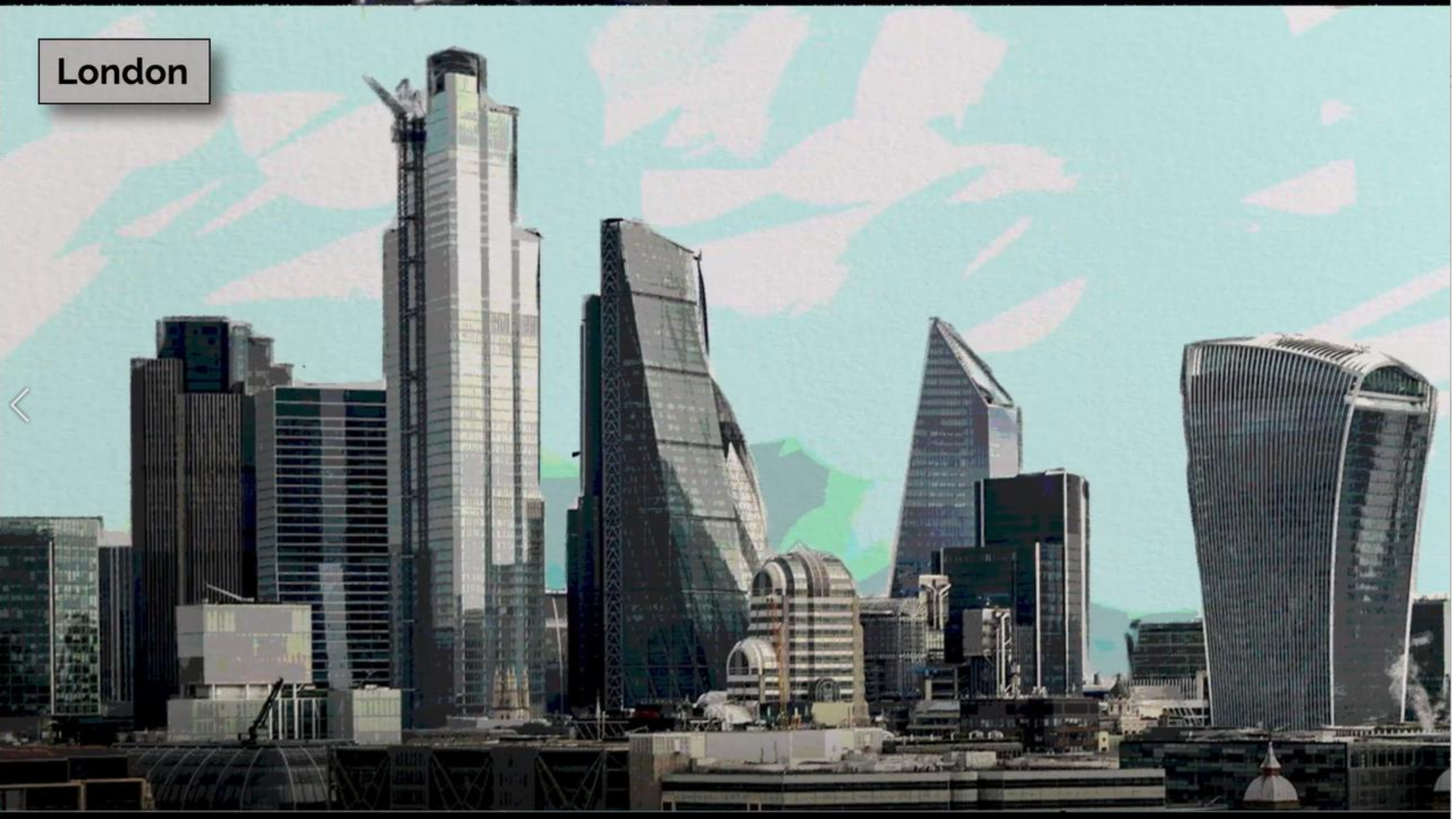


