



The Psychology of Risk Perception & Decision-making in Healthcare:

How people respond to risk and implications for Risk Communication, Learning & Management

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**Singapore Healthcare ERM
Congress 2021**
SINGAPORE, 3rd August 2021

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ARiMI is an applied research and business studies body that was set up in 2003 and is the Institute of Reference for **Governance, Risk & Sustainability Management studies** in Singapore and around the region.



ARiMI Chief Risk Strategist & Master Coach



Marc Ronez

Business Strategist, Risk Management,
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Expert

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ARiMI - Asia Risk Management Institute

Education

MBA from the University of Chicago Booth, MSc in
Insurance and LLM from the University of La Sorbonne,
Master Degree in Advance Business Research from
UniSA – University of South Australia

**A recognized expert
with more than 20 years
of experience
both as a practitioner &
trainer
for MNCs, Governments
& Charities.**

Areas of expertise include ERM, risk decision-making processes, corporate governance, business ethics, social responsibility, risk-aware culture, risk communication and crisis management, business model / strategy risk management, corporate learning systems development.

Are people **objective** and **rational**
when making decisions about risk issues?

Are people **objective** and **rational** when making decisions about risk issues?



Questions that have ONE correct answer



What is the molecular composition of **paracetamol**?

Questions that have **NO** single obvious correct answer

- Does graphic violence in video games and TV contribute to violence in the community?
- Does a male doctor know more about childbirth than a mother of 4 children?
- What are the service quality level factors that make patients happy?
- What are the qualities of a good nurse or doctor?
- What is the right treatment for a cancer patient?
- Should children under the age of 12 years old be vaccinated against COVID-19?
- How do we plan and prepare for pandemics?

Blindness to Risk – Pandemics: COVID -19



Psychology of Risk Taking & Management

AGENDA

01



Perception of Risk: What is it about?

02



Our Minds are Data
Measuring Instruments

03



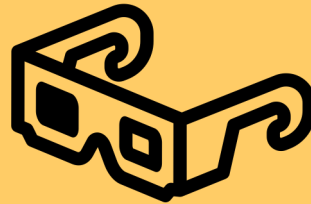
Biases and Noise in Human
Decision-Making

04



How to improve Judgment
& Risk Decision-Making?

1 – Perception of Risk: What is it about?

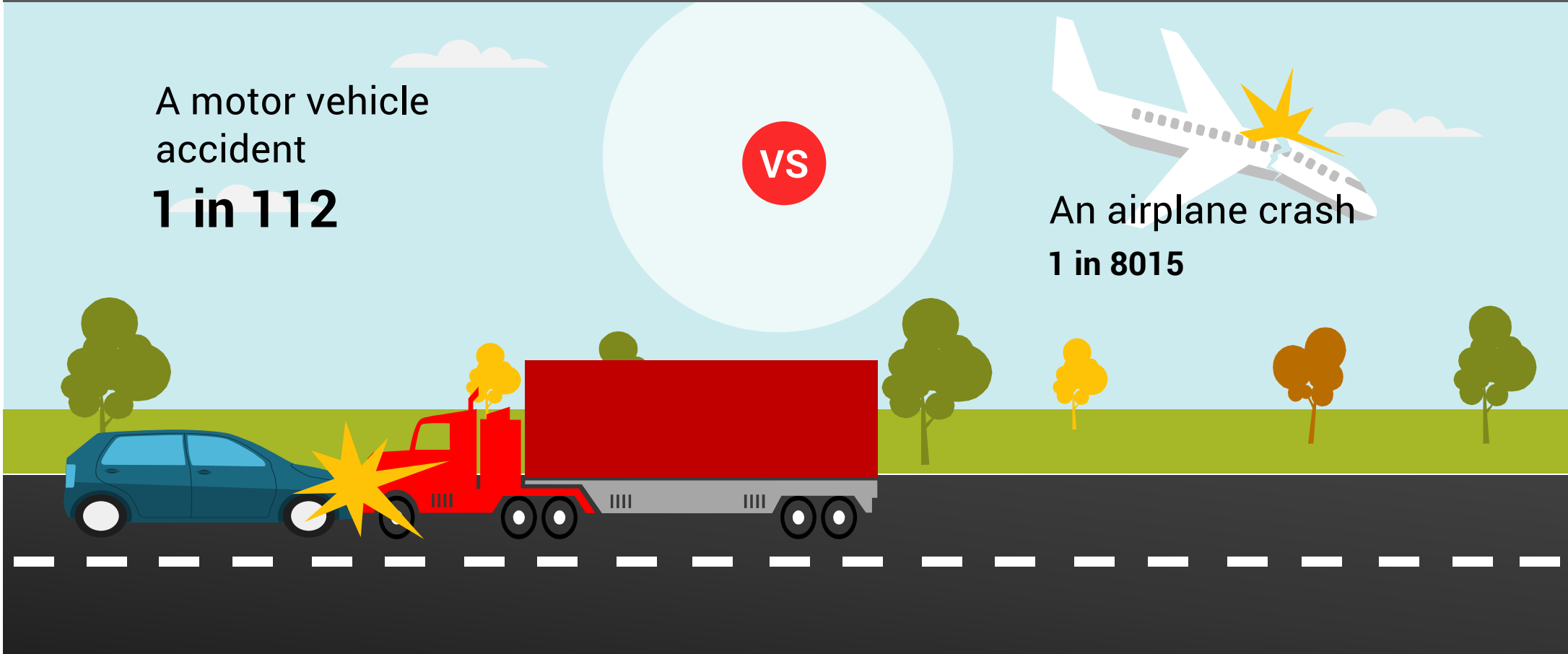



Perception GAP: What are the ODDS of dying in...

A motor vehicle
accident
1 in 112

VS

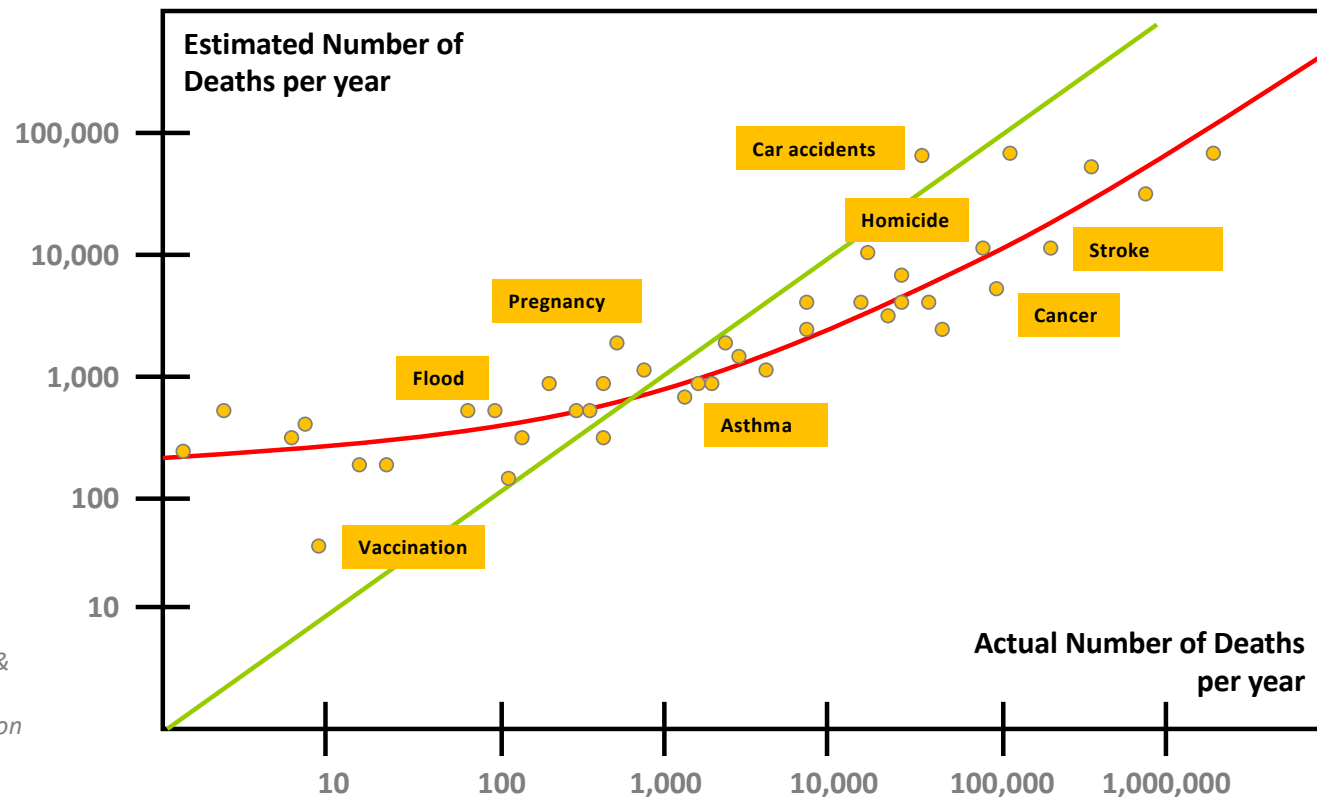
An airplane crash
1 in 8015





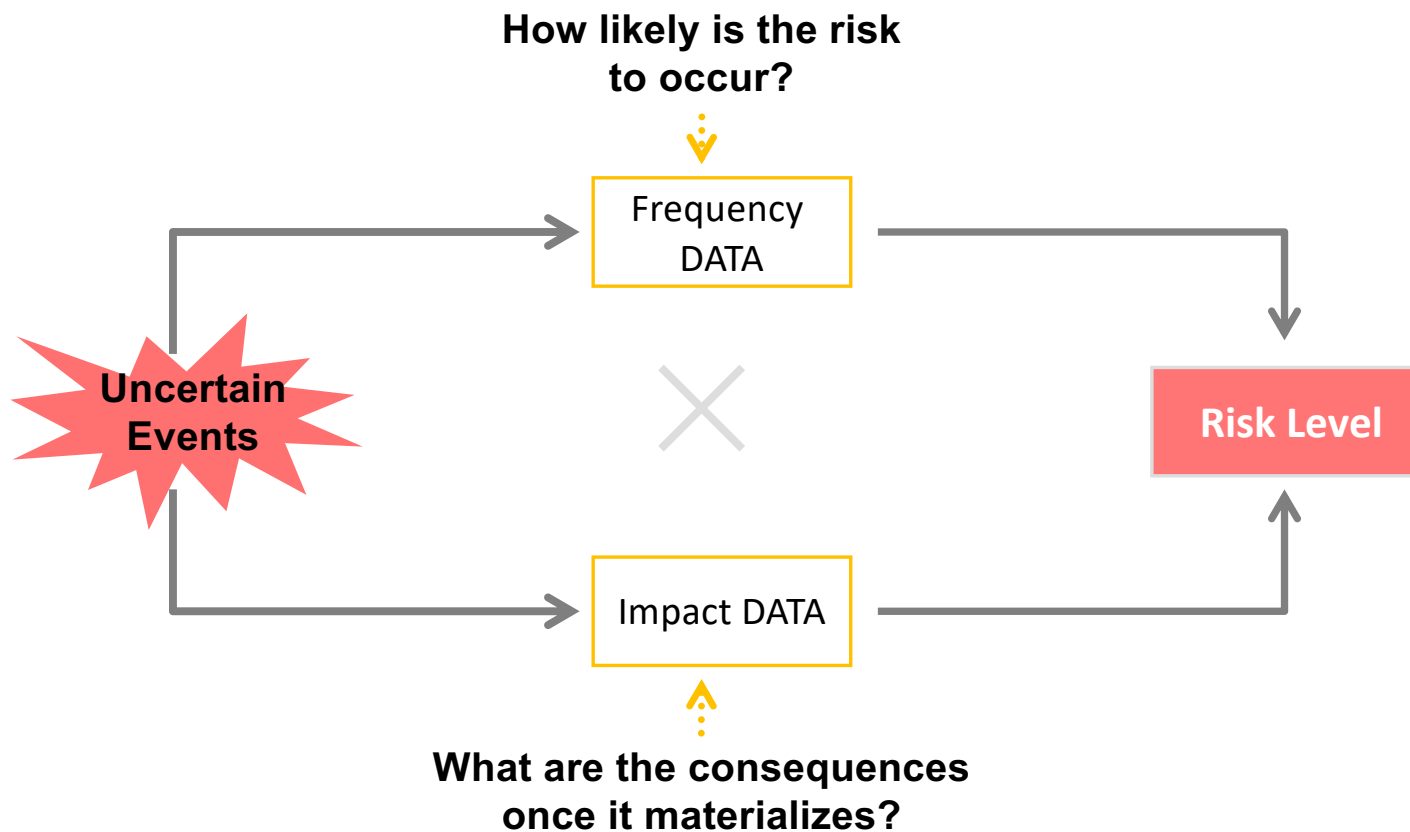
Between 33% and 40% of all people experience some form of anxiety when it comes to flying!

Perception vs Reality of a Risk – the GAP in Average Answers

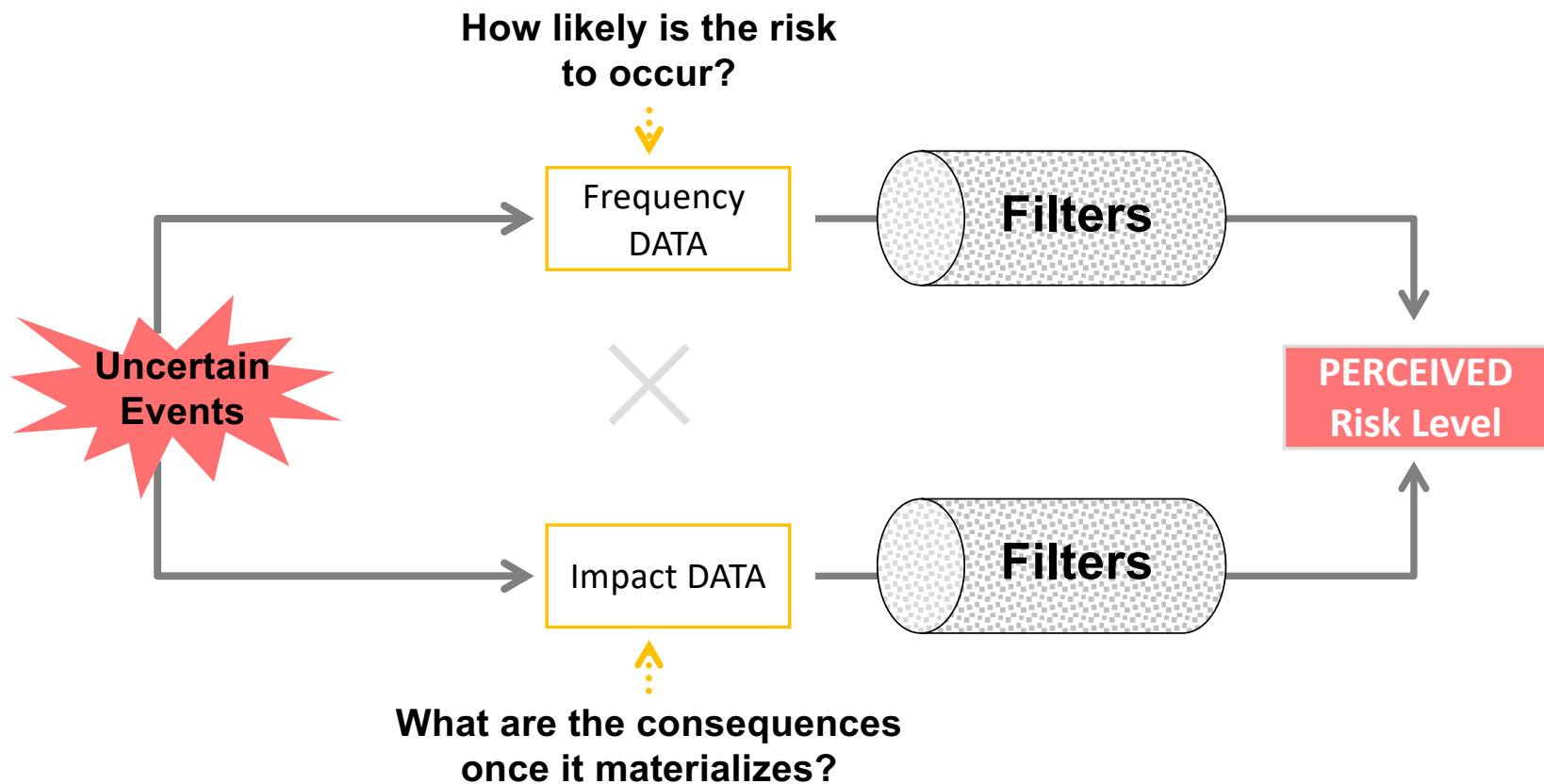


Adapted from Kahneman D & Tversky A (1979). *Prospect Theory: An analysis of decision under risk*, *Econometrica*

