MACHINE HUMANITY
AI … EI … H2H

'To erase the line between man and machine
is to obscure the line between men and gods'

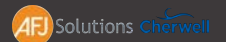Ex Machina

"To cloud and beyond"

BCS Configuration Management
Specialist Group Conference 2019

Simone Jo Moore

15th May 2019
BCS London

bcs — Making IT good for society

AFJ Solutions Cherwell

SJM PRINCIPLES & VALUES

"I am neither clever nor
especially gifted. I am only
very, very curious."
-Albert Einstein

Probe the hearts and minds of what makes business and IT tick
and enjoy the repartee leading to evolution and revolution to
jumpstart people's thinking, behaviour and actions at any level.

People Connected ⚜ Knowledge Shared ⚜
Possibilities Discovered ⚜ Potential Realised ⚜

HDI TOP 25 THOUGHT LEADER

VeriSM Contributor

Explore with Me

AFJ Solutions Cherwell

WHAT'S NOT ON LINKEDIN

What *Who* do you want to be when you grow up?

WHAT'S NOT ON LINKEDIN
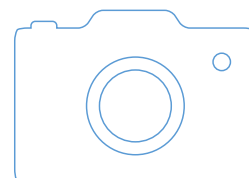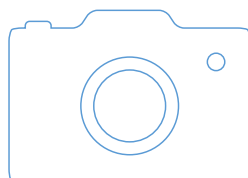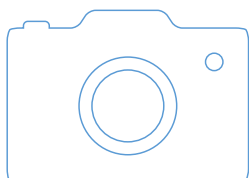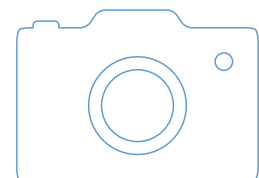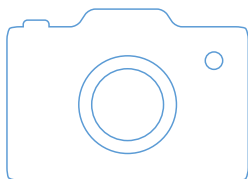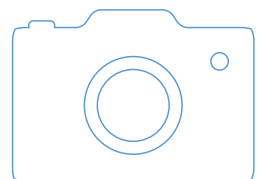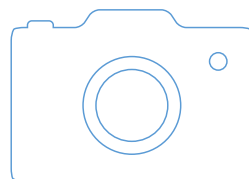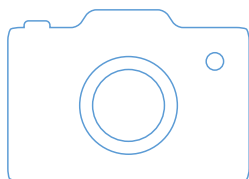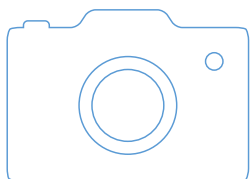
We are more than
we know!

PREDICTING TO ACT BASED ON CONTEXT
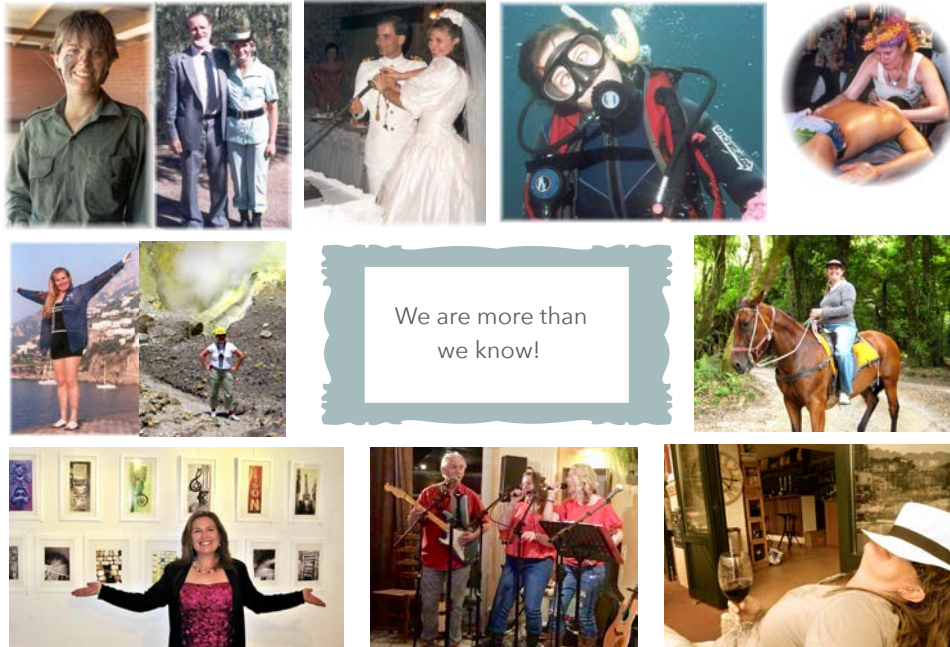
We are more than we know!

OUR STORY TODAY

- VUCA - Explore the +/- with resilience or resistance

- Talent Diversity - Understand Requirements in the Machine Age

- Thinking Differently - Elevate habit while retaining originality
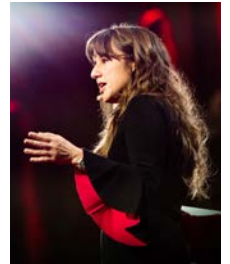
> "
> *Machine intelligence is here. We're now using* *computation to make all sort of decisions, but also new* *kinds of decisions.* *We're asking questions to computation that have* *no single right answers, that are* *subjective and open-ended and value-laden.*
>
> *-Zeynep Tufekci, techno-sociologist*

Both resistance and resilience cause an ecosystem to remain relatively unchanged when confronted by a disturbance, but in the case of resistance no internal re-organisation and successional change is needed.