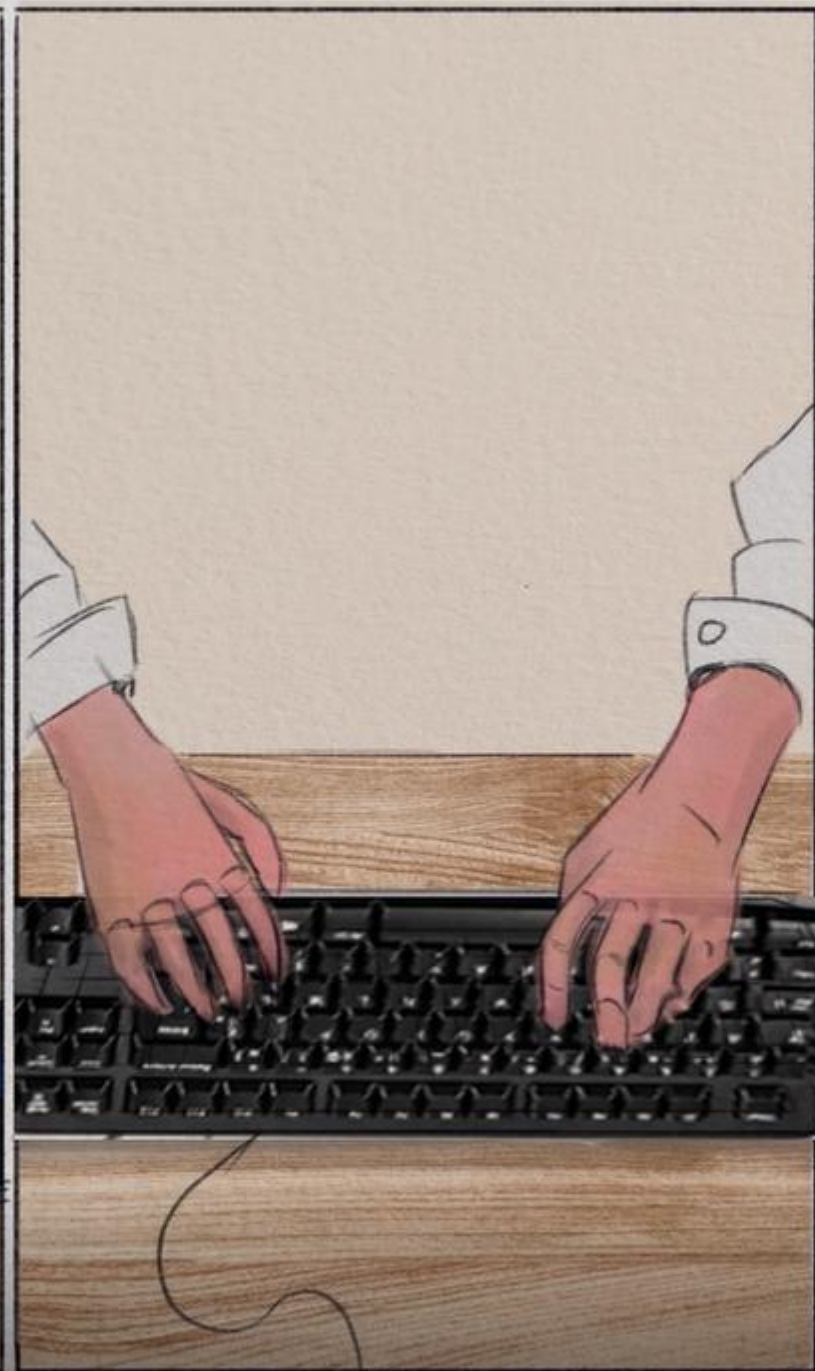
Can we change behaviours in real-time?