The Risk Dimensions considered for Risk Assessment



The PERCEPTION FILTERS that also need to be considered



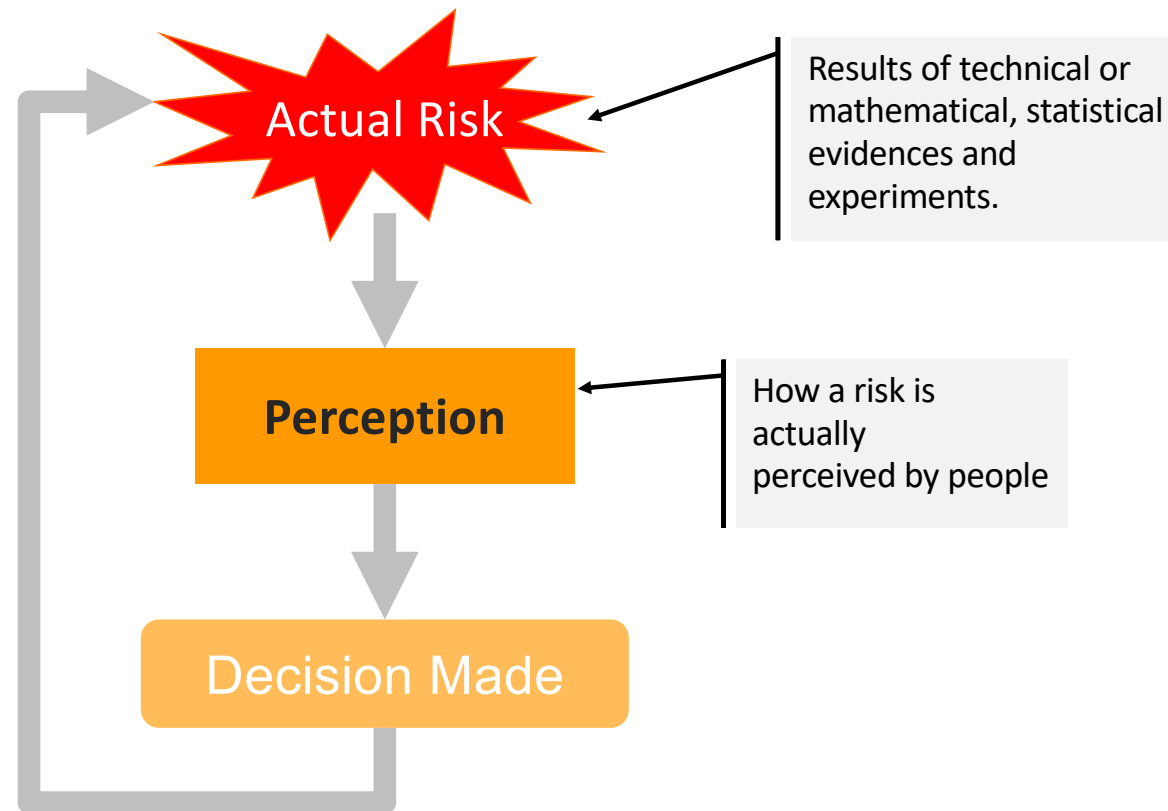
Perception of Risk: What is it?

Perception of Risk refers..

to the **subjective assessments** that people make about the characteristics, severity and probability of risk issues and their possible outcomes.

Risk perceptions introduce **variations from the real risks** as they are affected by a wide range of personal and contextual factors.

Relationship between ACTUAL & PERCEIVED risk



Perception is Reality

from an individual's perspective ...

There is a GAP between the Perception & the Reality of a Risk

**Insufficient
Risk Taking**



Underestimating Risk - Blindness to Risk




Why do people smoke while knowing the dangers of it?

Kill a Cigarette and Save a Life. Yours.

Overestimating Risk – Iceberg Fallacy

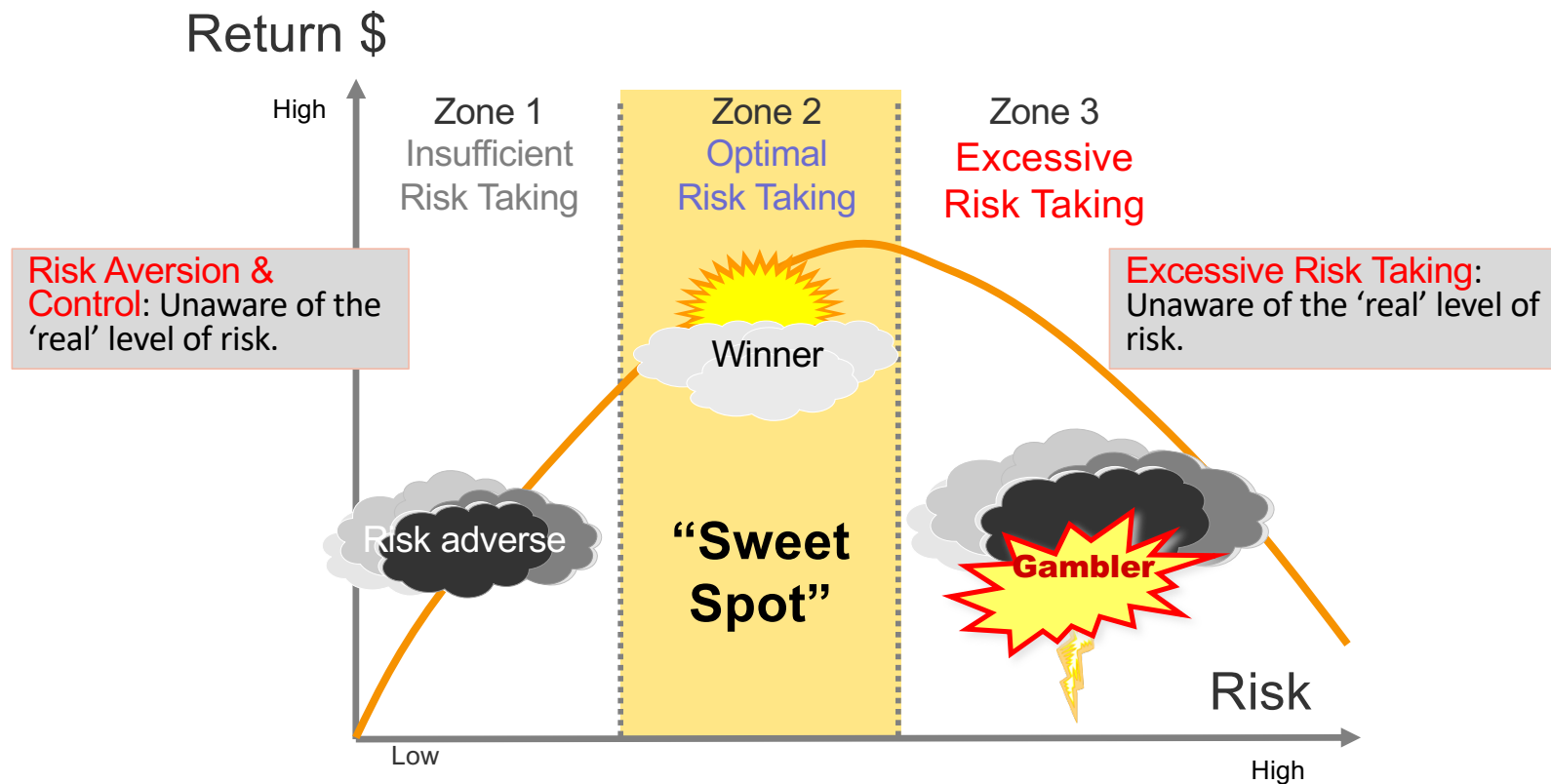


Are some people overestimating the risks associated with vaccination?

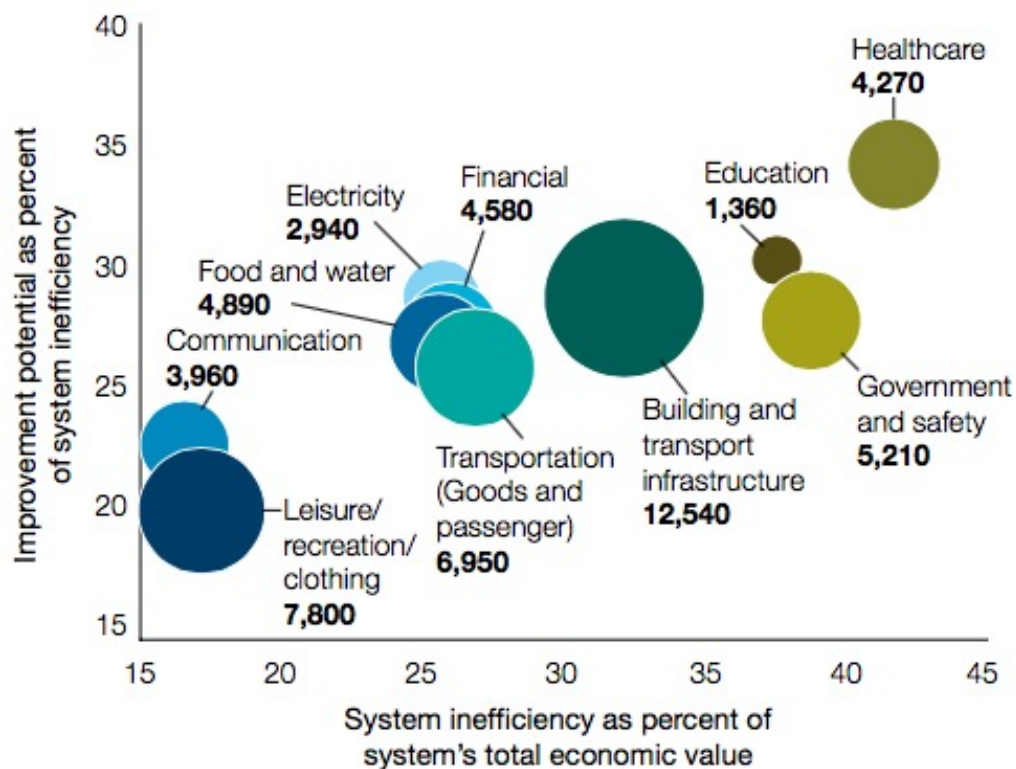


PERCEPTION is **NOT** **REALITY**

IMPACT of PERCEPTION on RISK-TAKING



Contribute to INEFFICIENCIES in the planet's system of systems



Global Economic value of

System-of-systems	\$ 54 Trillion 100% of World GDP
Inefficiencies	\$ 15 Trillion 30% of World GDP
Potential Improvements	\$ 4 Trillion 8% of World GDP

How to read the cart?

For example, the Healthcare system's value is \$4,270 B. Estimated inefficiency is 42%. 34% of these inefficiencies can be eliminated.

Source: IBM Institute for Business Value analysis based on inefficiency and improvement potential estimates reported during 2009 survey of 518 economists.

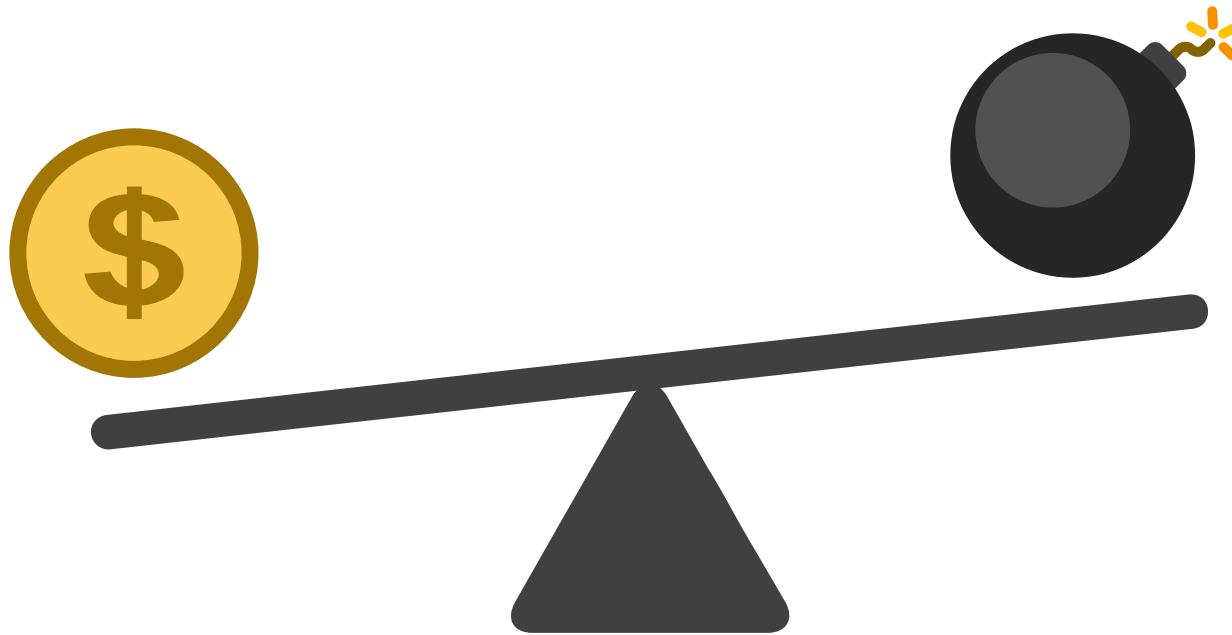
Inefficiencies in systems produce Waste, Damages & Disruptions



2 – Our Minds are Data Measuring Instruments



People must optimize the trade-offs between Risk and Return

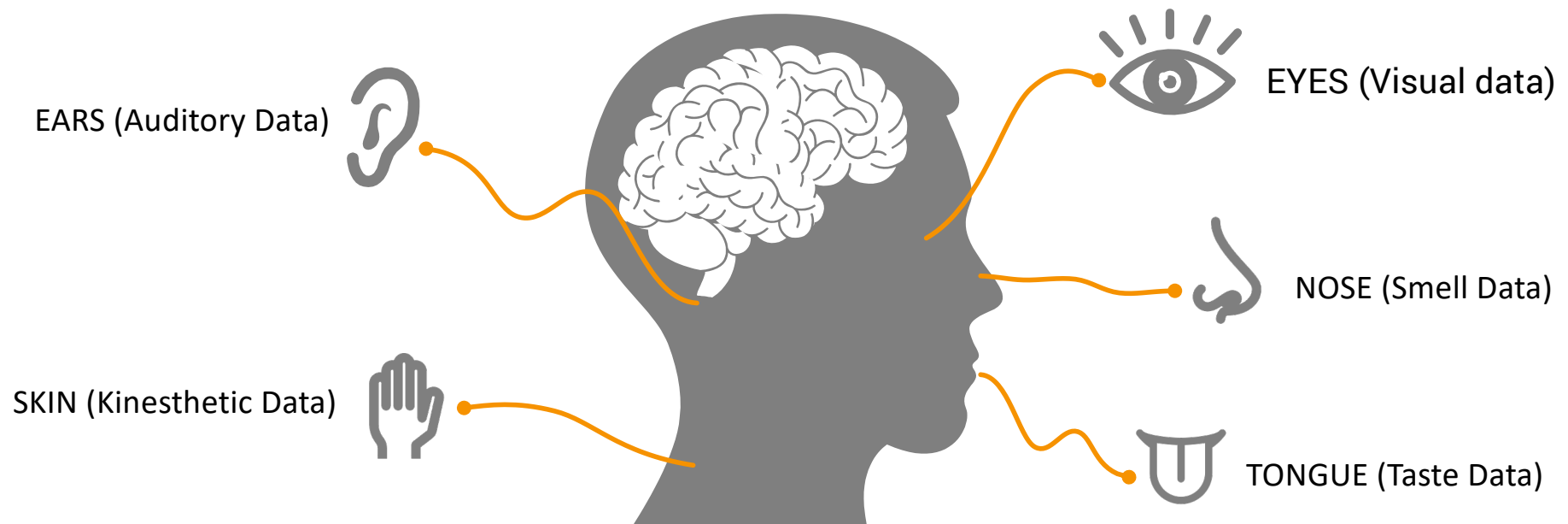


Making INFORMED Decisions!

