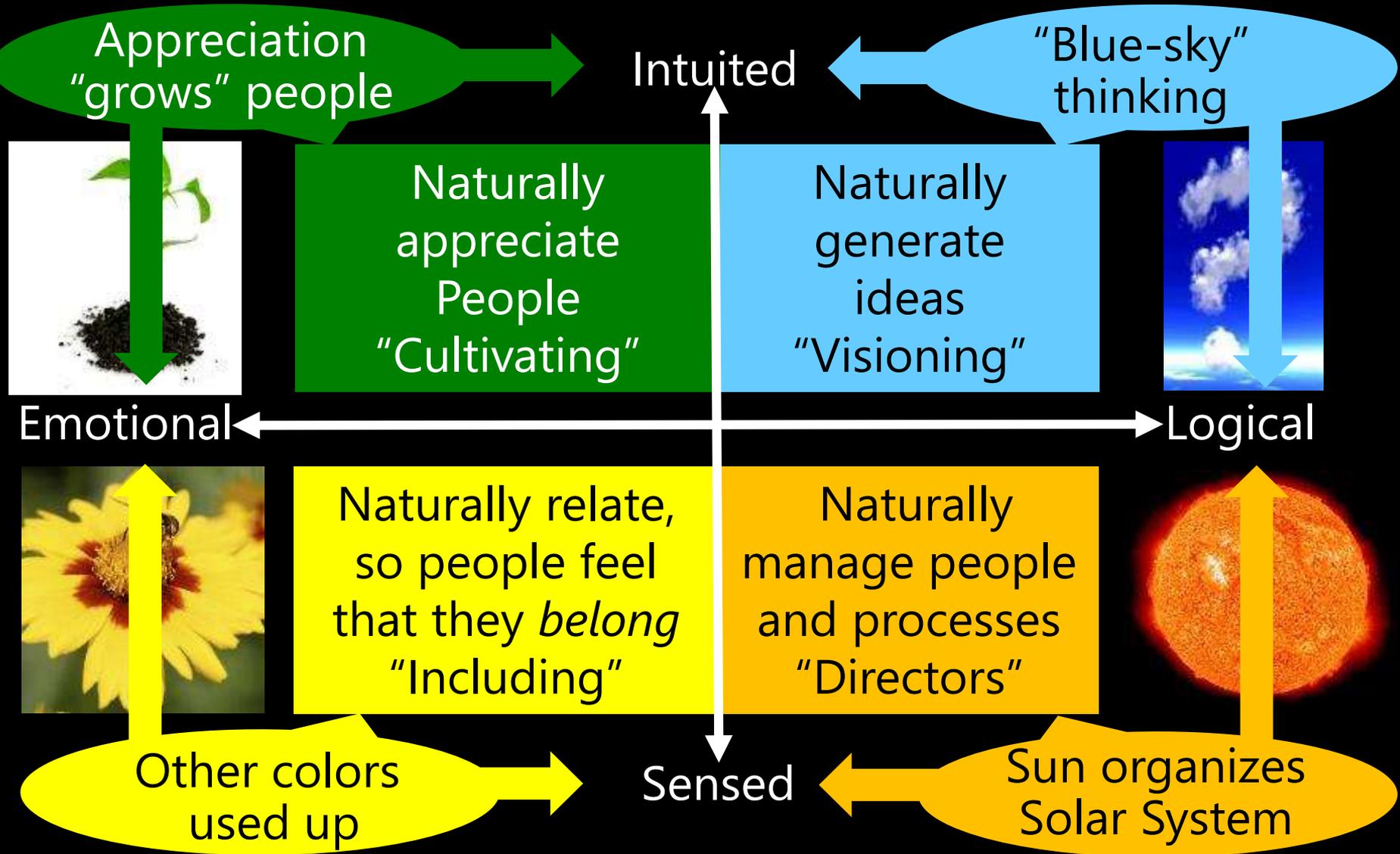
Dilbert



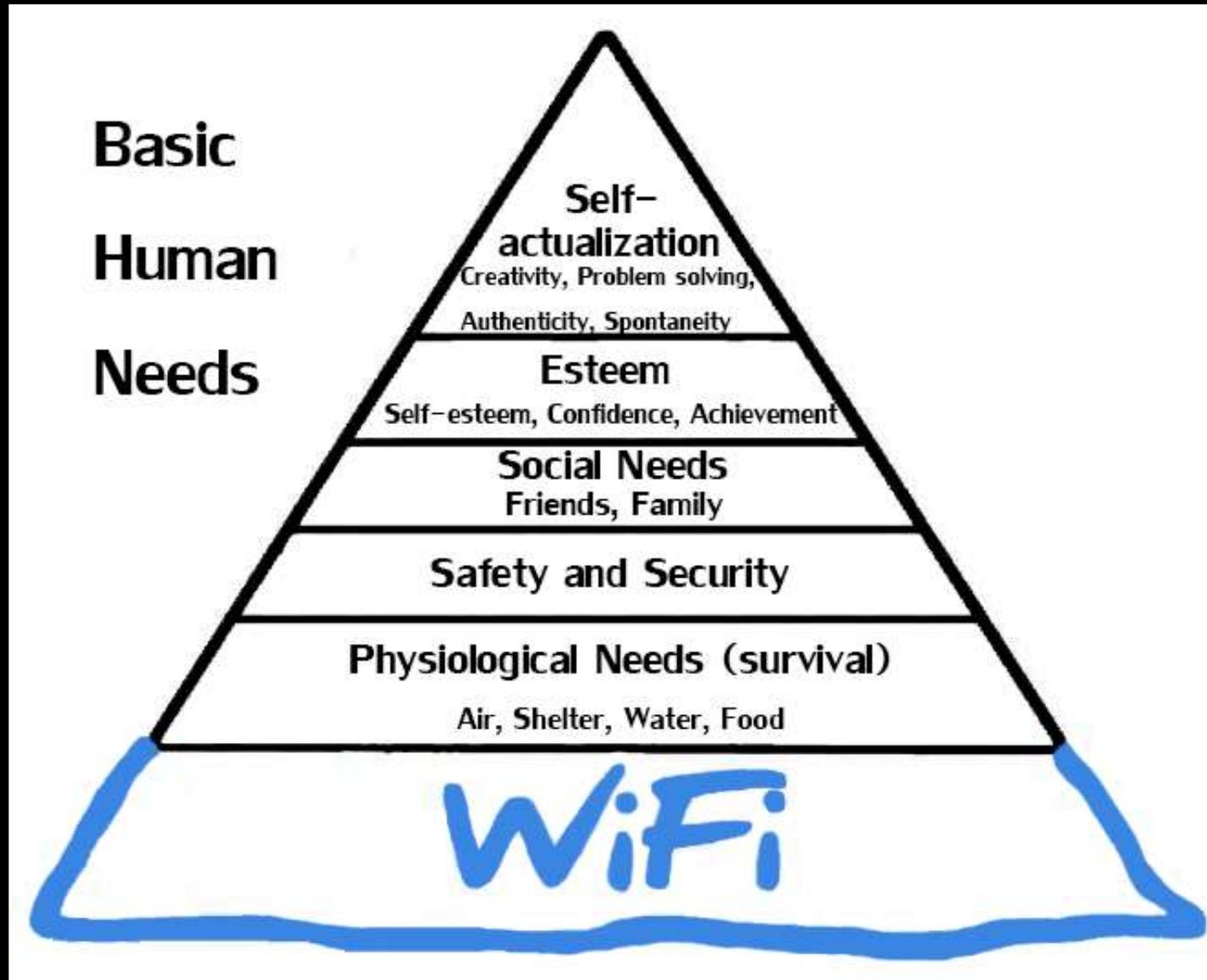
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# Jung's "Types" Name the "Dimensions"