A behavioural science approach



London



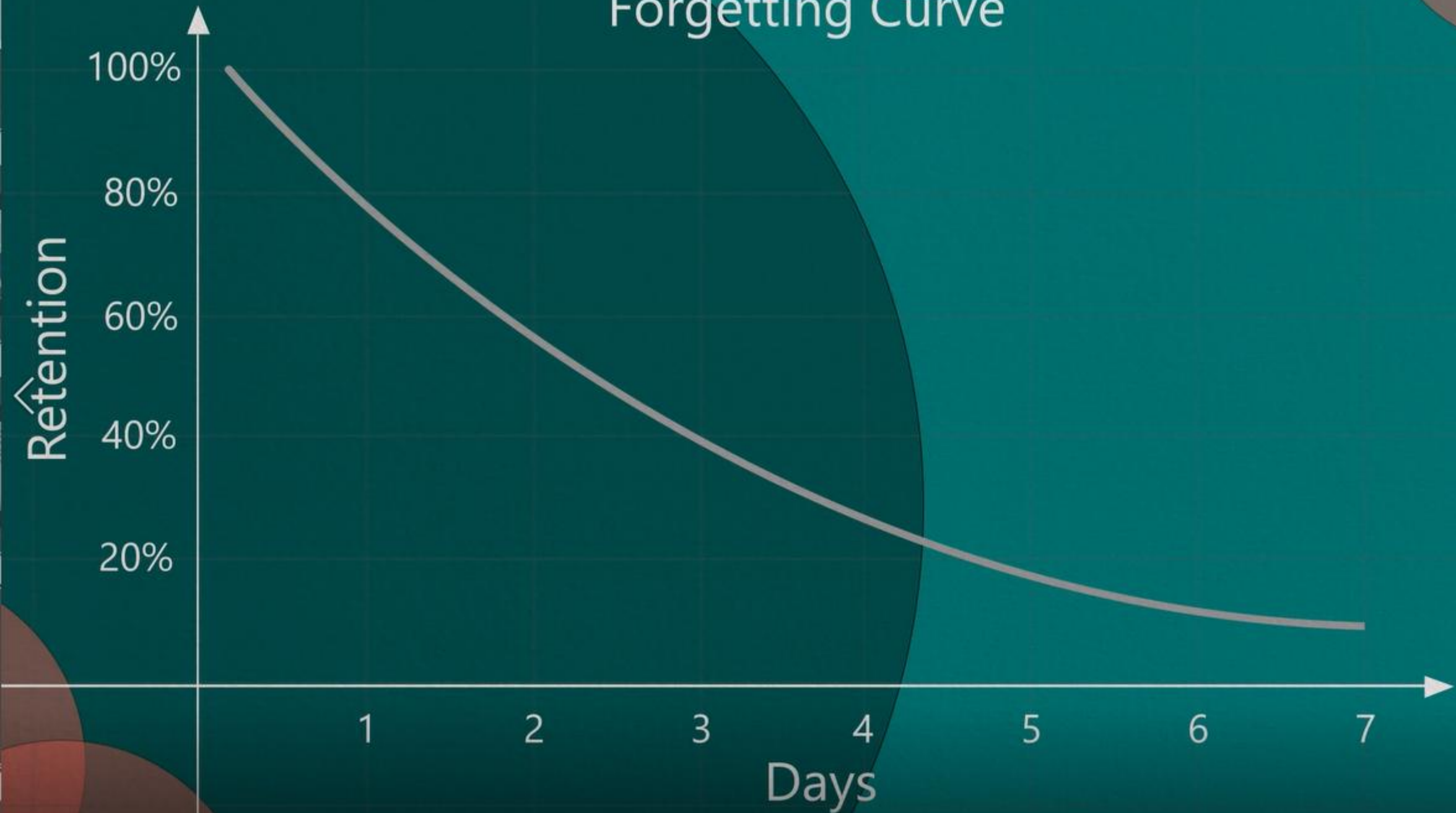


Kate is doing her annual security awareness...

...She is obviously bored.



Forgetting Curve



**In the following days, work gets busier
for Kate in preparation for her holidays.**





And when she comes back, she needs to catch up with what she missed.



and distractions come from many different sources...



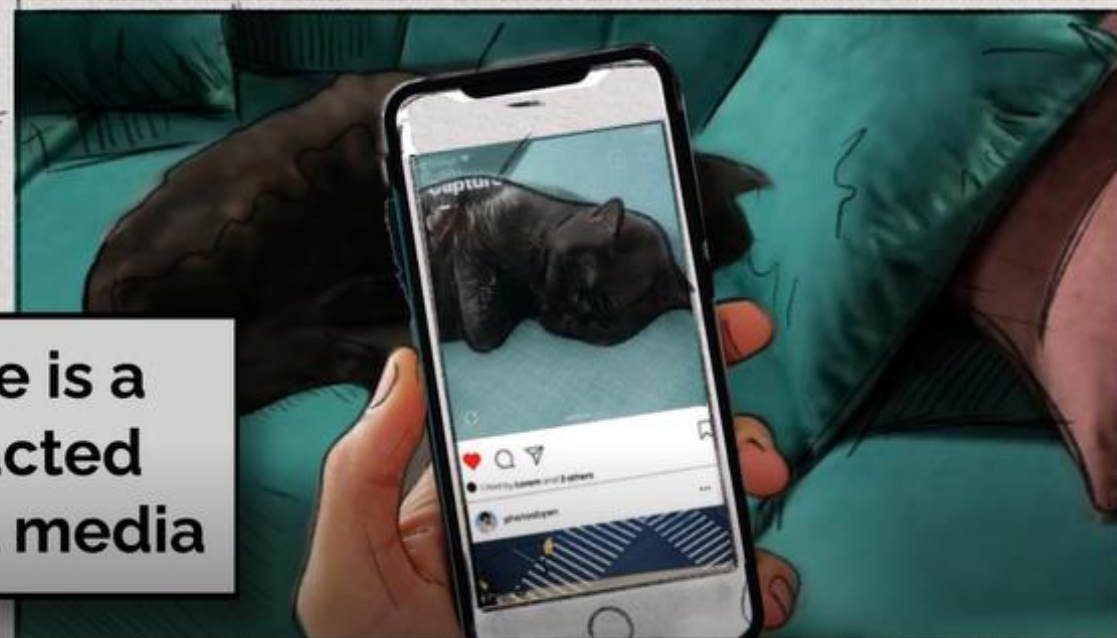
One day after work, Kate goes out for a drink with some friends and she comes back home later than usual...