Our Minds are Data Measuring Instruments



How do we CAPTURE DATA about the World? Our **SENSES**

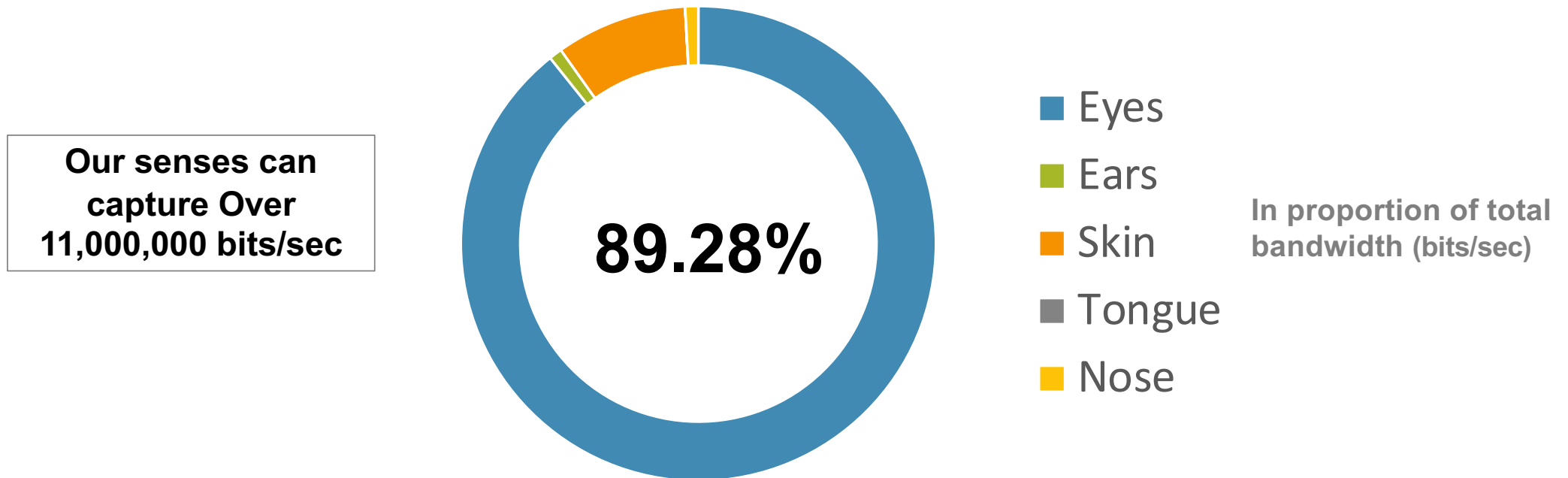


A person's sensory organs detect stimuli from the external world and send messages to the brain as electrical impulses containing data.

Data Capture Capabilities of our Main Senses

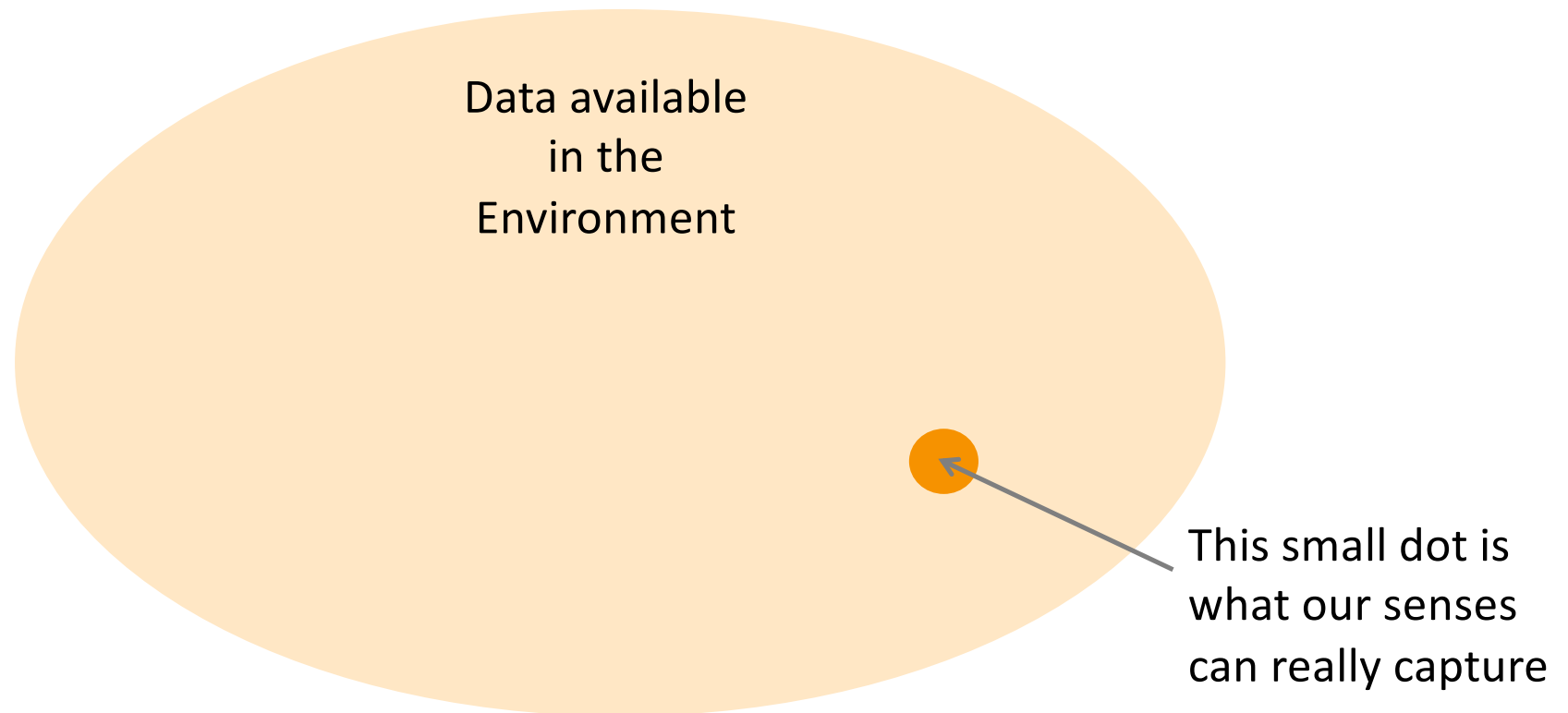


Data Capture Capabilities of our Main Senses



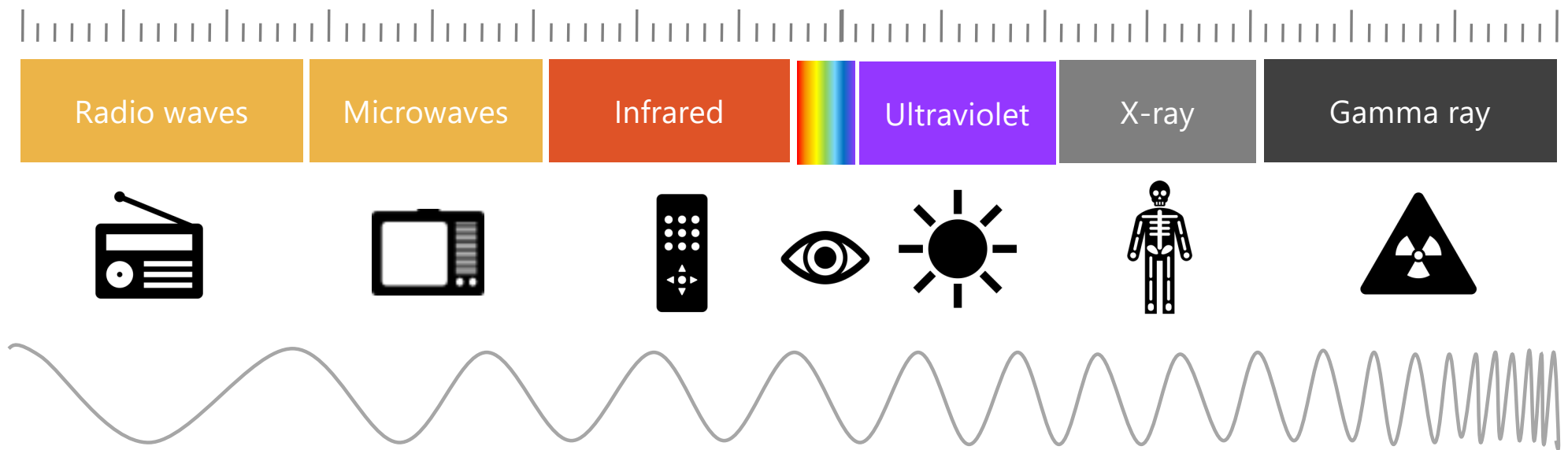
IMBALANCE between the data capture capabilities of our main senses.

How senses do NOT allow us to capture all available data in our environments



What is the Electromagnetic Spectrum?

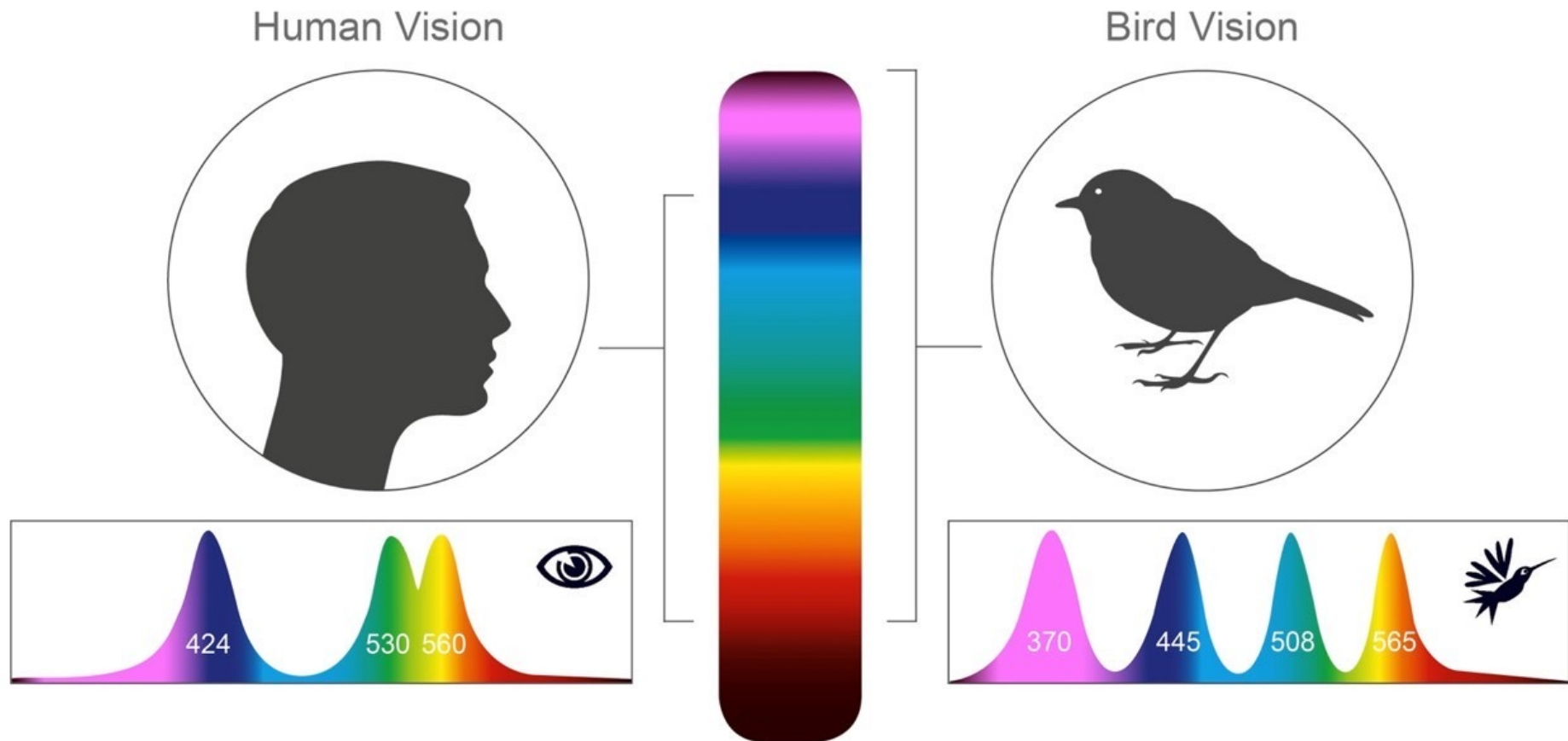
The electromagnetic spectrum is a range of electromagnetic radiation. Radiation is energy that moves in the form of waves and can travel through a medium such as air, water or empty space.



Frequency: The number of waves traveling through a point in a given second, measured in Hertz (Hz)

Wavelength: The distance between two waves measured in meters (m). Low frequency has longer wavelength, higher frequency has shorter wavelength.

With UV vision, birds see the world in a different way



How do we PERCEIVE the World?

**We need to understand the limitations of
our sensory system!**

A quick test! Look at this Picture..



DATA OVERLOAD: The Bandwidth Bottleneck

DATA

Impression



Consciousness



Expression

11,201,000
bits/sec

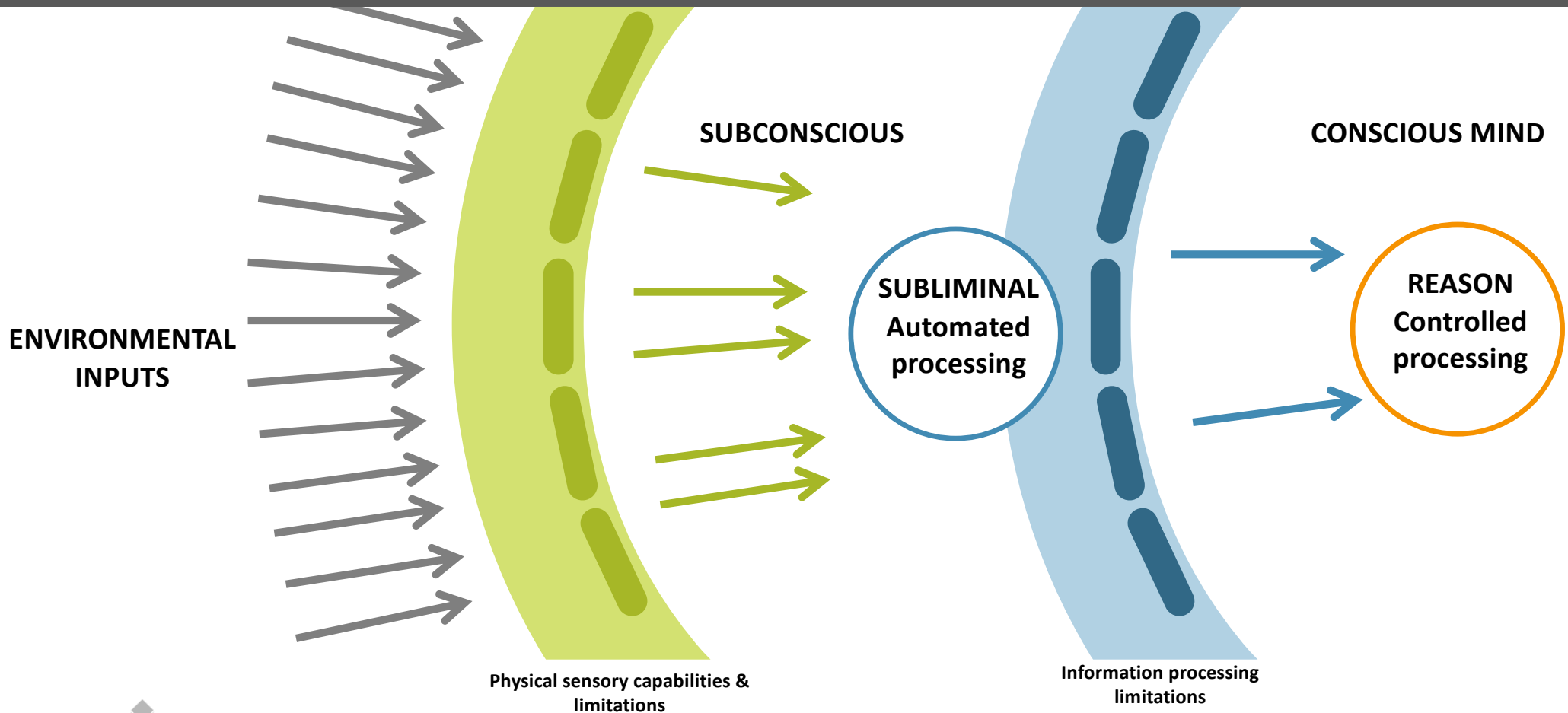
78 bits/sec

?