In contrast, resilience implies that the system is internally re-organising, perhaps through a mosaic of patches that are at different stages of re-assembly.

VUCA

Resilience or resistance

Connect ⚜ Share ⚜ Discover ⚜ Realise

WHAT IS THE FOURTH INDUSTRIAL REVOLUTION

Characterised by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres, collectively referred to as cyber-physical systems.

WHAT IS THE FOURTH INDUSTRIAL REVOLUTION – WORLD ECONOMIC FORUM

The prediction of 5 million jobs lost by 2020 to technology is serious but not main question.

How will we share the wealth?

How will we define work?

Sharan Burrows
INTERNATIONAL TRADE UNION CONFEDERATION (ITUC), BELGIUM

It gives us access to ourselves in ways we never thought before possible.

We need to create a space that enables people to think freely.

Nita Farahany
DUKE UNIVERSITY, USA

We sit there, Program something…as humans, we just come in and take the extra step to help the technology.

SharV Bailey
GENERAL MOTORS, USA

The potential to make inequalities visible.

Make them less acceptable and to take the necessary decision to reduce the gap.

Peter Maurer
INTERNATIONAL COMMITTEE OF THE RED CROSS (ICRC), SWITZERLAND

What is AI

Here's some information:

⬤ Knowledge ⊕

artificial intelligence
Branch of computer science that develops machine

Artificial intelligence, sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and other animals. In computer science AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals.

Comprises   machine learning

Publication date   1956

Wikipedia

What is emotional intelligence

Here's some information:

⬤ Knowledge ⊕

emotional intelligence
Ability to identify, assess, and control the emotions

Emotional intelligence, Emotional leadership, Emotional quotient and Emotional Intelligence Quotient, is the capability of individuals to recognize their own emotions and those of others, discern between different feelings and label them appropriately, use emotional information to guide thinking and behavior, and manage and/or adjust emotions to adapt to environments or achieve one's goal. Although the term first appeared in a 1964 paper by Michael Beldoch, it gained popularity in the 1995 book by that title, written by author and science journalist Daniel Goleman.

Wikipedia

Siri what is human intelligence

OK. Check it out:

⬤ Knowledge ⊕

human intelligence
Intellectual capacity of humans; intellectual prowes

Human intelligence is the intellectual prowess of humans, which is marked by complex cognitive feats and high levels of motivation and self-awareness. Through their intelligence, humans possess the cognitive abilities to learn, form concepts, understand, apply logic, and reason, including the capacities to recognize patterns, comprehend ideas, plan, solve problems, make decisions, retain information, and use language to communicate. Intelligence enables humans to experience and think.

Wikipedia

"

*Not Artificial Intelligence but **Actionable** Intelligence or **Augmented** or **Accelerated**, even **Assisted** intelligence. My new 'A's of AI. It's **how** we augment or accelerate Human Intelligence.*

-Kirk Borne, PhD, Principle Data Scientist and Executive Advisor at Booz Allen Hamilton

AI OR EI OR H2H

Once we can access people's thoughts and access people's emotions, ...?

OUR ROBOT COMPANIONS

- 1920s - Karel Capek coins the term Robot (an automatic creature as worker or servant)

- 1940s - Asimov develops concept of robotics (designing & using automats for human purposes)

- 1950s - Turing introduces the term Artificial Intelligence ('machines that can think')

- 2016 - Hanson Robotics creates Sofia (over 50 facial expressions; 2017 citizenship in Saudi Arabia)

- So what is our future? Total Recall; Elysiuim; iRobot; The Passengers?

- What does evolution teach us … what is the path we are truly taking?
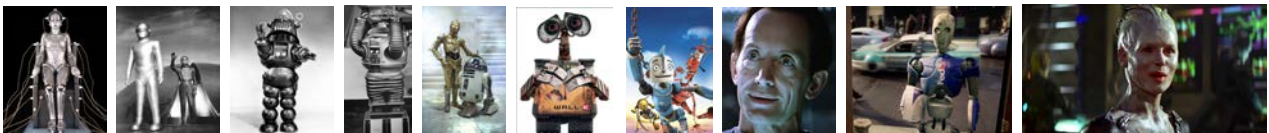
THE DANGEROUS ONES OR JUST MISUNDERSTOOD

Skynet

The Red Queen

ARIIA Autonomous Reconnaissance Intelligence Integration Analyst

The Matrix

V.I.K.I.

The Supercomputer

HAL 9000

Tron

Proteus IV

https://afrogleap.com/blog/innovation/sxsw-sophie-kleber-designing-emotionally-intelligent-machines

@simonejomoore   #CMSGConf2019

FLOUTING THE LAWS

MURPHY'S LAW

FINAGLE'S LAW

@simonejomoore   #CMSGConf2019

FLOUTING THE LAWS

WHAT WILL GO WRONG, WILL…

…AT THE WORST POSSIBLE MOMENT.