# Maslow's Needs Hierarchy - Updated



# Peoples "Base Needs"



Physiological Needs:  
Air, water, sleep, food

# Peoples "Base Needs"

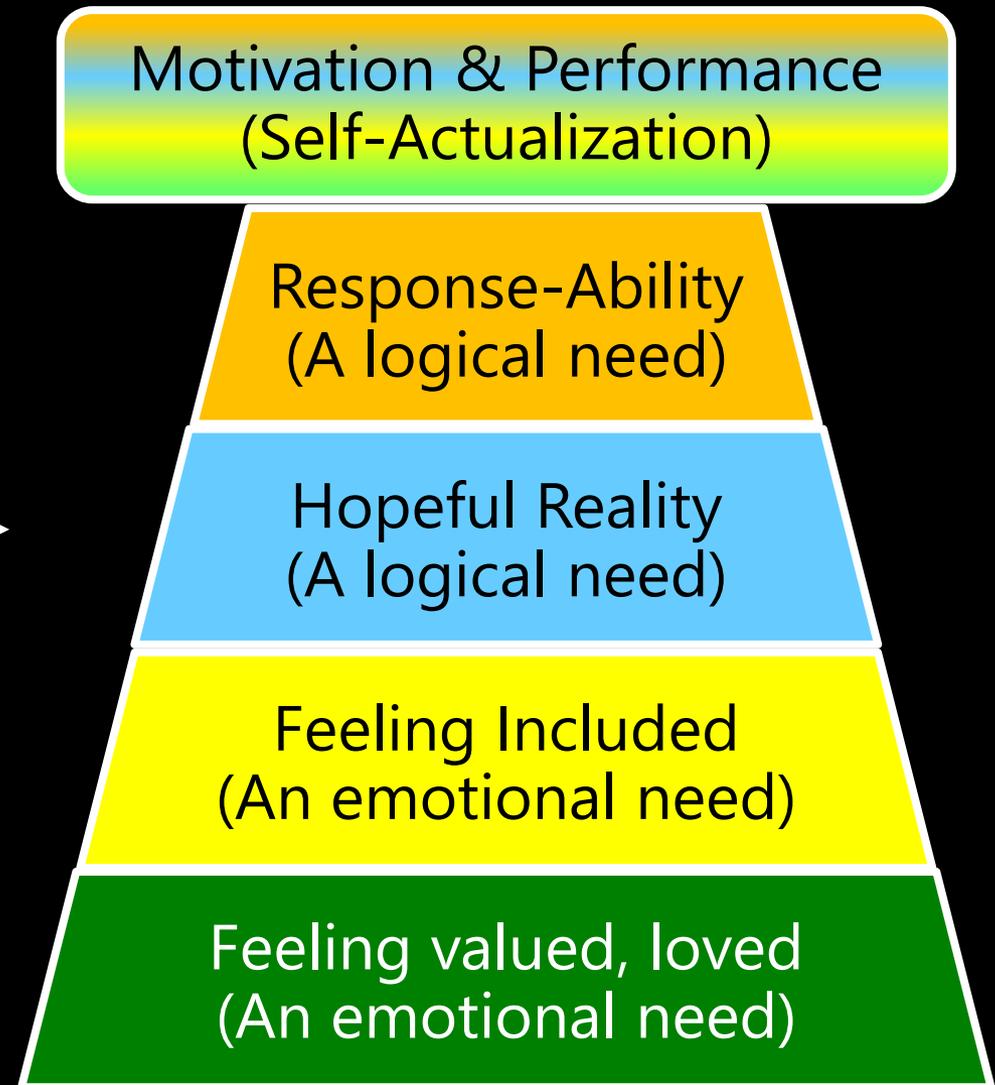


Feeling safe,  
An emotional need

Physiological Needs:  
Air, water, sleep, food

# 4 "Dimensions" ≡ Universal Human Needs

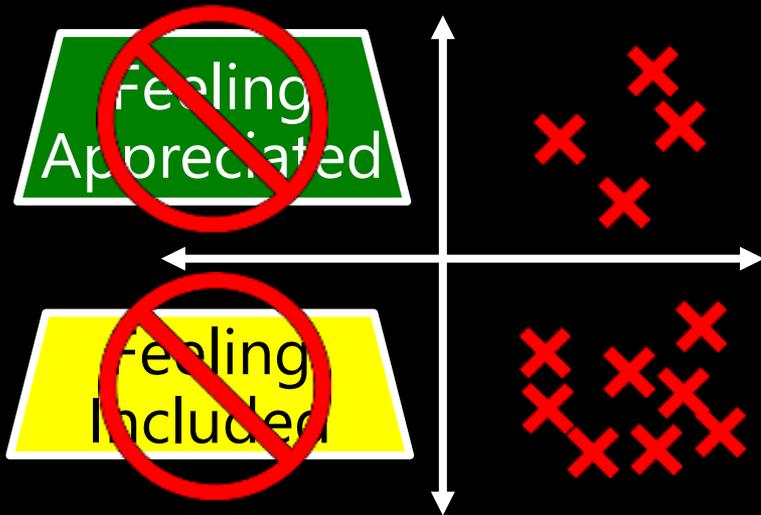
## The Four "Dimensions"