SATURATION:

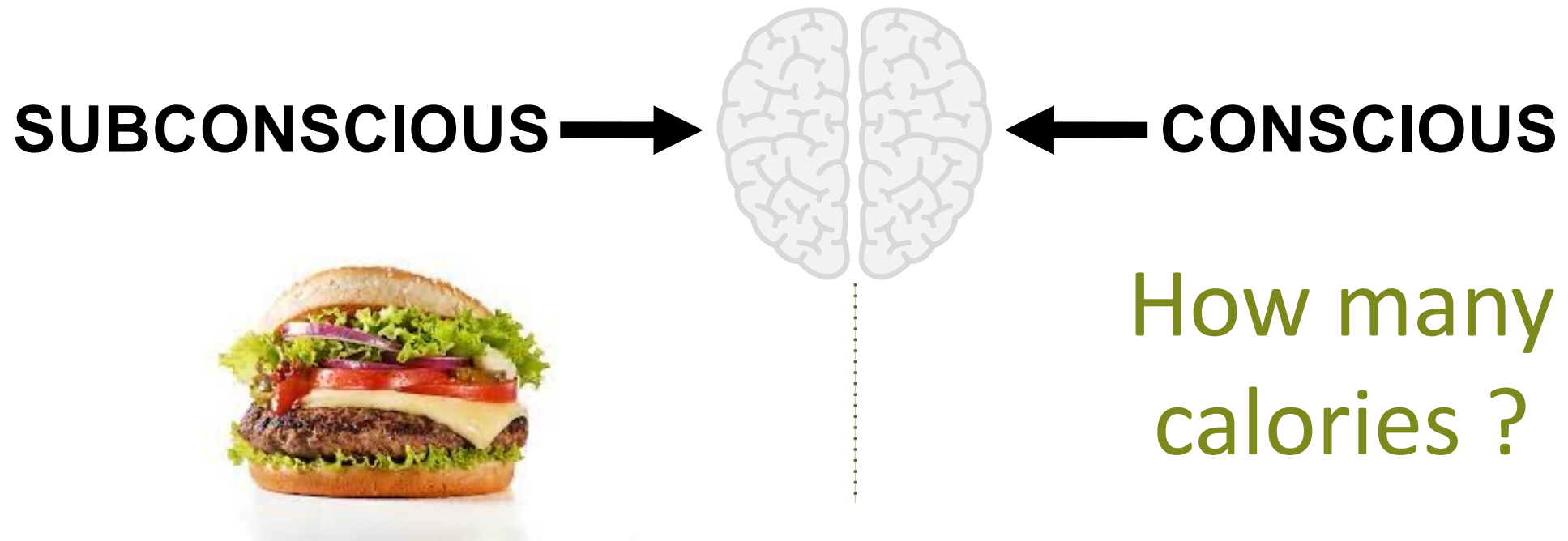
Bandwidth Bottleneck
(99.9999% of data are filtered
out)

Data Capturing & Processing: The Great FILTERS



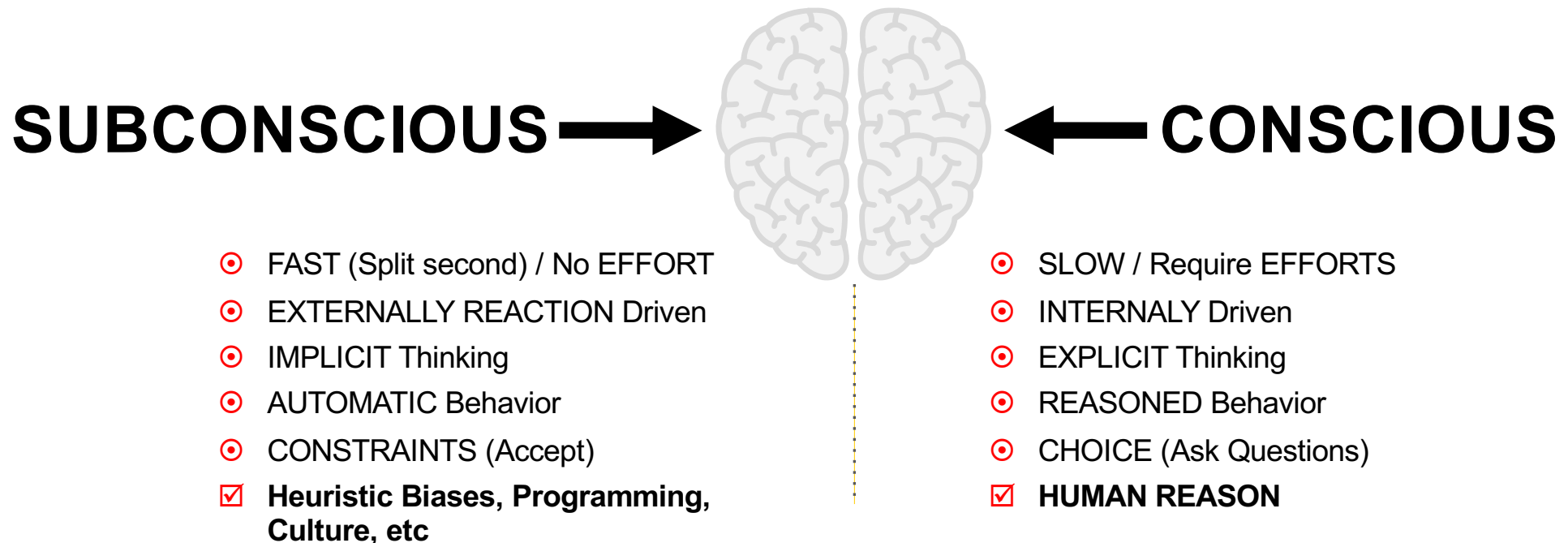
2 Intertwined Data Processing Systems for Our Minds

If I show you this ... What comes into your Mind ?



There are 2 Intertwined Data Processing Systems in Our Minds

What is the Difference?



The Great SUBCONSCIOUS Filters: the negative unintended effects

While **cognitive biases** are helpful in many situations, they can also lead to **very detrimental outcomes**, especially in today's complex modern world.

It can lead to wrong health & life decisions!



Why do people eat too much and don't exercise, knowing the dangers of it?

The problem is that ..

We Fear Snakes!

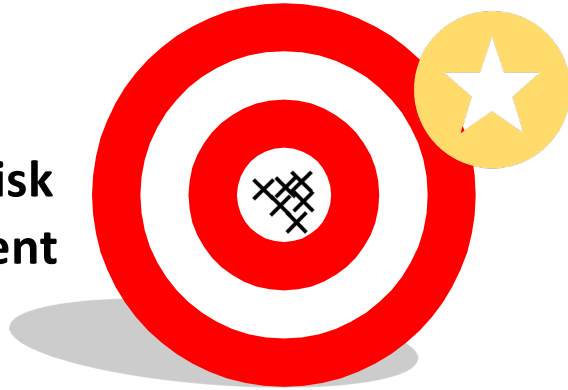
Not Cars!

3 – Biases and Noise in Human Decisions



Variability in Outcomes due to Human Psychology

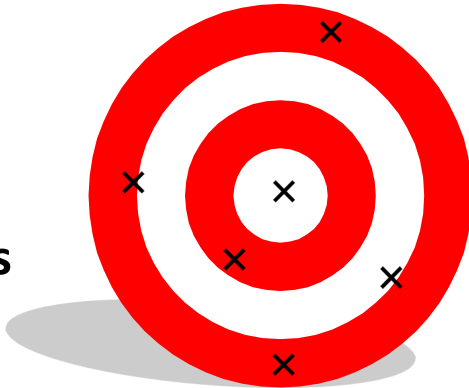
SET 1
Effective Risk
Management



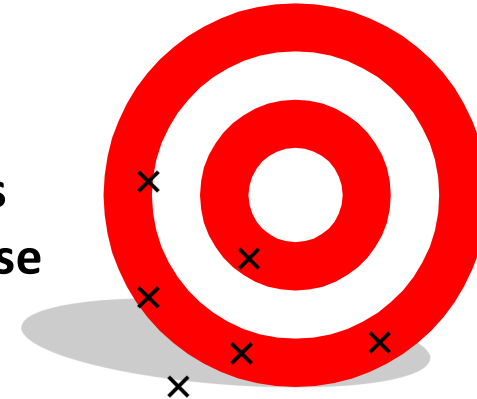
SET 2
Biases in
Processes



SET 3
Noise in
Processes



SET 4
Biases
& Noise



BIASES: What are these?

Biases are...

systematic errors in judgments in one direction..

Biases in doctors' diagnostic and treatment



NOISE: What is it?

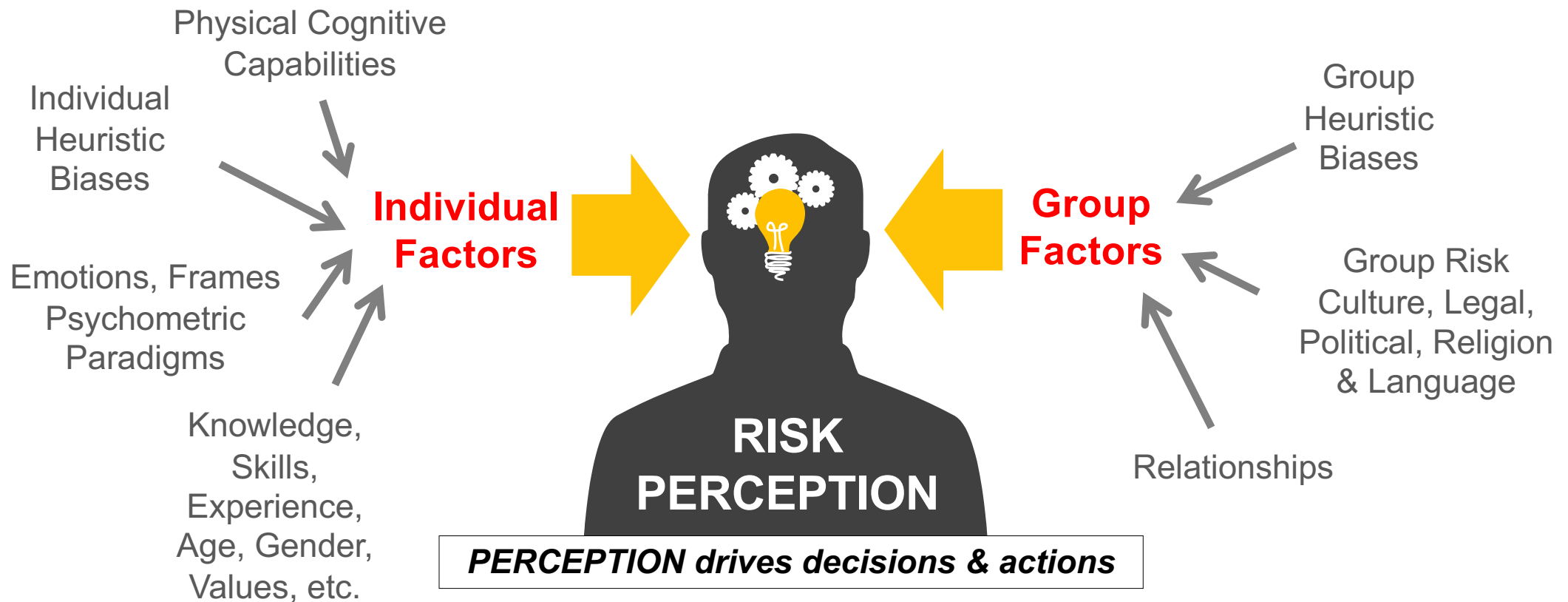
Noise is..

the unwanted variability in professional judgments regarding the same issue. The variability is due to several individual and contextual factors.

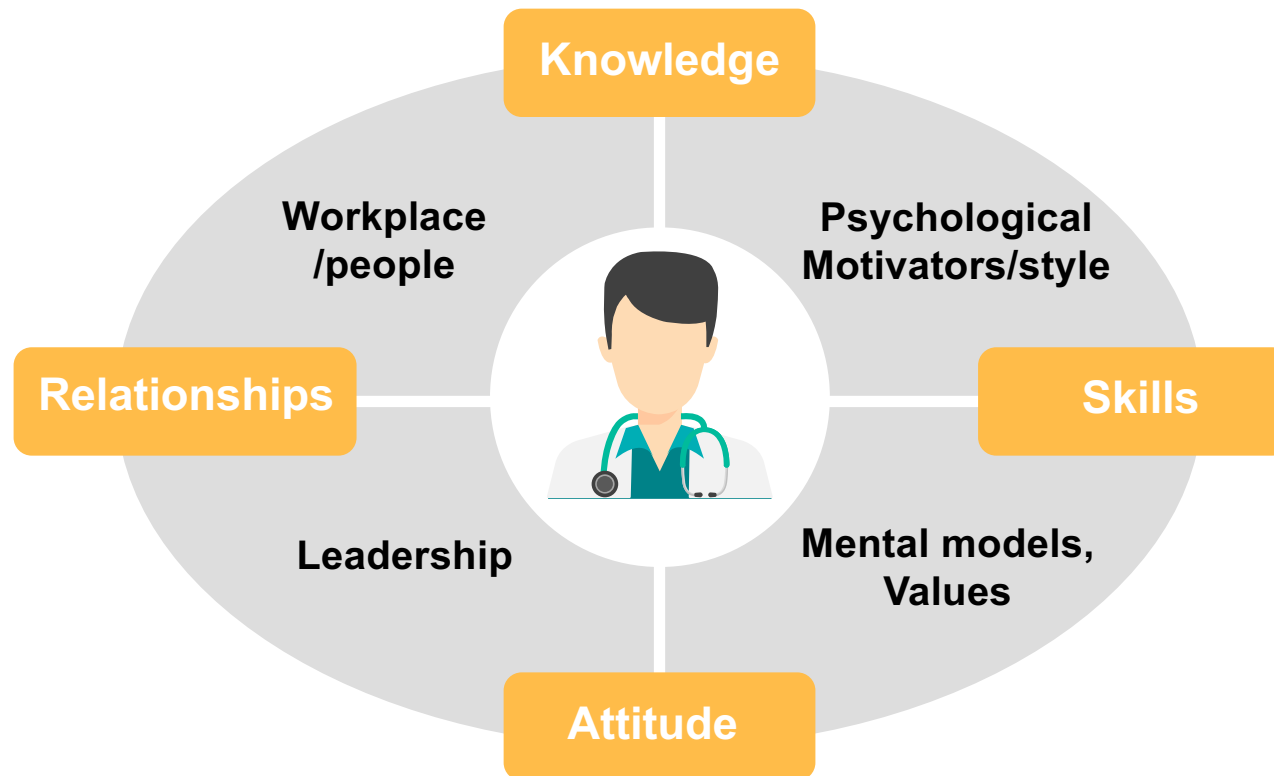
Noise in doctors' diagnostic and treatment