A reminder to the engineers and team members to be cautious and make sure everything was accounted for, to let no stone be left unturned—not an acceptance of an uncaring un-influenceable fate.
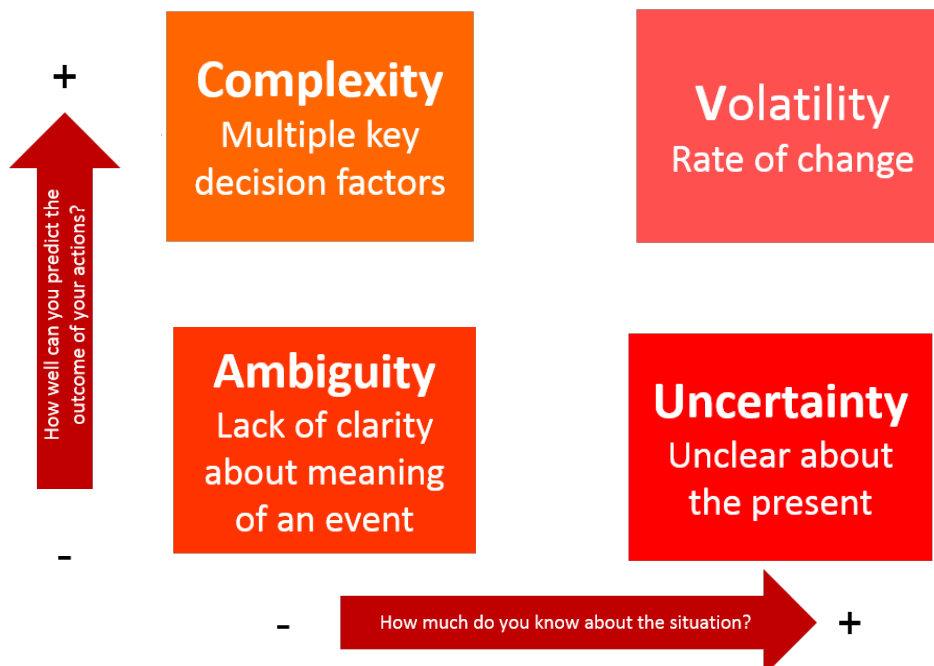
John Stapp's Project MX981

LOSE THAT VUCA FEELING

+

How well can you predict the outcome of your actions?

Complexity
Multiple key decision factors

Volatility
Rate of change

Ambiguity
Lack of clarity about meaning of an event

Uncertainty
Unclear about the present

–

– How much do you know about the situation? **+**
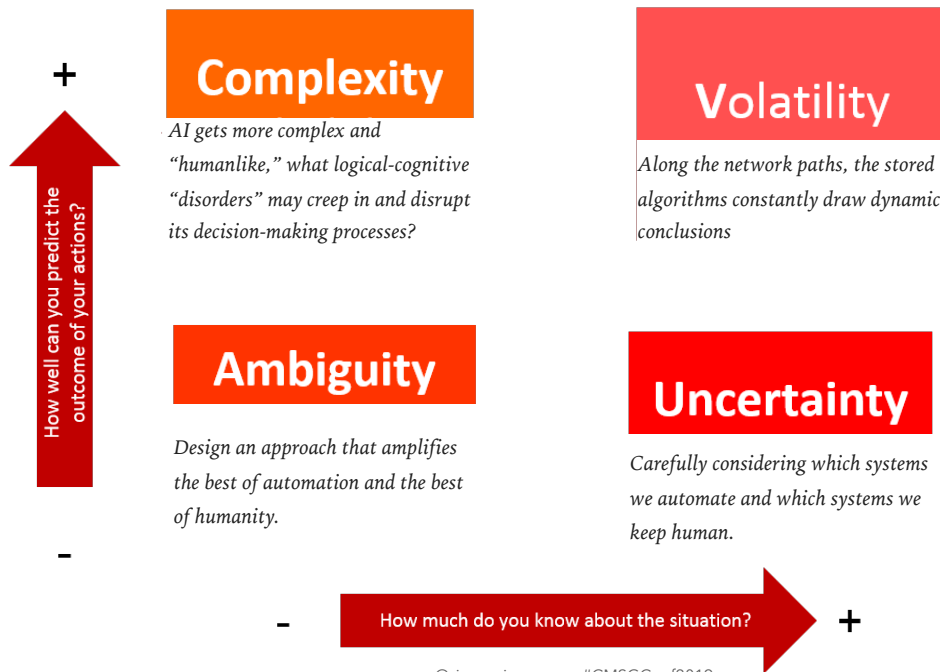
RECOMMENDED

SPOCast

Episode 7
Uncertainty and transformation

SOURCE: https://theboardroomuk.com/blog/that-vuca-feeling-part-1-how-to-prime-your-business-for-resilience

LOSE THAT VUCA FEELING

Complexity

AI gets more complex and "humanlike," what logical-cognitive "disorders" may creep in and disrupt its decision-making processes?

Volatility

Along the network paths, the stored algorithms constantly draw dynamic conclusions

RECOMMENDED

Episode 7

Uncertainty and transformation

Ambiguity

Design an approach that amplifies the best of automation and the best of humanity.

Uncertainty

Carefully considering which systems we automate and which systems we keep human.

SOURCE: https://theboardroomuk.com/blog/that-vuca-feeling-part-1-how-to-prime-your-business-for-resilience

How well can you predict the outcome of your actions?

+ / −

How much do you know about the situation?

− / +

@simonejomoore   #CMSGConf2019

LOSE THAT VUCA FEELING

CONQUER COMPLEXITY
Simplify: consider which processes (internal or customer-facing) can be re-used and multi-purposed, instead of designing everything to work for one application.

VANQUISH VOLATILITY
You want defined (ideally automated) procedures that are part of a system, with triggers to activate them, and follow-on actions and consequences.