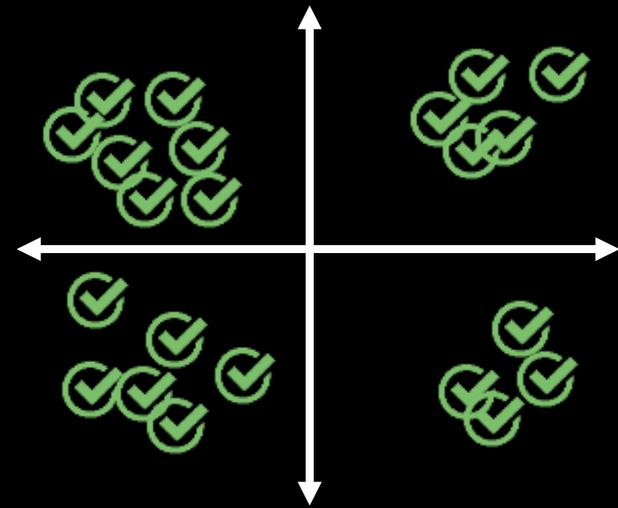
# Exploring Successes & Failures

**Failures:** e.g. Challenger, Hubble, Tokyo Subway Crash, 747 crash at Tenerife and more

**Successes:** e.g. Gamma Ray Observatory, Gallup Meta-survey, STEREO and more

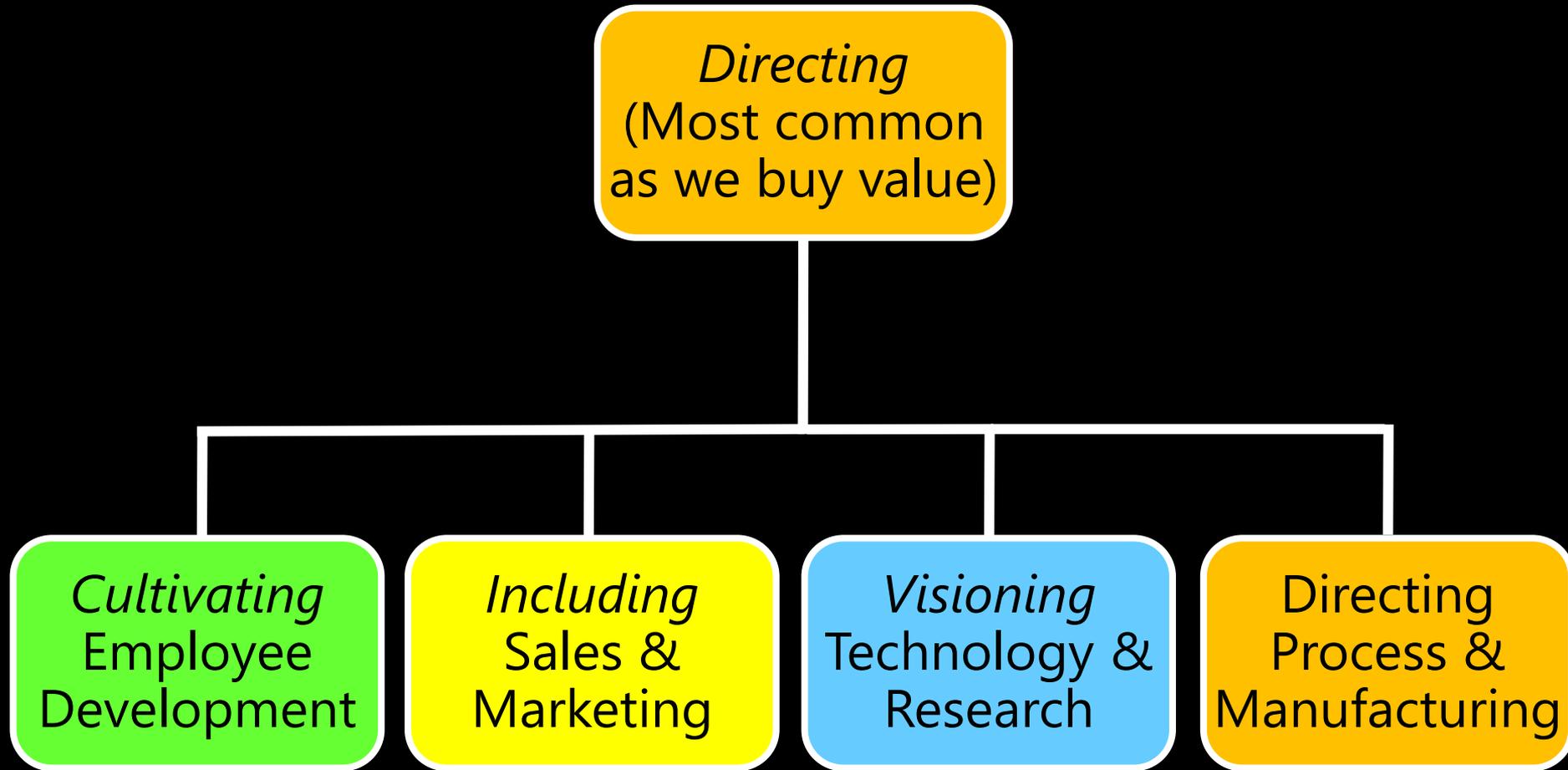


Vacant Dimensions,  
particularly personal-side



All Dimensions filled,  
More on personal-side

# 4 "Dimensions" $\equiv$ Core Business Functions



# Use Behaviors to Get Desired Context

Mutual Respect w/Open Communications



Express Authentic Appreciation



High Creativity



Address Unfortunate Realities

Stuck in "S" (Situation) <i>Move your Attention to Outcome</i>	
Your "Red" Story-lines and Emotions (Mindset) Your "Green" Story-lines and Emotions (Mindset)	
- Must Express?	
Authentic Appreciation - Opens Communications	Reality + Optimism - Creative Outcome
Shared Interests - Stimulates Collaboration	100% Commitment - Solutions appear