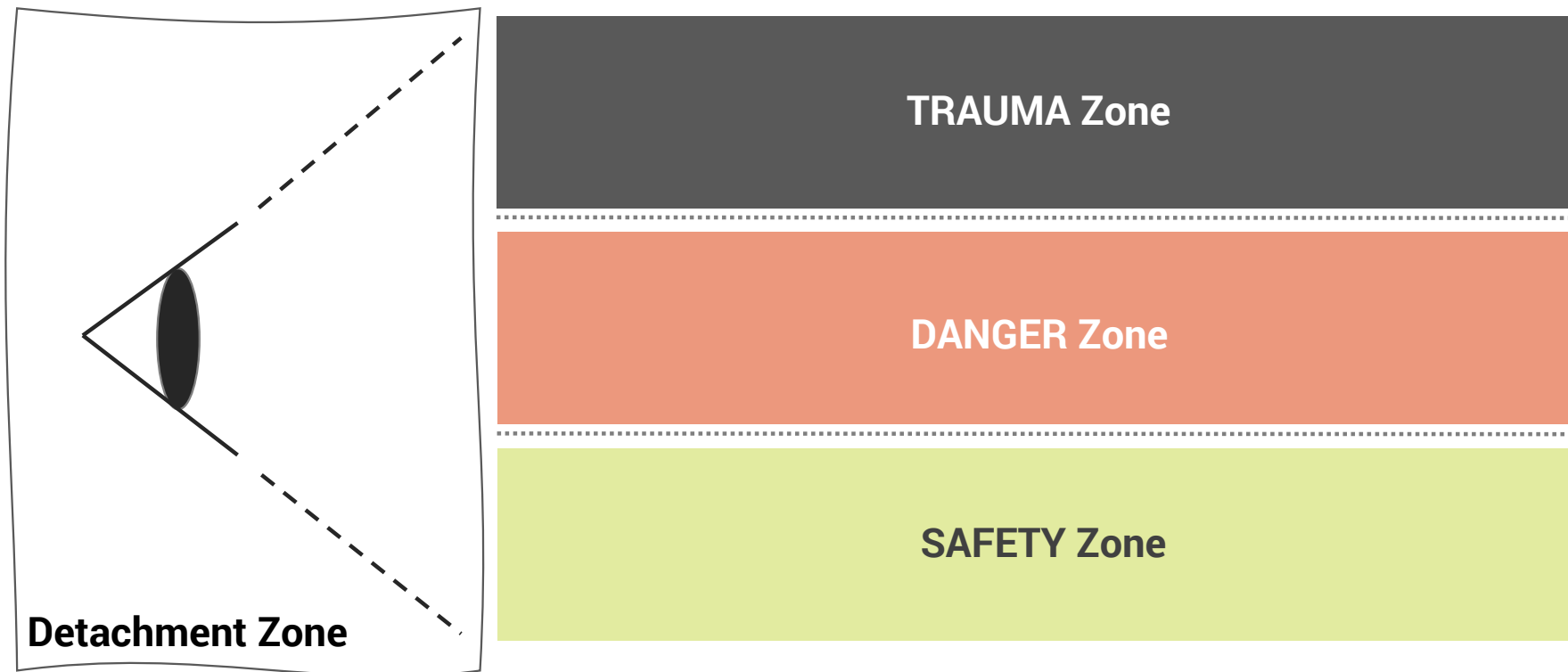
Factors Influencing Perceptions & Attitudes towards RISK



The Human Capital related factors



Frames of Mind: How you feel about Risk depends on where you are seated!



From Michael Apter's (1992) book, "The Dangerous Edge"

Frames of Mind: Perception of Risk from the Frontline

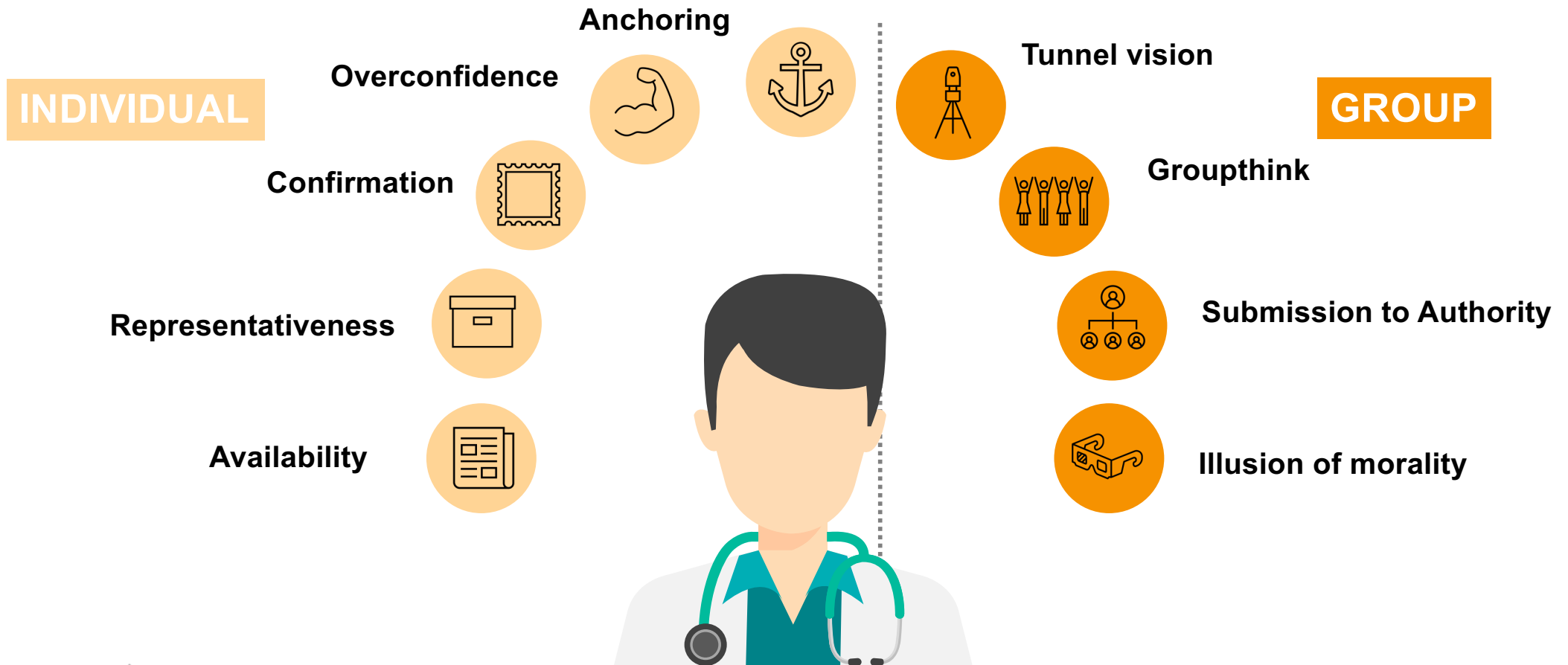


Cognitive Biases: What are these?

Cognitive Biases are...

systematic errors in judgment that can occur when people are processing and interpreting data. It comes from the heuristic short-cuts and rules of thumb that the brain uses to simplify and speed up information processing.

Cognitive Biases (Individual & Group) - Examples



What are the Signs of Cognitive Biases in People? Examples



Blindness to Risk due to multiple biases: In March 2020, French President Macron insisted...

**There is no need to close French borders and impose quarantine because...
“The coronavirus has NO passport!”**

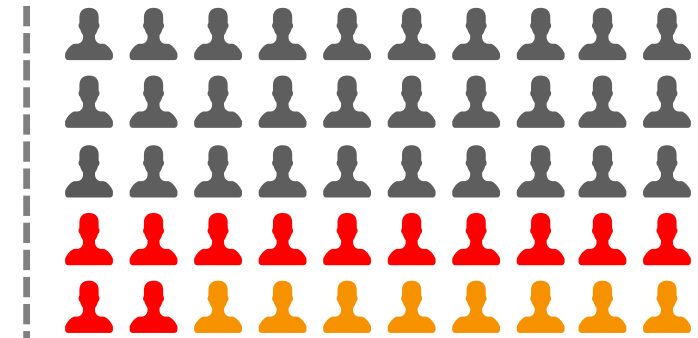
Blind Spot about Biases

40%

of doctors agree that
**cognitive biases are
causes for concern** in
healthcare

15%

of doctors, agree that the
treatment they have given to
patients **could be influenced** by
their own cognitive biases



Survey: "Bias and burnout among doctors" , Medscape 2016

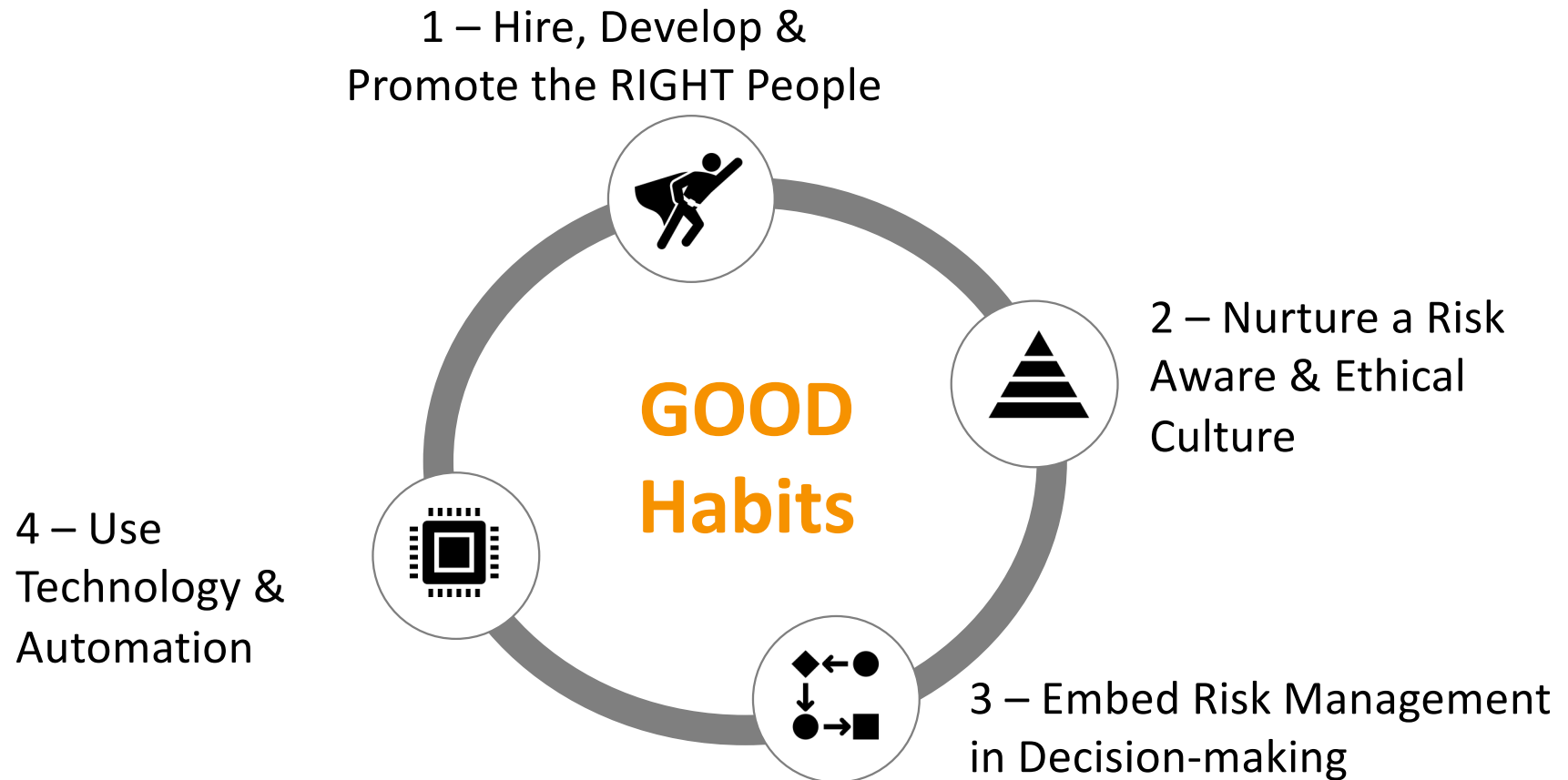
4 – How to improve Judgment & Risk Decision-Making?





**First, recognize that noise and
biases are key blocks to better
decision-making**

How to improve Judgment & Risk Decision-Making?