RECOMMENDED

Episode 7

Uncertainty and transformation

ATTACK AMBIGUITY
Clarify and gain understanding and agreement. CCC! When people know what they're to do, they are empowered, supportive and more willing.

UPROOT UNCERTAINTY
When the external environment is unpredictable, it's vital to understand how your business works internally and how a change in one factor, will impact on another.

SOURCE: https://theboardroomuk.com/blog/that-vuca-feeling-part-1-how-to-prime-your-business-for-resilience

How well can you predict the outcome of your actions?

+ / −

How much do you know about the situation?

− / +

@simonejomoore   #CMSGConf2019

"

The Service has built its reputation on being 'Always Ready' to meet any maritime challenge by successfully and repeatedly adapting to the situation at hand.

-U.S.A. Coast Guard

RESILIENCE VS RESISTANCE

- Useful to ask two questions:
  1. Will the species of this system be **able to tolerate** it (implying resistance), and if not,
  2. Is **recovery** possible through a successional trajectory, back **to the same, or** at least **a desirable, ecosystem state** (implying resilience)

- Engineering Resilience = (1 / the return time to a stable equilibrium)

- Biodiversity allows ecosystems to adapt to changing conditions

- Provide a balance that can only be achieved by working together

- Different types of symbiotic relationships:

  - **Mutualism**: both partners benefit. (H2H + Machines) not vs. machine

  - **Commensalism**: only one species benefits while the other is neither helped nor harmed.

  - **Competition**: the use of the same limited resource by two or more species in the same place at the same time

  - **Parasitism**: one organism (the parasite) gains, while the other (the host) suffers.

  - **Predation**: Capture and consume

PILOT OR PASSENGER?

A SDK (software developer kit)

The merger of IQ & EQ in tech is inevitable

Affectiva's vision is to humanize technology by

- Enabling machines to sense and adapt to human emotions.

- Enterprises will use emotion analytics to gain richer customer insights

This is Emotion AI.

SMILE	100
JOY	99.991
CONTEMPT	0.00
ANGER	0.00
EXPRESSIVENESS	**100.00**

58:48

Source: Rana el Kaliouby, Co-Founder & CSO of Affectiva (MIT Spinoff)

AFJ Solutions Cherwell

WHAT ARE YOU DOING WITH IT?

OLIVERAPI

Align your programming with the future and make your applications emotionally intelligent! Emotion AI for Voice is here.

Whether it's for a virtual assistant on a mobile phone, on the web, in a car, on a smart speaker, or for a social robot, you can now design and build engaging interactions which can seamlessly benefit from our internationally acclaimed speech emotion recognition technology. Introduce **Emotion AI for Voice** with our robust and fast evolving **OliverAPI**
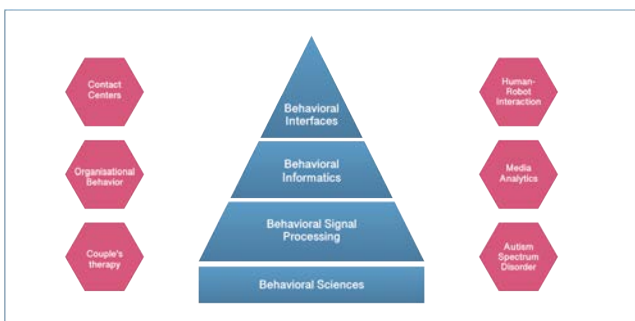
Traumatic events change brain circuits that process emotion and muscle tone, affecting a person's speech

Researchers have developed an artificial intelligence (AI) tool to diagnose post-traumatic stress disorder (PTSD) in war veterans by analyzing the rhythm and tone of their voices. 89% accuracy in distinguishing those with vs. those without PTSD.

Source: https://www.ctvnews.ca/sci-tech/artificial-intelligence-used-to-diagnose-ptsd-by-analyzing-veterans-voices-1.4389599

Contact Centers

Organisational Behavior

Couple's therapy

Behavioral Interfaces

Behavioral Informatics

Behavioral Signal Processing

Behavioral Sciences

Human-Robot Interaction

Media Analytics

Autism Spectrum Disorder

Behavioral Signal Processing (BSP)[1] *is a recently proposed approach that employs state-of-the-art techniques to measure, analyze, and model human behavior directly from signals, with the ultimate goal of providing valuable information back to humans for making decisions.*

Source: https://behavioralsignals.com/behavioral-emotional-analytics/

AFJ Solutions Cherwell
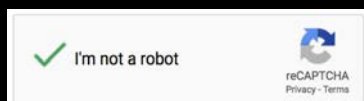
TALENTED

In the Machine Age

Connect ❖ Share ❖ Discover ❖ Realise

FUTURE OF JOBS REPORT 2018

WORLD ECONOMIC FORUM

"[A]s the rate of skills change accelerates across both old and new roles in all industries, proactive and innovative skill-building and talent management is an urgent issue. What this requires is a [talent development] function that is rapidly becoming more strategic and has a seat at the table."