Thorough Inclusion - Builds Support & Avoids Anger	Absence of Drama - Sustains Response-ability
Kept Agreements - Sustains Trustworthiness	Clear RAAs - Efficient Action
Now, take action/make requests to <i>Realize your desired Outcome!</i>	

Authenticity and Efficiency, Absent Anger



Appropriately Include Others



Response-able Actions



Avoid Drama States



# Dan Pink – Extrinsic vs. Intrinsic Motivators



Once a job requires thinking (cognition), extrinsic motivators not only don't work, but are often harmful.

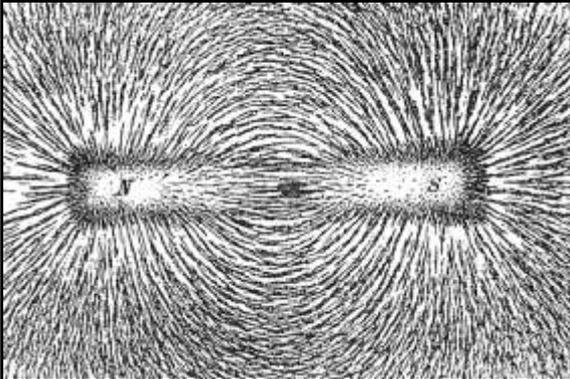


In contrast, intrinsic motivators work!



# Making Invisible Force Fields Visible

How might you *observe* invisible magnetic fields?



*Observe iron tracer particles*

How might you *observe* invisible Social Contexts?



*Observe peoples' behaviors*

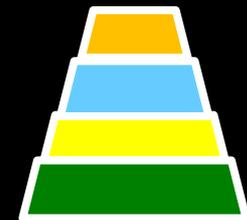
How would you select the behaviors?  
Pick behaviors that address deep needs!