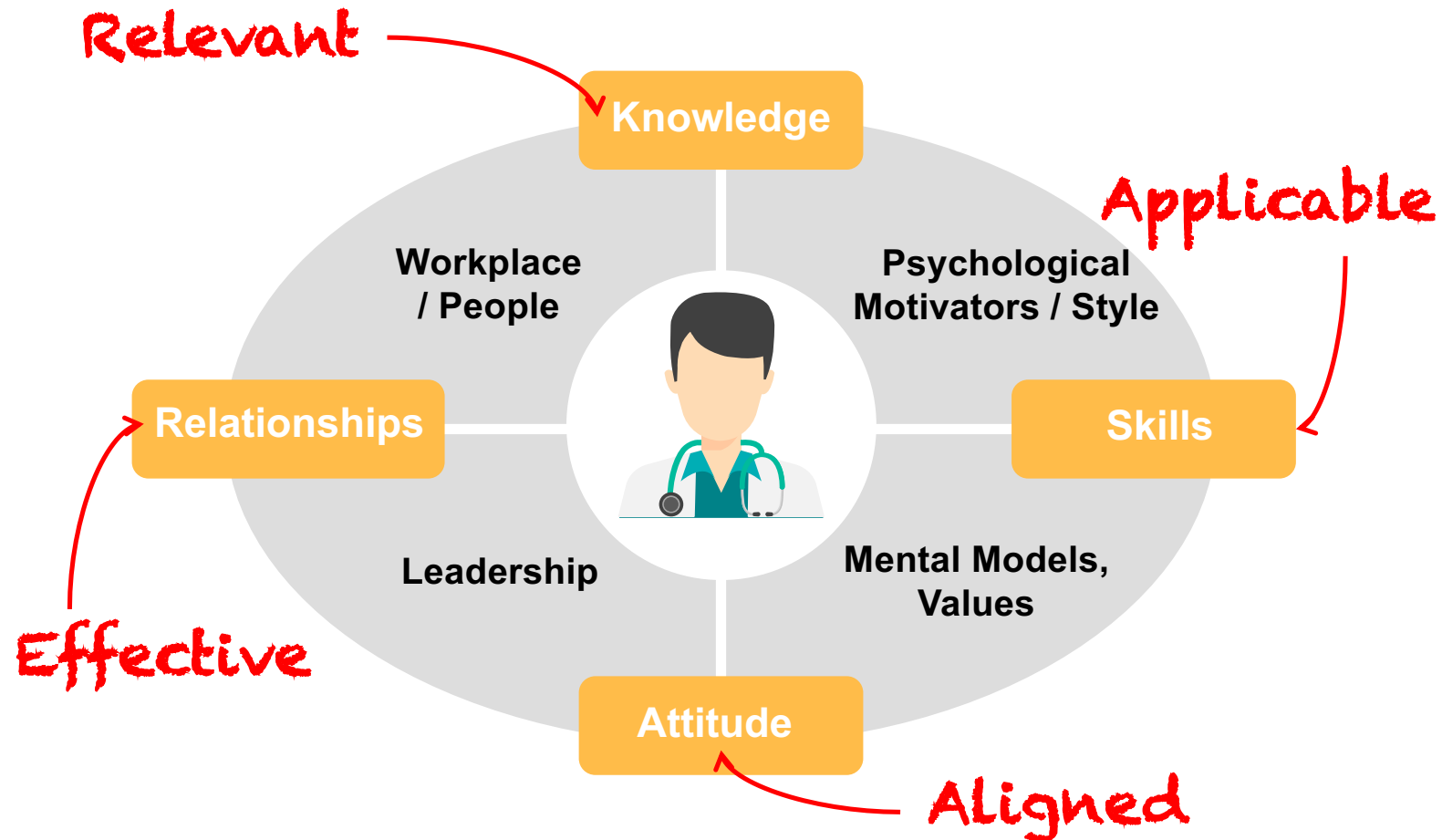




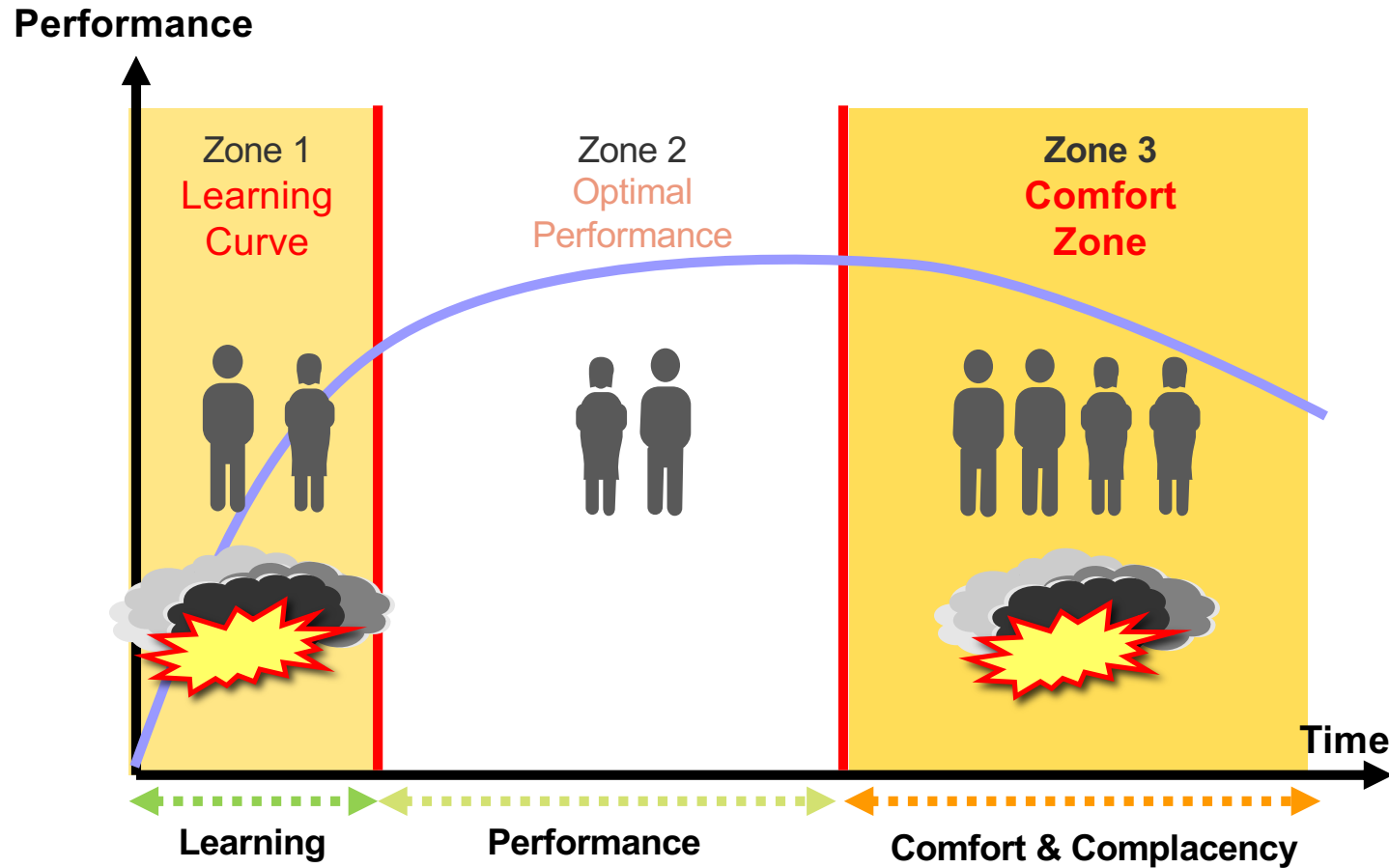
Key Practice 1

Hire, Develop & Promote the RIGHT People.

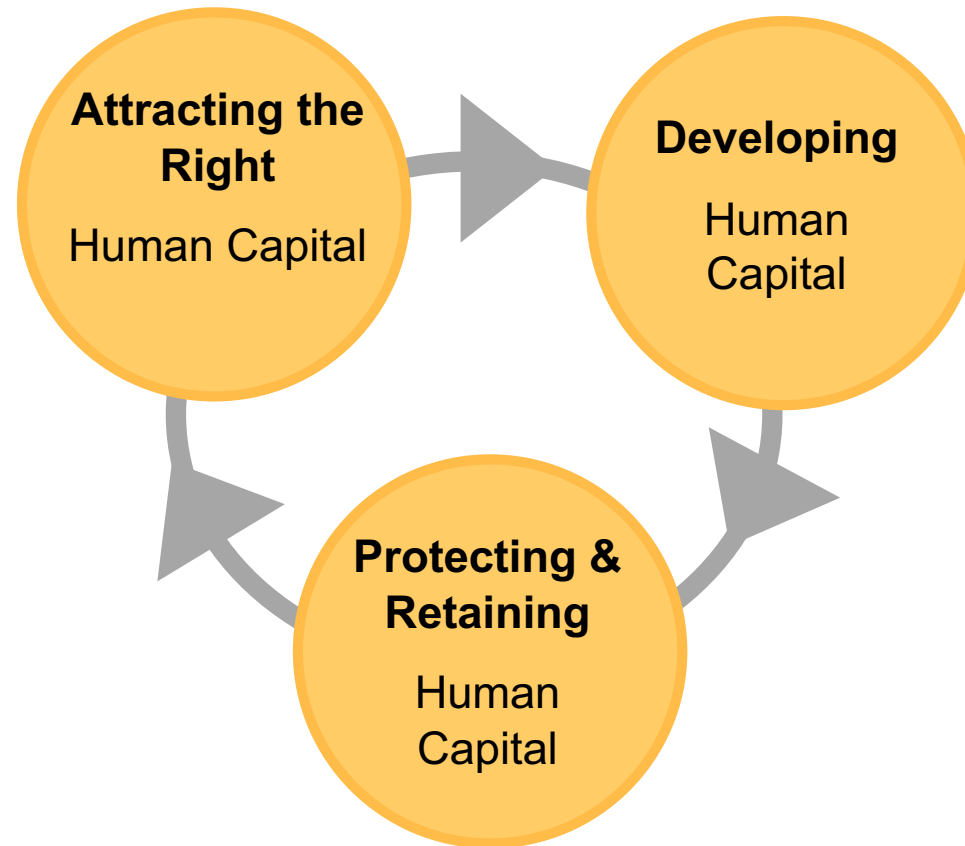
Getting the RIGHT Human Capital for your Organization



Understand the Human Capital Risk & Productivity Curve



Risk Managing the Human Capital Cycle

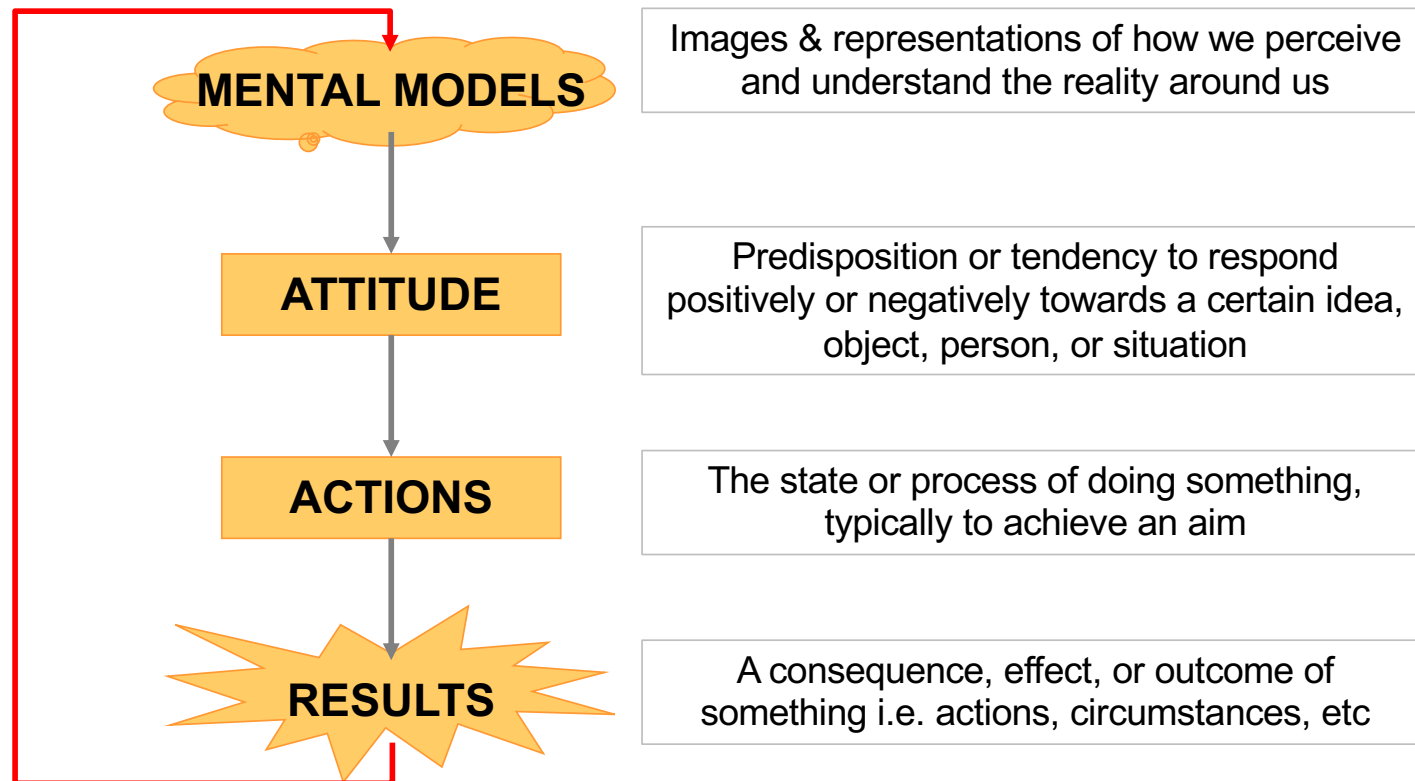




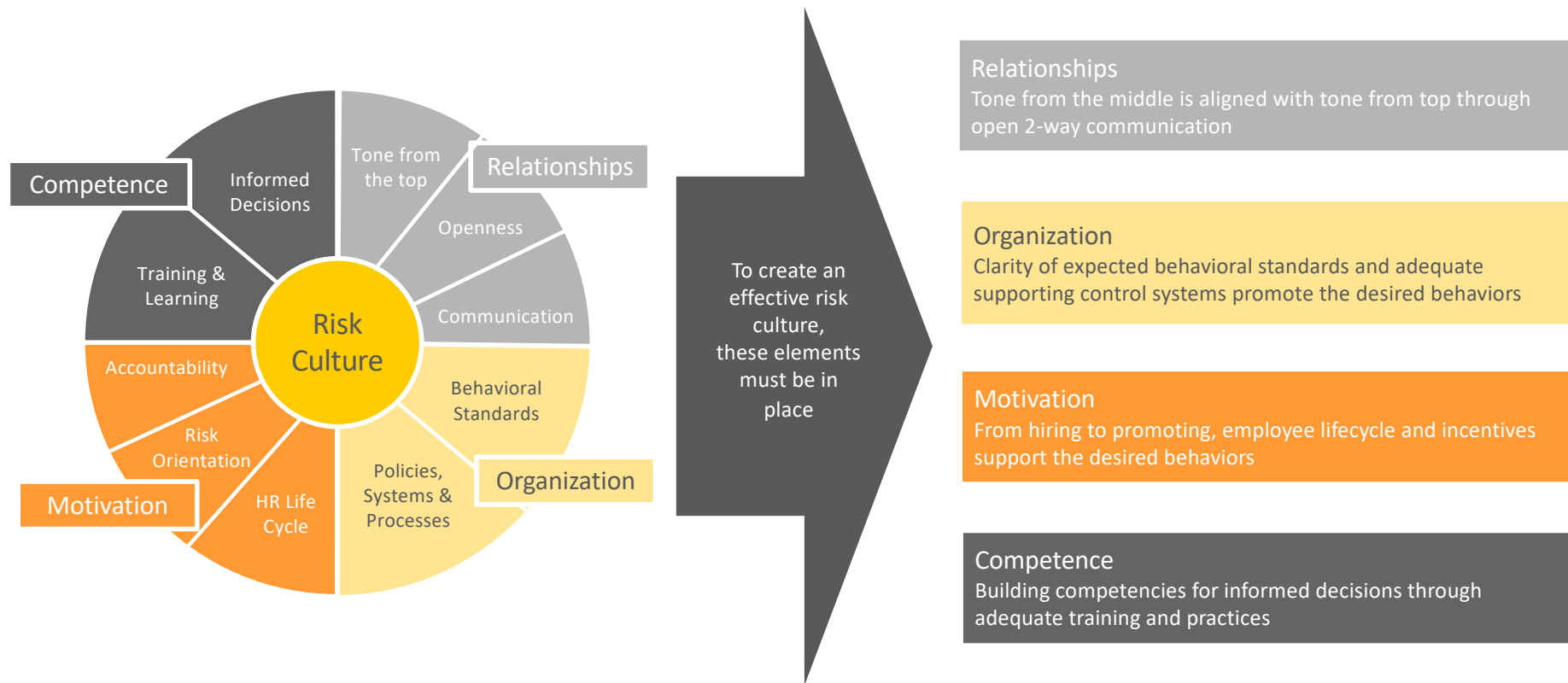
Key Practice 2

Nurture a Risk Aware & Ethical Culture

Corporate Culture: Why is it IMPORTANT?





Creating & Nurturing a CULTURE of Risk Awareness & Ethics



Source: Marc Ronez – Asia Risk Management Institute

Creating & Nurturing a CULTURE of Risk Awareness & Ethics

Preventing Rationalization – How to make it very difficult for people to justify their inappropriate behaviors? Key components:

		
		✓
✓		
	✓	
	✓	
✓		
	✓	
	✓	

1. Develop a **Code of Conduct / Ethics**

2. Set the **Tone at the Top** with management **Walking the Talk**

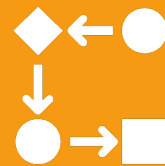
3. Appropriate & Regular **Communication & Training**

4. Hire & Promote **Competent, Risk-aware & Ethical Employees**

5. **Risk Analysis Tools & Ethical Reminders** in Decision-making

6. Set **Detection** and **Remediation** Procedures

7. **No Tolerance** for Biases, Unethical & Fraudulent Behaviors



Key Practice 3

Embed Risk Management in Decision-making.

The Challenge of Decision-Making under **UNCERTAINTY**

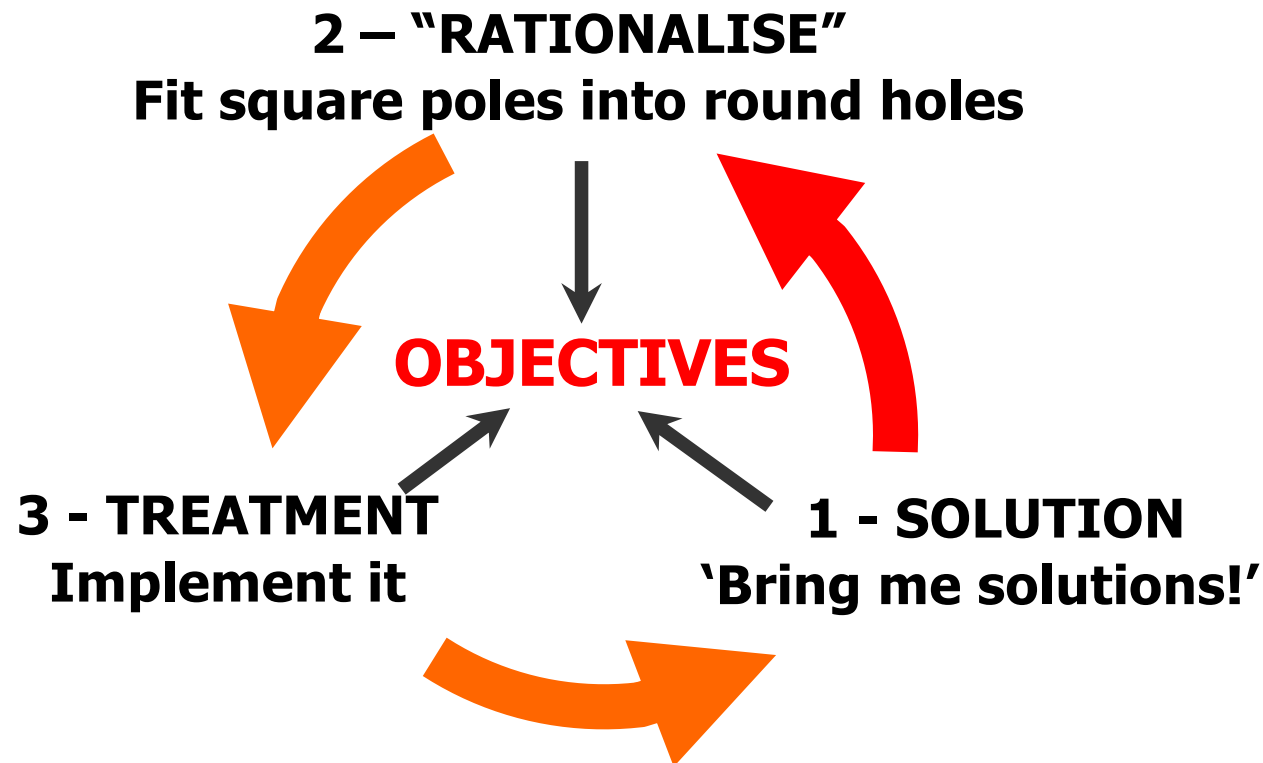


When confronted with **uncertainty**, **people** typically **RELY** on SHORTCUTS such as Experience, Intuition, Feng Shui, Fortune Teller, Influence Leaders, Simple Assessment Models, etc....to **MAKE Important Decisions**