— World Economic Forum

Source: Future of Jobs Report 2018, World Economic Forum https://www.weforum.org/reports/the-future-of-jobs-report-2018
Source: https://www.sfia-online.org/en

FUTURE OF JOBS REPORT 2018

WØRLD
ECONOMIC
FORUM

Table 4: Comparing skills demand, 2018 vs. 2022, top ten

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytical thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality and initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality and initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving and ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analysis and evaluation	Technology use, monitoring and control

Source: Future of Jobs Report 2018, World Economic Forum https://www.weforum.org/reports/the-future-of-jobs-report-2018

Source: https://www.sfia-online.org/en

TRANSFORMING TALENT ACQUISITION

- Statista 2018 study - 94% recruiters use LinkedIn to vet candidates, with positive results.
- AI changing the scene:
    - Scanning keywords in resumes is now common practice among large firms
    - Machine learning assessing a candidates public profiles for personality traits
    - Avatars interviewing candidates
- The WSJ report two firms upending the hiring process:
    - DeepSense, scans social media accounts to develop a picture of the candidate's personality
    - HireVue assesses the candidate's behaviour from a recorded video interview
- Capgemini found:
    - 63% organisations say AI has not eliminated any jobs in their organization
    - 83% of these organisations reported AI instead created more jobs
- Unilever Case study - 250K applications: 90% reduction in time to hire and 16% up in hire diversity

ARE YOU A 'DESTINATION COMPANY'?

- People to Technology
- People to Process
- People to People

SYSTEMS
make it possible

PEOPLE
make it Happen

Class of 2018, it's not the technology you build that will define you. It's the teams you build – and what people do with the technology you build.

Sheryl Sandberg

COO Facebook & founder of leanin.org

I'M NOT A ROBOT, BUT I WAS PROGRAMMED…

EVOLVING ROLES & SKILLS

- Developing people means equipping them with the skills they need to handle change and dynamic situations.

- HR & L&D become the two most important areas and inspire to go and think about learning in a different way

- Potential of what already exists within - how do we extend our capability?

  - Face pace access to AI training

  - How do we train and learn to code human creating an internet of humanity?

  - New Languages - DNN (Deep Neural Networks); CNN (Convolutional neural network)

  - Innovation that leads to something tangible not just a new idea or concept

---

EVOLVING ROLES & SKILLS

- The extent to which the population has the necessary skill-set to work with AI is a key measure of performance:

  - AI trainers

  - Humanities and writer backgrounds driving personalities and interactions

  - Data detectives, czars & strategists

  - Empathy trainers combined with sensory artists skills

  - Machine Learning Scientists

  - Robot whisperers

  - 'Co-Bots' Collaborative robots

  - AI forums: thought leaders

*Master's Program Human-Technology Interaction TU Eindhoven*

ROBOPSYCHOLOGIST

- A person who creates a bridge between human and AI learning and interaction

- Create learning algorithms to provide 'it' with tools it requires to acquire new information, similar to mechanisms babies use to observe and learn new behaviour

- Helps 'it' to acquire information in a way that enables better decision making

- Analyses contemporary learning and decision-making algorithms and adjusts them to function better in real-world scenarios

- Transformation data and knowledge management maps

MENTAL HEALTH AI

- Still use 1-10 scale of how we feel - happy, pain, depression … what if we could measure this?

- Empathy Engine - FINE investigates ways to identify the progression of mental illness and track the early signs of depression, anger and anxiety. *Source: https://go.globallogic.com/method_FINE*
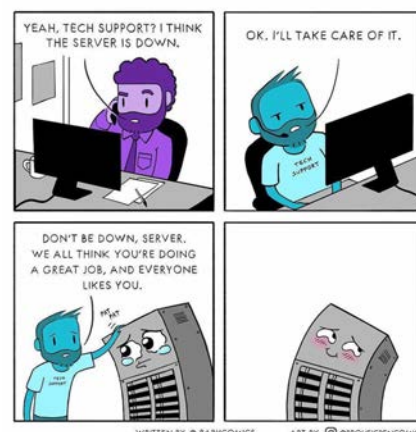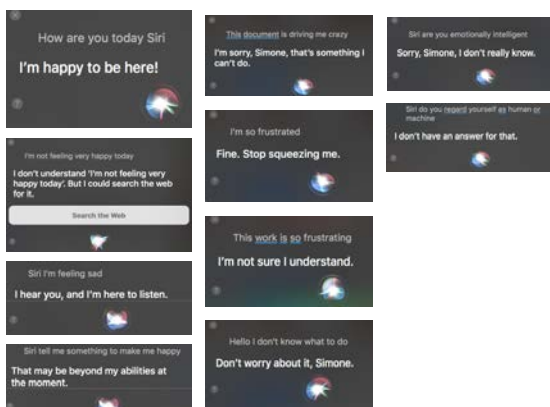
WHERE'S THE EI IN AI?

- Behind all the innovation, behind the cities, the digital development it's people who are making the difference and leading the change.

- There is a point where teams and industry grows and at a certain point, the brain is simply not enough - that's when skillset of EI comes into play.

- Most important is the benefit of connecting with others, facilitating the connection with others. A skill needed in time to come and NOW.

> Take the space to acknowledge, and have the space before impulse and act the way we choose to program ourselves - conscious decision to choose a behaviour

Source: Larisa Halilović, Adult Education, Linguistics and Psychology Source: https://youtu.be/_c0_GtVGQDw

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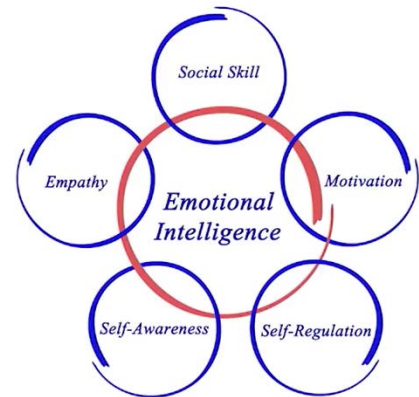
FUNDAMENTAL TO AI & H2H – TRUST EI COMPETENCIES

- Creating a 'safe' environment for your people is more than the physical.