Feel Appreciated

Have Hope

Feel Included

Responsibility



# The 4-D Development Process (1)

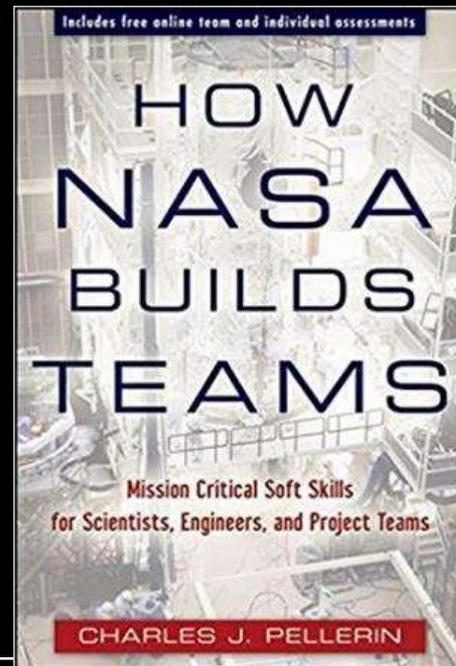
"4-D Ready"  
Team

5 to 20 people with a  
single supervisor  
(do not combine teams)

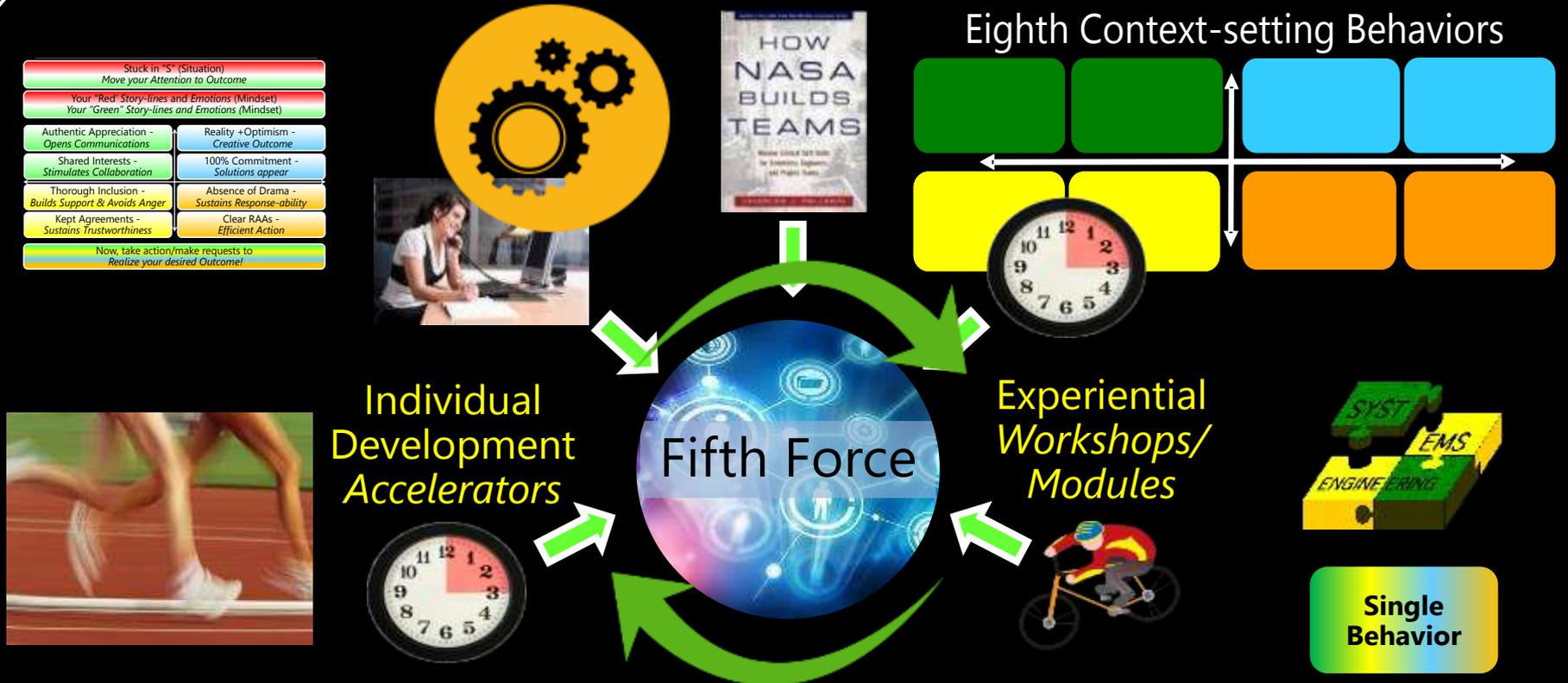


Team Development  
Assessment/  
Accelerator (TDA)