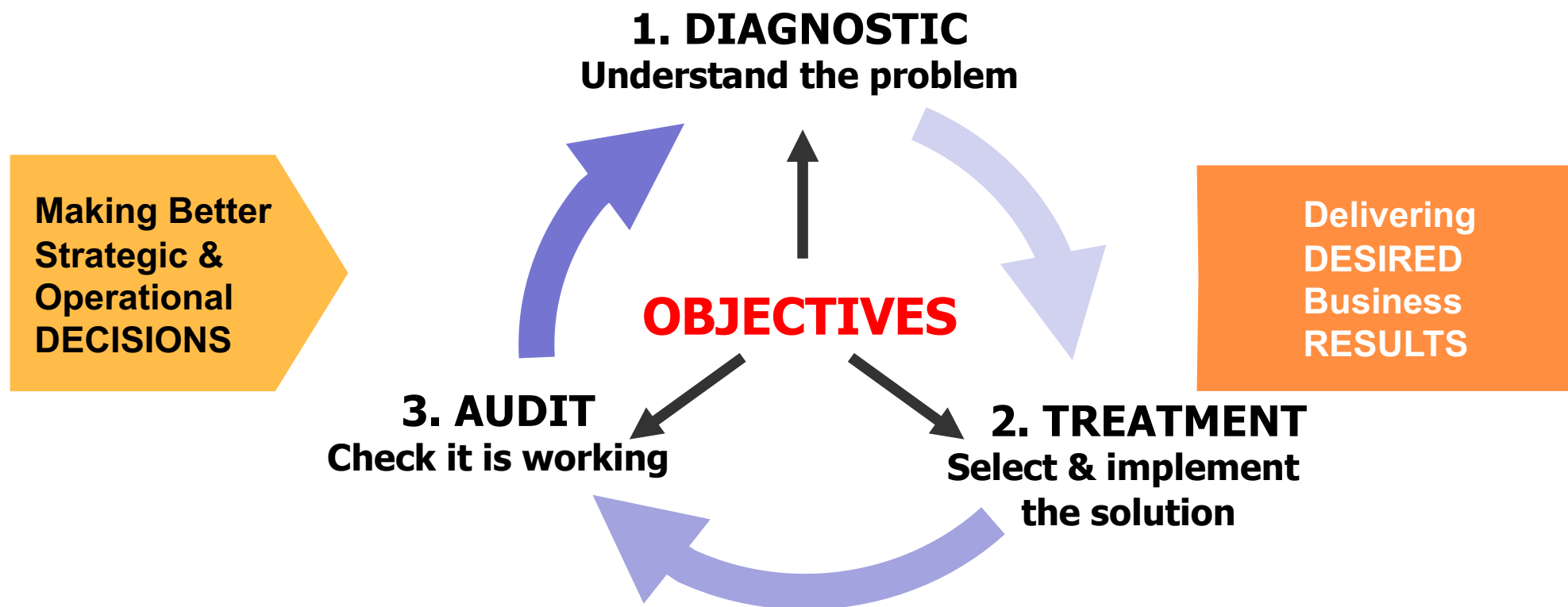
Pressures from conflicts of interest, mental models and psychological biases are underestimated,

and will compromise our Professional Judgment and Ethics.

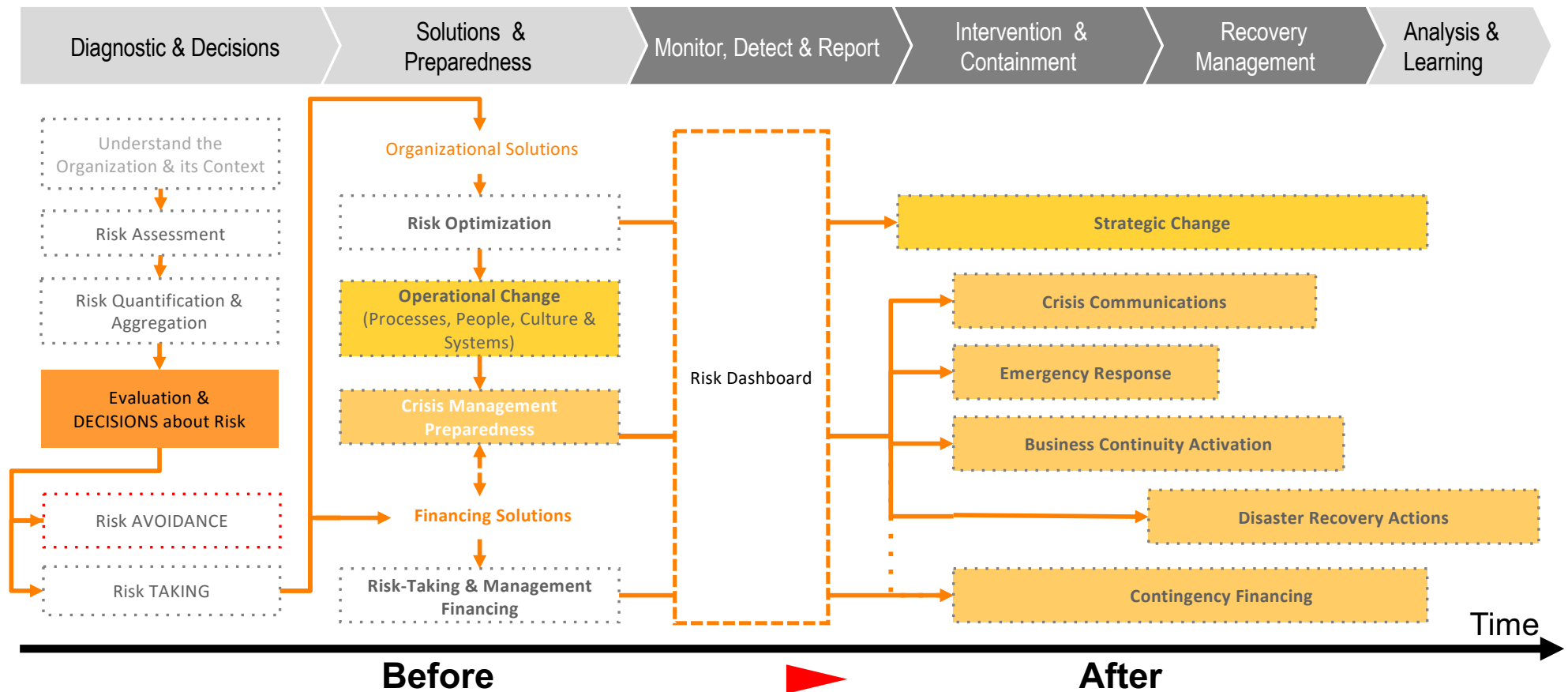
Biases & Noise in TYPICAL Decision-Making Process in Organizations ...



The Risk Management Process Works against the Biases



Road Map to Managing Risk to Crisis Effectively



Where to Embed Risk Management?

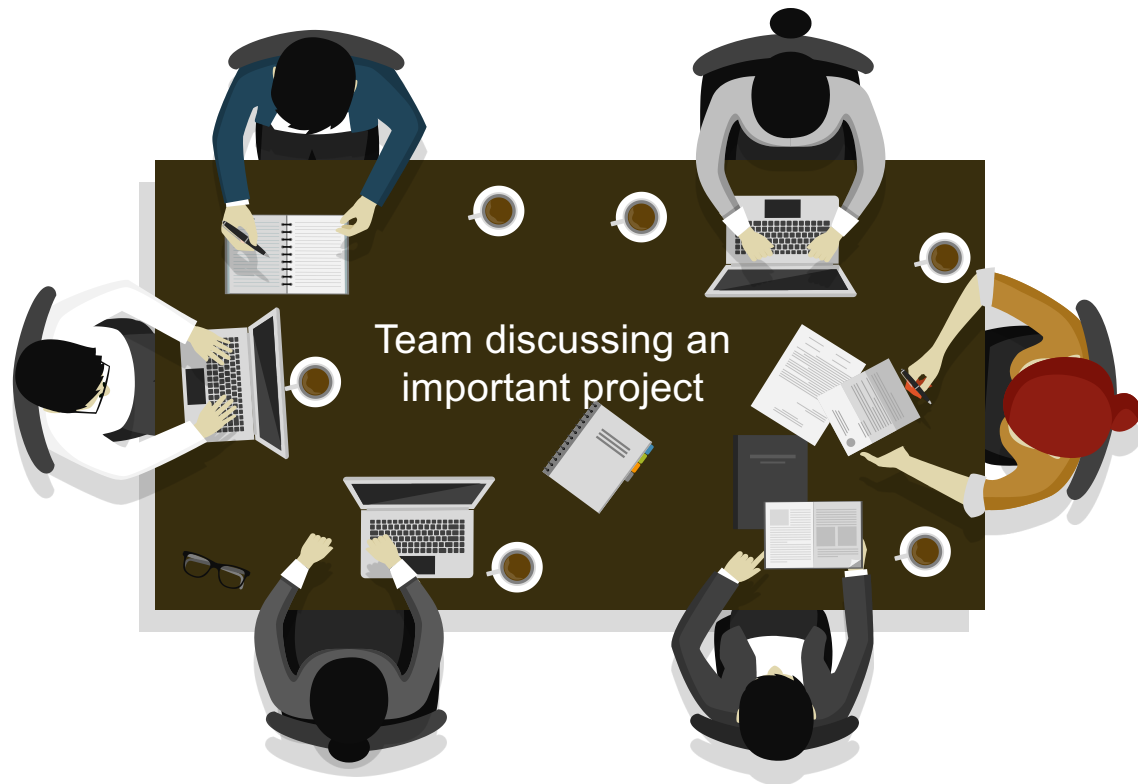


Use a Decision Observer for Biases Diagnostic



Decision observer

Observe group dynamic and signs of biases

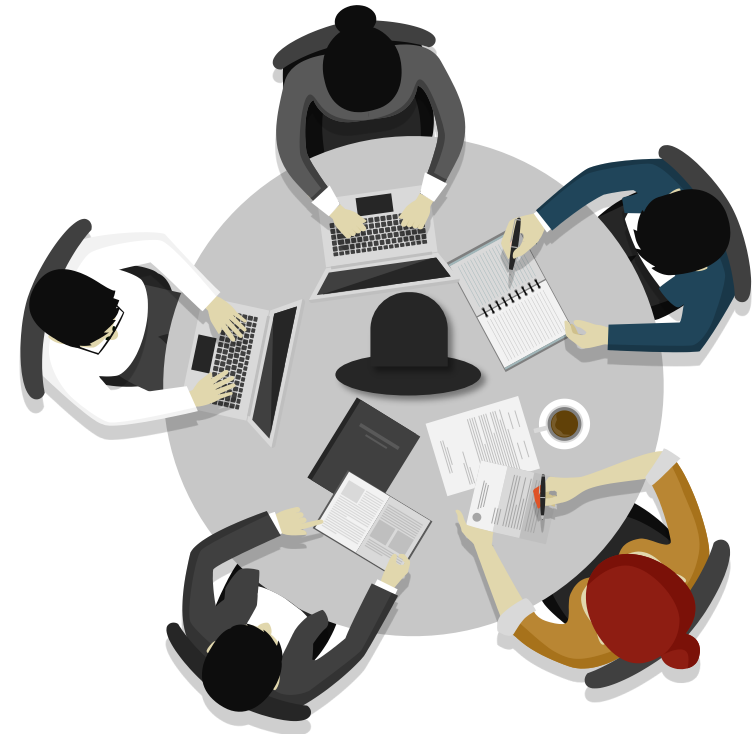


Institutionalize Constructive Dissent & Debates

Team 1 - Defend the project



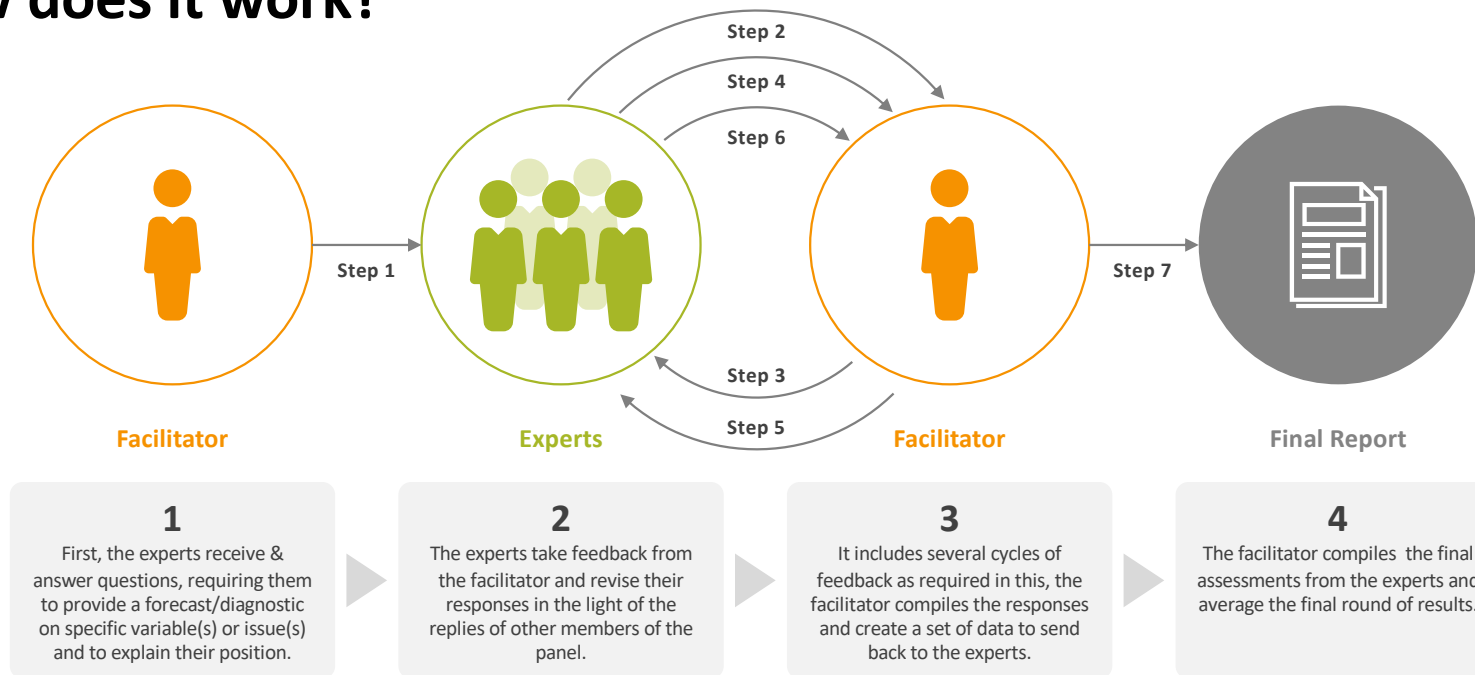
Team 2 - Criticize the project

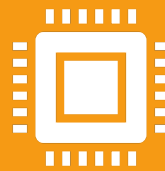


Avoid Optimism
Bias, Groupthink,
etc. with real team
diversity and
institutionalized
dissent

Use the Delphi Method – Averaging Independent Estimates

How does it work?