- There is untapped potential in your talent pool when you allow the space for courage and freedom for the talent to emerge, influence and expand.

- "One of the fundamental skills for all humans in an AI world is accountability - just because the algorithm says it's the answer, it doesn't mean it actually is."

If we cannot build a workforce that is resilient in the face of constant change, then we will cease to exist.

RE-PROGRAMMING

Your Results

"THE MEDIATOR"
(INFP-T)

🏷 DIPLOMAT
⚙ CONSTANT IMPROVEMENT

36%	INTROVERTED	64%
63%	INTUITIVE	37%
21%	FEELING	79%
46%	PROSPECTING	54%
47%	TURBULENT	53%

CULTIVATING RESILIENCE

"Research finds that resilient people excel in problem solving, positive communication, emotional intelligence, and emotion regulation. They tend to be hopeful and optimistic, and have higher levels of self-esteem."

Melody Wilding - Professor of human behaviour at Hunter College

- Change your relationship to stress
- Manage your emotions
- Act in the face of ambiguity
- Don't skimp on self care
- Nurture your network

Resilient people don't walk between the raindrops; they have scars to show for their experience.

Source: https://qz.com/work/1570546/how-to-make-yourself-resilient-five-tips-for-handling-stress/

Photo by Sarah Diniz Outeiro on Unsplash

We cannot outsource our responsibilities to machines.

THINK DIFFERENTLY
Elevate Habit - Retain Originality

Connect ❧ Share ❧ Discover ❧ Realise

AI READINESS BENCHMARK

What the best countries have in common is that besides an above average developed IT Maturity and thereby infrastructure, is that their IT Skill Advancement is also much better than the median.

Source: Capgemini AI Readiness Benchmark report 2018

■ Institutional Environment ■ IT Maturity ■ IT Skill Advancement
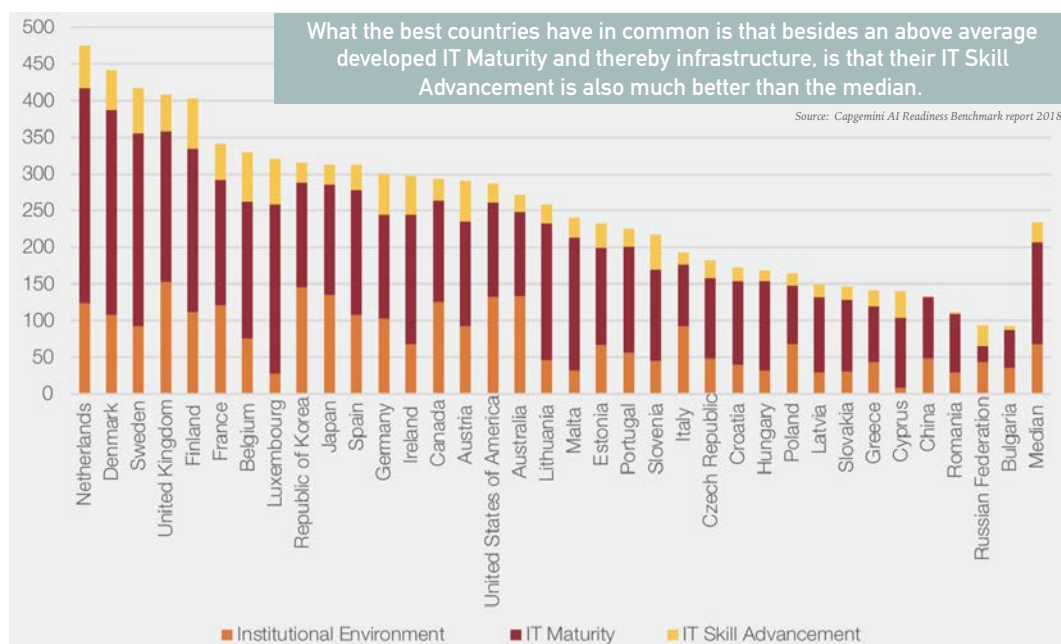
YOUR WISH IS OUR COMMAND – WILL IT BE SO?
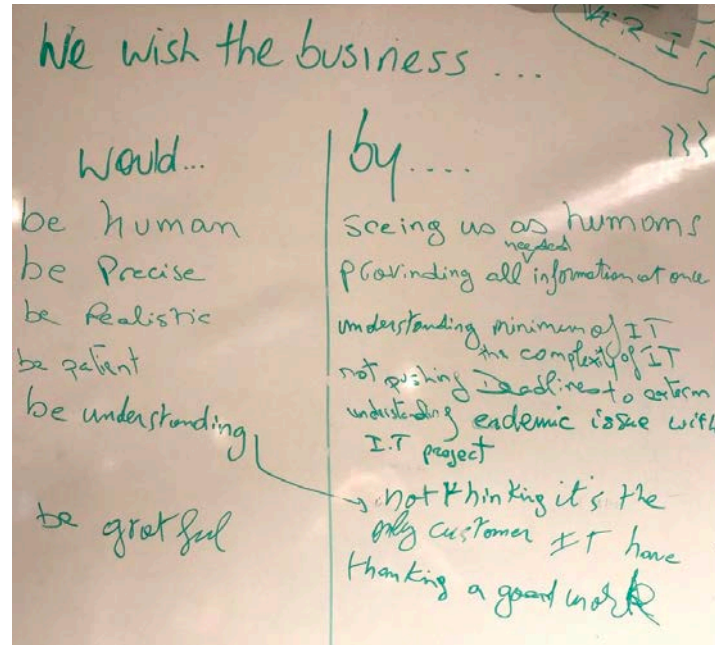
DIGITAL TECHNOLOGY IS MERELY THE CATALYST

- Operational Sustainability
  - Does your organisation have a stable base to operate from?
- Organisational Agility
  - How quickly can your organisation react to change?
- Strategic Agility
  - How well does your organisation anticipate change?
- Disruptive Culture
  - How receptive is your organisation to implementing change?