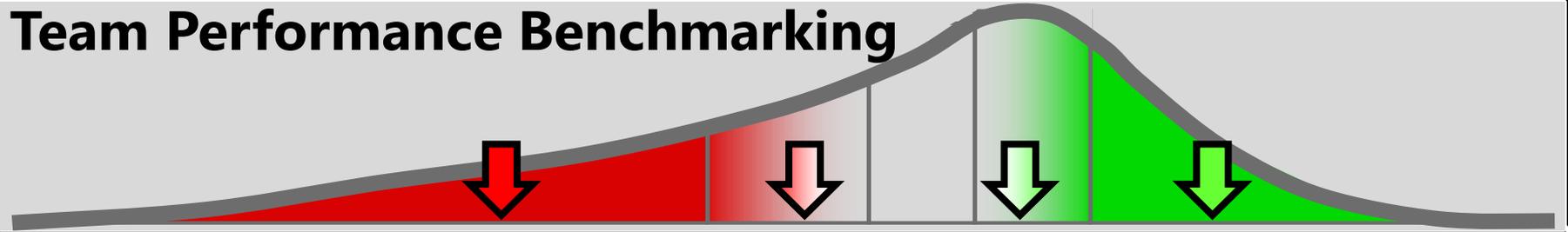
Enhance, benchmark,  
and track performance