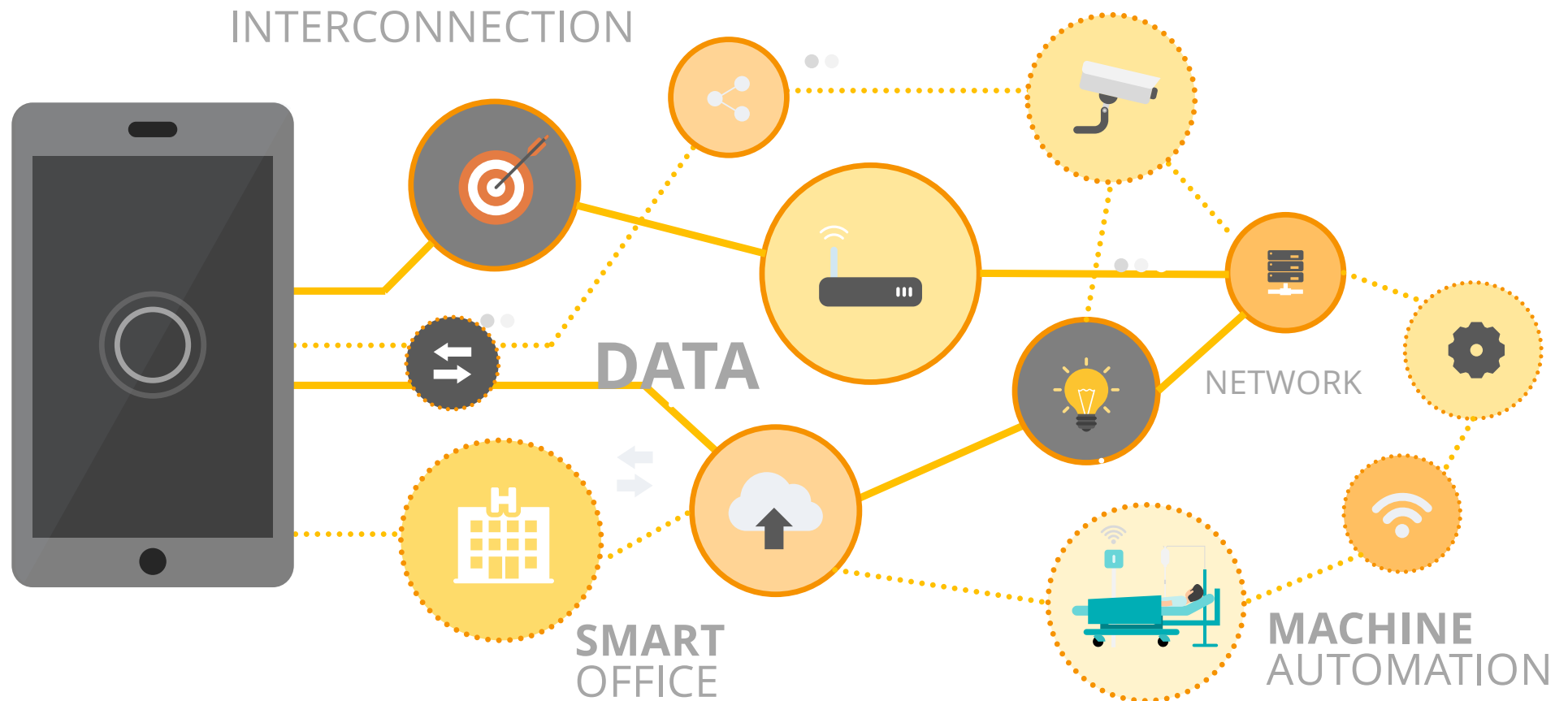




Key Practice 4

Use Technology & Automation Whenever Appropriate.

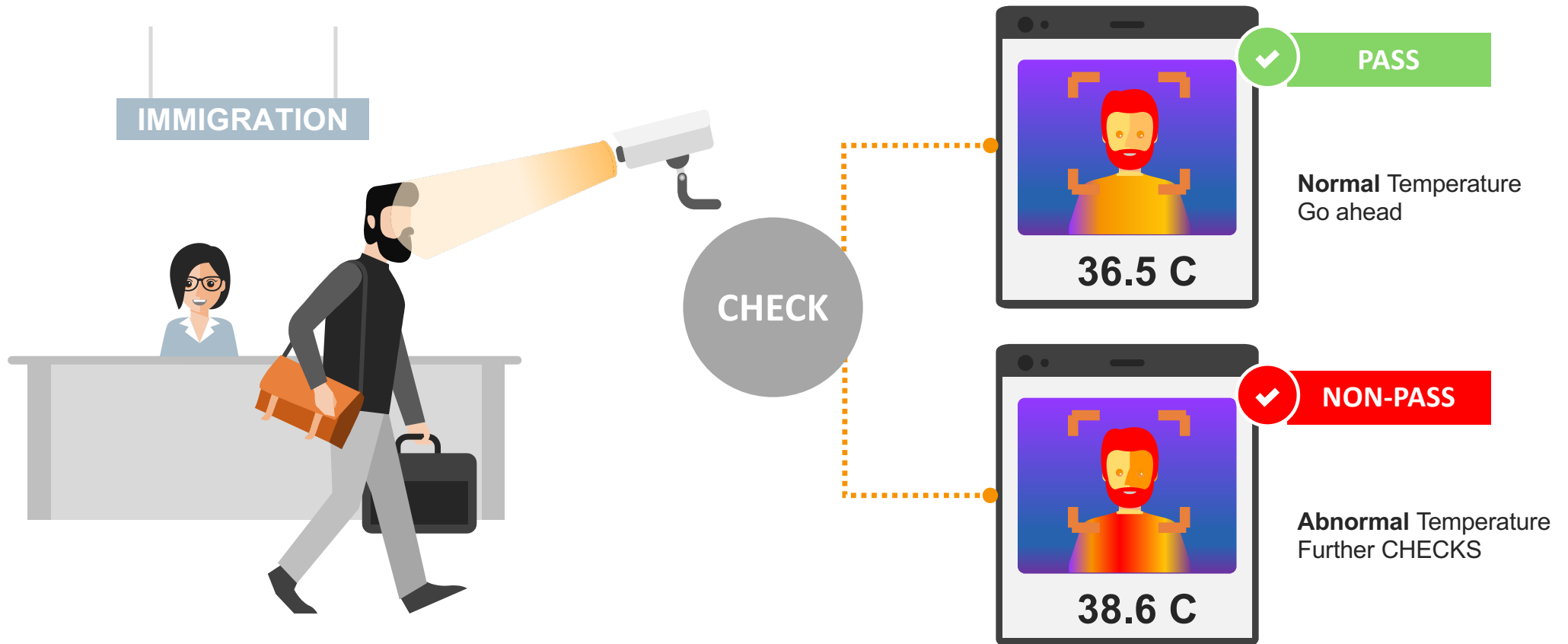
Reduce Variations: With (RPA) Process Automation & IA



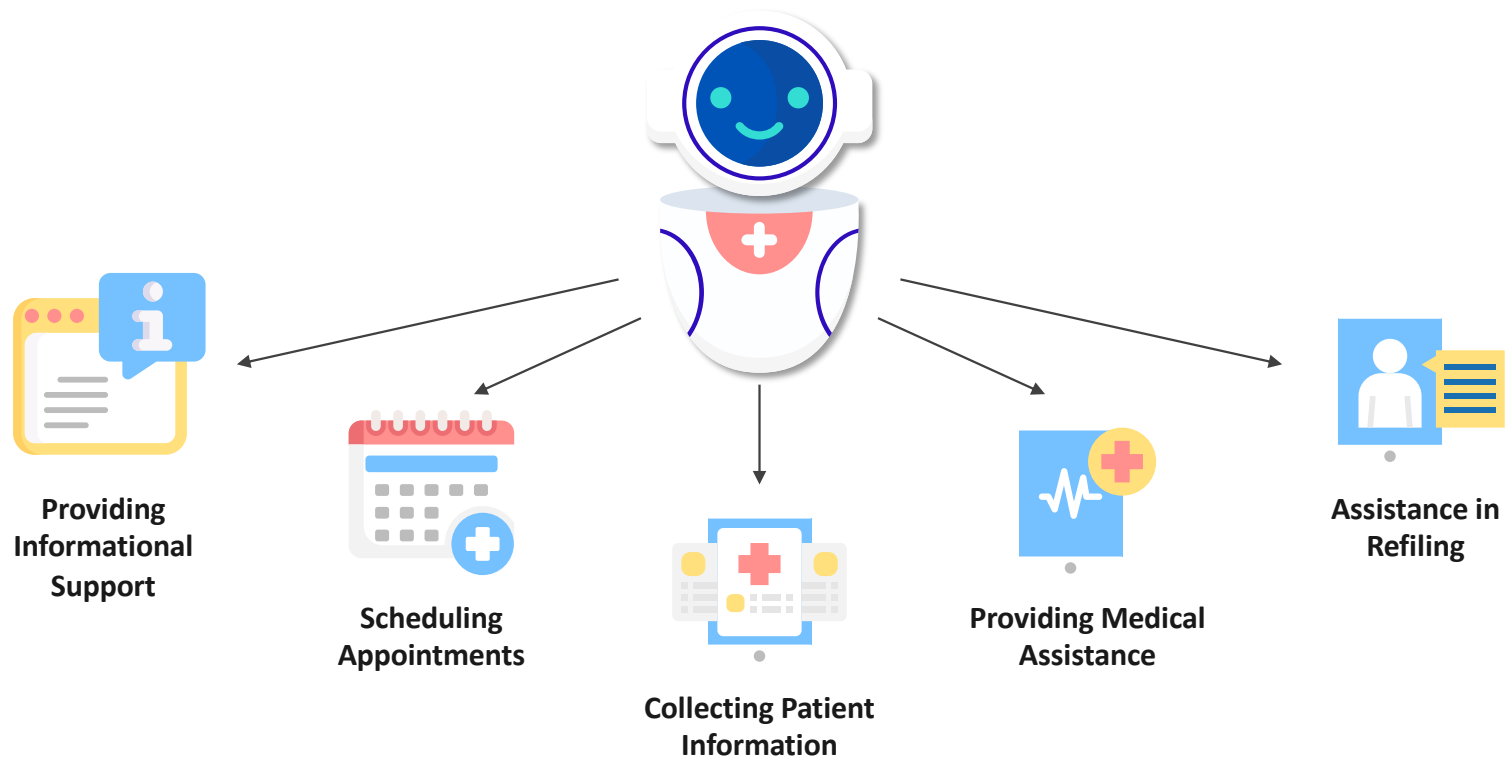
AI Potential Use in Healthcare



Use of Technology: SEE MORE with Thermal Sensor Checks



Example of Use of Chatbots in Healthcare



The answer? IBM Research and the Cleveland Clinic are bringing IBM® Watson™ to medical school to create a learning application for students.

By 2020, doctors will face **200x** the amount of medical data and facts that a human could possibly process.*

And it will get worse... The volume of medical data **doubles** every five years.*

81% of physicians can't even spare **5 hours per month** to keep up.*

Watson will help students navigate medical information and make the best decisions for **improving patient care.**

Students will also be able to **teach and train Watson** to advance its knowledge.

WATSON

¹ Authors based on 2006 meeting, October 8, 2007. Questions have affecting provider decisions across human cognition aspects.

 IBM

IoT & AI: Efficient Health Information & Monitoring Systems



5 – Conclusion

CONCLUDING TIPS

- Be aware and understand that we are all subjective and biased in some ways and act accordingly
- Beware of WYSIATI (Fast & Dumb); Slow down a bit; avoid 'jumping' on solutions!
- Make the 2 data processing systems work together more effectively
- Have strategies to counter balance the effect of the relevant biases
- Always reframe problems and consider multiple scenarios
- Gut feel should not be ignored. However evidence must be sought before taking action
- Always play devil's advocate and organise debates to 'waterproof' decisions
- Continuously stretch and retrain your brain

Q & As TIME

ARiMI FOCUSSES on BUILDING COMPETENCIES

For DECISION-MAKERS



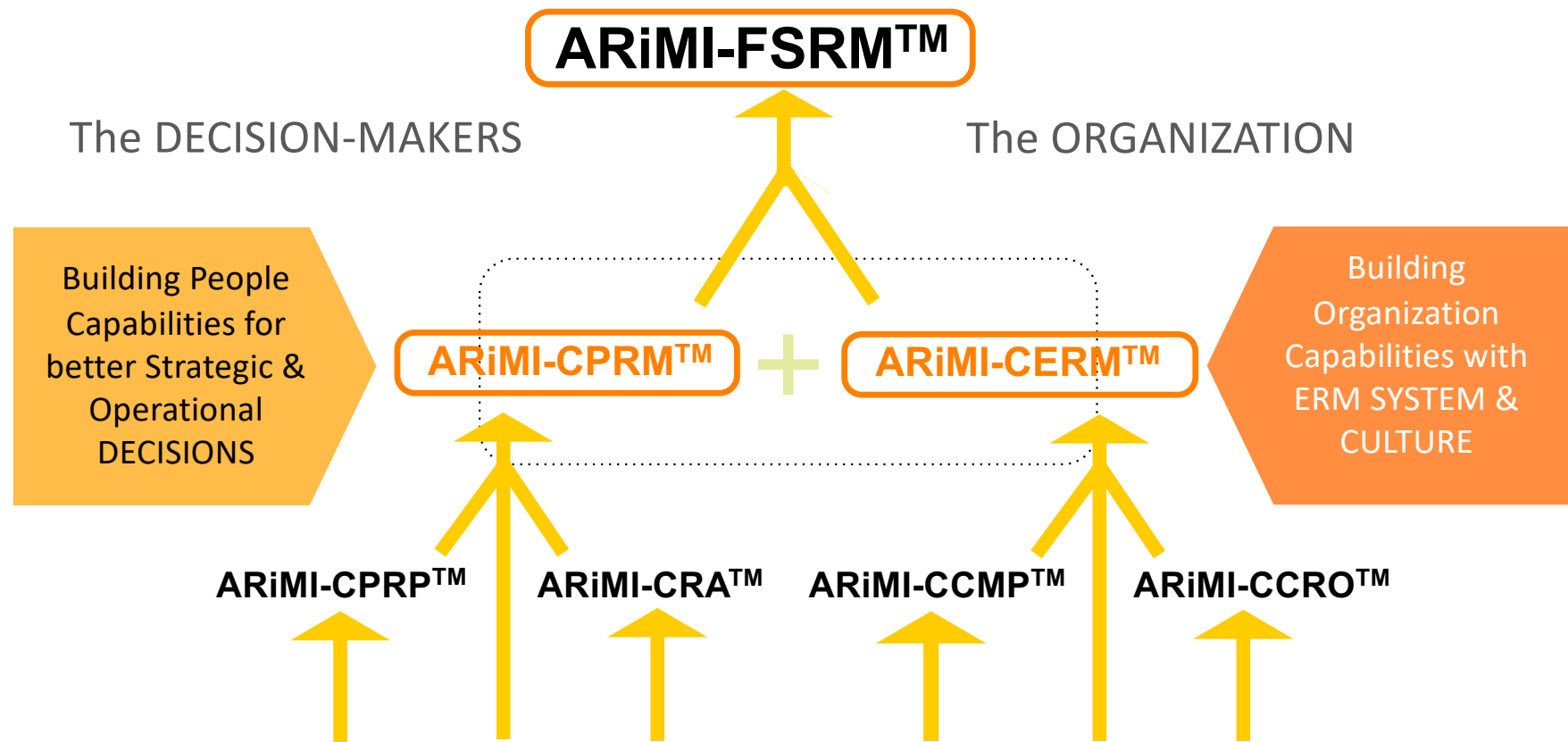
Developing PRACTICAL Knowledge & Skills in Risk & Crisis Management

For ORGANIZATIONS



Building CAPABILITIES (ERM Control systems supported by Risk Aware & Crisis Readiness Culture) for Sustainable & Profitable Growth

ARiMI CERTIFICATIONS: Learning Progression Map



ARiMI Value-Added LEARNING Solutions in Risk Management



Hazard Risk Management



Operational Risk Management



Financial Risk Management



Data & Cyber Risk Management



Crisis & Business Continuity Management



Emerging Risk Management



Regulatory Risk Management



Fraud Risk Management



Ethics & Compliance Risk Management



Strategic Risk Management



Project Risk Management



Reputation Risk Management

Some of our Clients



ARiMI Contact Information



Developing Effective Leaders & Decision-Makers for Complex & Volatile Times

**LET'S GET IN
TOUCH WITH US**

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