Source: http://www.institutefordigitaltransformation.org/readiness-framework/

BUILD ME A SAND CASTLE

"Innovation starts with disobedience"
~Ivor Macfarlane

BUILD ME A SAND CASTLE

"Innovation starts with disobedience"
~Ivor Macfarlane

Doing new things ↑	Doing things you couldn't manage before	Doing things you can't even imagine yet
	Quicker Faster Cheaper Greener Easier	Doing the old things differently

©IvorMacfarlane
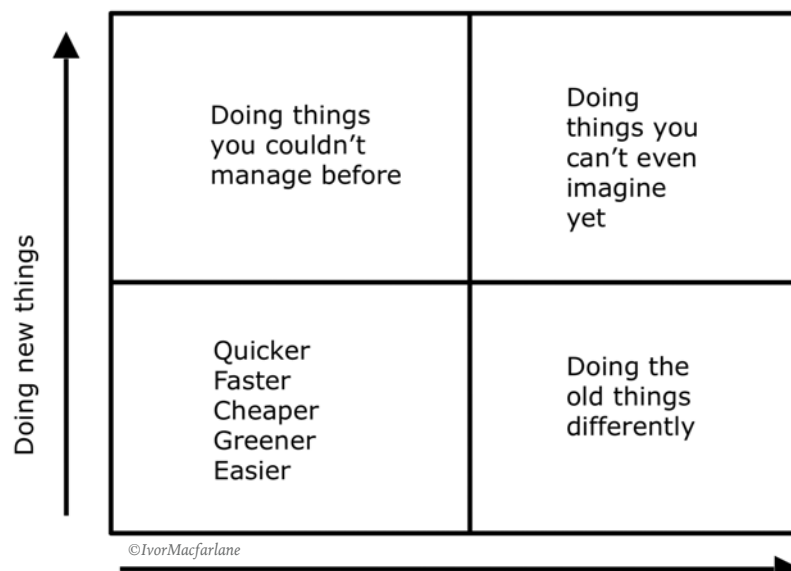
Doing things in new ways →

ROBOT PSYCHOLOGY

- Russian experts have created a special robot for psychological support to astronauts working at the International Space Station

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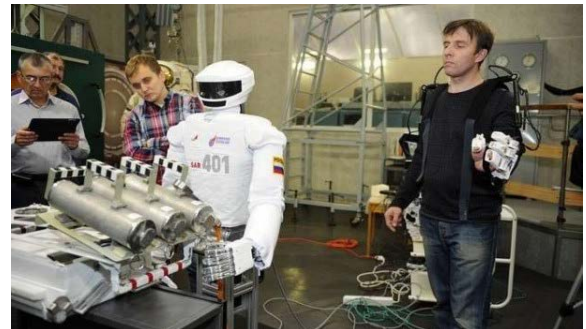
❣️*Emotional Agility Concept*

"

Walking Your Why

Your core values provide the compass that keeps you moving in the right direction. Rather than being abstract ideas, these values are the true path to willpower, resilience and effectiveness.

-Susan David, Ph.D Harvard Medical School & CEO of Evidence Based Psychology

TECHNO ETHICS

- UK creates advisory body, the Centre for Data Ethics and Innovation
- BCS has a group dedicated to the study of AI: The Specialist Group for Artificial Intelligence.
- Google opens new French AI Research centre
- Facebook plans on doubling size of AI lab in Paris by 2020
  - *"Humans have nothing to fear regarding artificial intelligence potentially harming humanity. We have a lot of checks and balances built into society to prevent evil from having infinite power." Head of Facebook AI, Yann LeCun*
  - *December 2017, FB patented a camera placed in shops and shopping malls that recognises people's profile. Know your search patterns on FB and google and the camera watches our behavioural signals in the shop.*
- GDPR - framework for *transparency rights and safeguards* against automated decision-making; *right to contest* a completely automated decision if it has a legal or other significant effect on them.
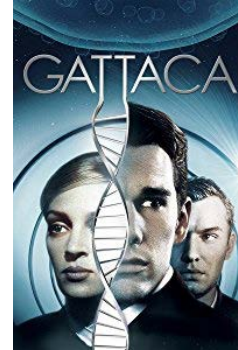
TECHNO ETHICS

- 2017 - Germany legislation - AI must be built to favour lives over property in autonomous vehicles.
- The ability for countries to develop and license this technology is a game-changer:
  - Liability for issues caused by automation and AI
  - Companies who replace employees with automation and/or AI could face a number of employee and industrial relations issues.
- Take responsibility - create a code of conduct - what lines won't your AI cross?
- Make your AI transparent:
  - algorithmic accountability, auditing and meaningful transparency
  - how your AI is made, what it does, how you reduce bias
- Keep humans in control
- Don't fear AI, explore AI