# The 4-D *Fifth Force* Management System

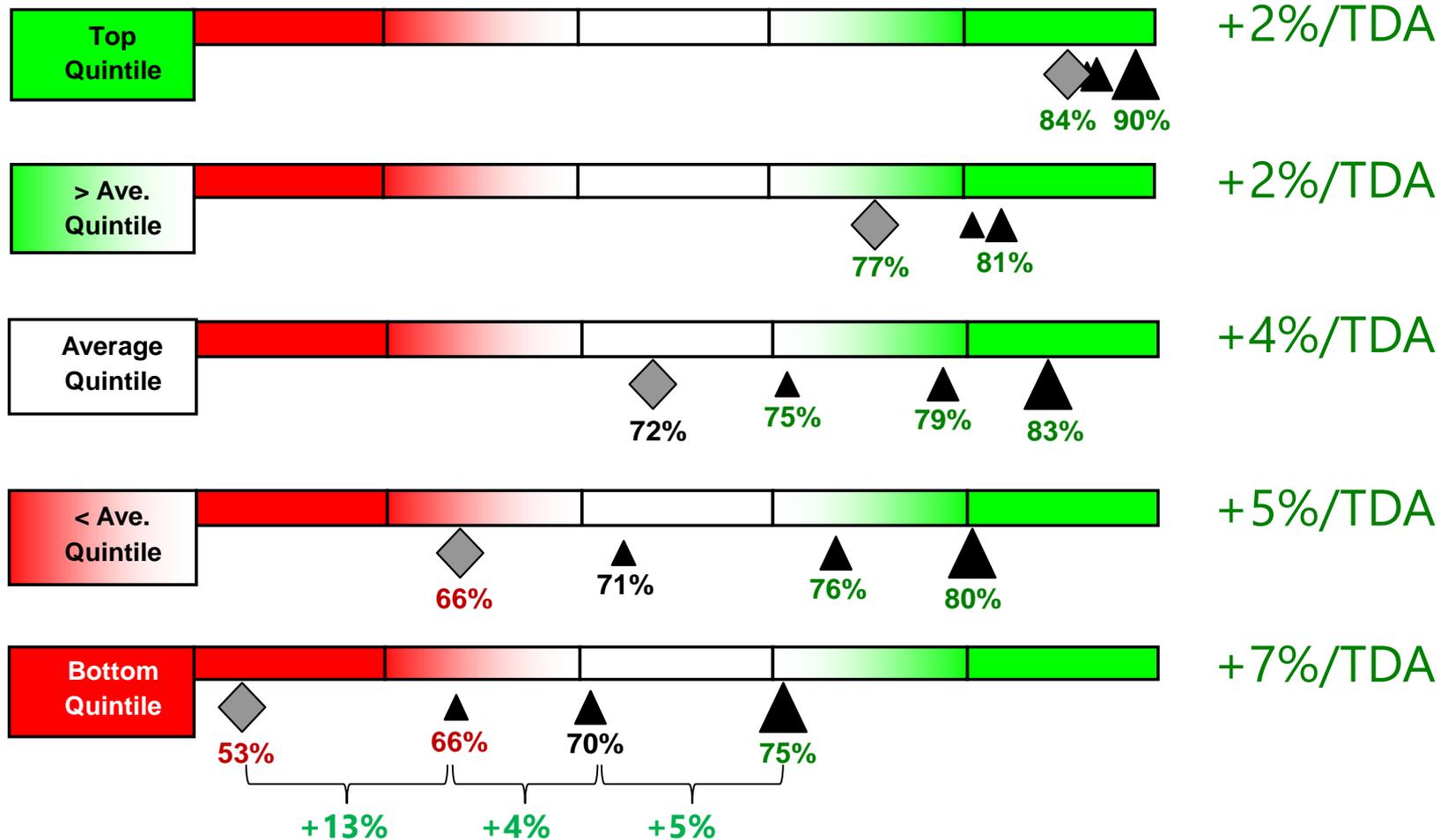


## Team Performance Benchmarking



# TDA's *Drive* Performance Enhancement

During 2000 to 2008, 198 teams used multiple TDAs  
Incredibly, their performance increased ~4% per TDA cycle!



# When Teams Go "Red" to "Green"



Incessant  
Criticism



Blind  
Optimism



Appreciation,  
Openness



Reality-based  
Optimism



Isolation,  
Anger



Victims,  
Blamers



Effective  
Inclusion



Response-  
ability

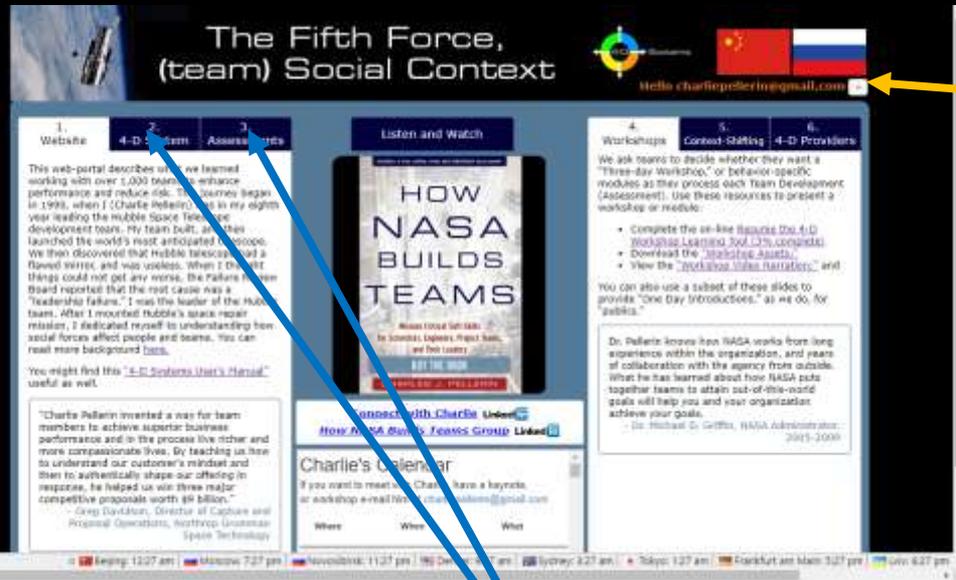
# Use On-line Assets

www.4-dsystems.com

Log in

Get a "Dashboard"

Run an IDA (and re-IDAs)  
Yourself & ~10 others  
Run an TDA (and re-TDAs)  
Work-teams, family, school



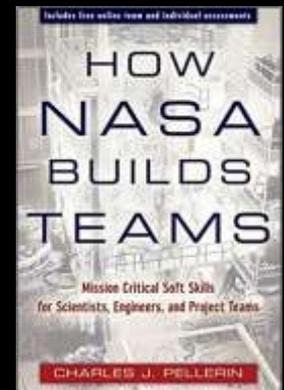
Download assets, e.g. slides, "learning tools"

Contact me!

[charliepellerin@gmail.com](mailto:charliepellerin@gmail.com) for e.g.  
Questions, Access to Dropbox  
Shared Folder, (weekly) Newsletter

Connect with me on

Linked



# Closure



*Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has.*

– Margaret Mead, Anthropologist



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