TECHNO ETHICS

AI ETHICS LAB
—
A LAB FOR RESEARCH + CONSULTING IN AI ETHICS

INDEPENDENT
HIGH-LEVEL EXPERT GROUP ON
ARTIFICIAL INTELLIGENCE
SET UP BY THE EUROPEAN COMMISSION
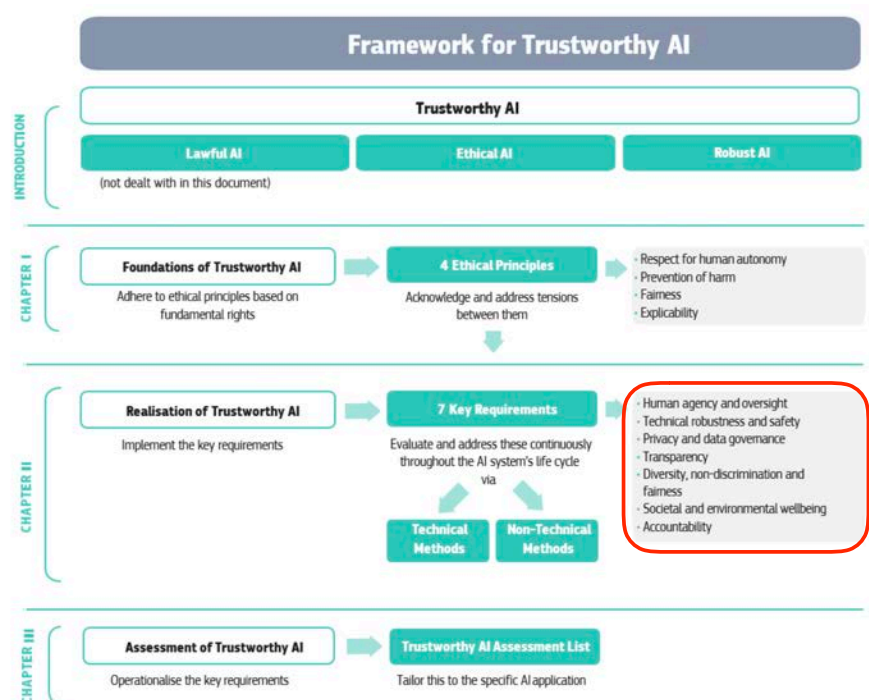
ETHICS GUIDELINES
FOR TRUSTWORTHY AI

- (1) Understanding Ethics: researchers' and developers' awareness and understanding of ethics

- (2) Ethics Analysis: embedding ethical analysis into the design and development process

- (3) Institutional Ethics Policy: developing institutional policies for recurrent crucial ethical questions

- (1) it should be lawful, complying with all applicable laws and regulations

- (2) it should be ethical, ensuring adherence to ethical principles and values and

- (3) it should be robust, both from a technical and social perspective since, even with good intentions, AI systems can cause unintentional harm.


TECHNO ETHICS

Based on fundamental rights and ethical principles, the Guidelines list seven key requirements that AI systems should meet in order to be trustworthy.

Framework for Trustworthy AI

INTRODUCTION	Trustworthy AI		
	Lawful AI	Ethical AI	Robust AI
	(not dealt with in this document)		

CHAPTER I	Foundations of Trustworthy AI	4 Ethical Principles	· Respect for human autonomy · Prevention of harm · Fairness · Explicability
	Adhere to ethical principles based on fundamental rights	Acknowledge and address tensions between them	

CHAPTER II	Realisation of Trustworthy AI	7 Key Requirements	· Human agency and oversight · Technical robustness and safety · Privacy and data governance · Transparency · Diversity, non-discrimination and fairness · Societal and environmental wellbeing · Accountability
	Implement the key requirements	Evaluate and address these continuously throughout the AI system's life cycle via	
		Technical Methods Non-Technical Methods	

CHAPTER III	Assessment of Trustworthy AI	Trustworthy AI Assessment List	
	Operationalise the key requirements	Tailor this to the specific AI application	

HUMAN CENTRED DESIGN & HUMANOPS FOCUS

A design and management framework that develops solutions to problems by involving the human perspective in all steps of the problem-solving process.

Innovation happens in the space within the mess
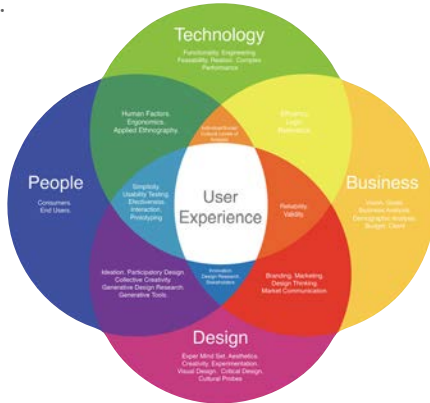
- The Mantra:

  – Humans build systems

  – Humans need downtime. We get tired and stressed, feel happy and sad

  – Our wellbeing directly impacts system reliability

  – Our health affects the business health

  – Document everything, teach everyone, save time

  – Automate everything. Escalate to a human as a last resort

Source: https://www.humanops.com

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The potential of AI isn't found in a line of code or the plot of a sci-fi movie. It's in us. Together the possibilities are exponential.

-sas.com

Collaboration creates
Conversations creating better
Communication creating wider
Transparency and deeper
Trust.

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CONGRATULATIONS

…you survived listening to me.

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