The next day she
feels tired, drinks a
lot of coffee...



... and she is a
bit distracted
by social media



...she receives an
urgent request from
a client...





Kate clicks
the link in the
email...



ready to
upload the
file...



What am I supposed to do again?

What does the science tell us?

- Fast and slow thinking
- Availability heuristic
- Present bias
- Authority
- Importance of context
- Affect / emotion
- Spacing



When might have been an opportune moment to help Kate?

❖ Phish test train – an opportune moment?

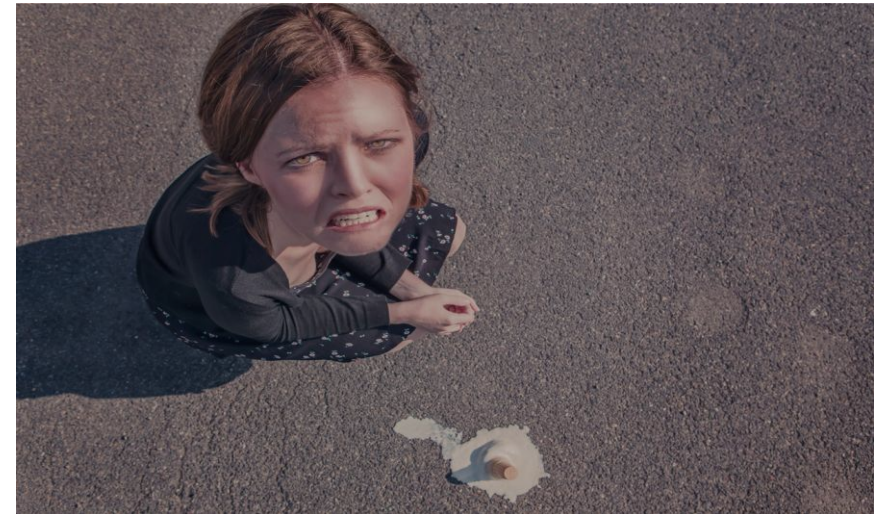
Do we learn at the point of failure? The research...

Binary-choice questions with success or failure feedback

Both types of feedback conveyed the correct answer.

Participants learned less from failure feedback than from success feedback.

Participants who received failure feedback also remembered fewer answer choices.



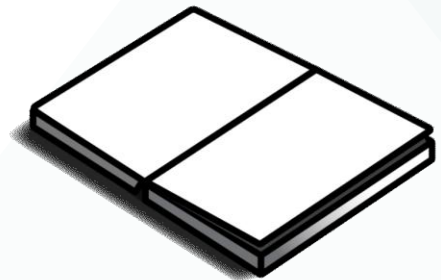
"Failure is ego threatening, which causes people to tune out and miss the information on offer."

❏ Too little too late

Training post incident

- Potentially seen as a punishment
- Can people remember what / why in order to contextualise the training?
- It is certainly NOT Real-time

Is this even a knowledge thing?



What are we trying to achieve?

- ▶ Compliance?
- ▶ Expertise?
- ▶ Awareness?
- ▶ Behavioural change?



➤ Awareness is only the first step

The real challenge has to be how to **engage**, **change** and **sustain** secure behaviours.



Successful companies understand user behaviour

Facebook, Instagram, Amazon, Apple all understand how to hook people on their products

✶ We **can** change behaviours for good

Applying 'Nudge' theory, behavioural and learning science techniques...



- 'Social norms' increased effort by up to 300%
- 'Priming' increased action by 35%
- 'Spacing' increased retention by up to 200%
- 'Personalisation' increased action by 30%

What if? ... People Centric Security

- ▶ People focused on their day to day tasks
- ▶ People find it easy to act securely
- ▶ People are motivated to act securely
- ▶ People are given cues to make secure decisions at points of risk*

**A key requirement for change see later*

- ▶ Security teams can measure engagement, align awareness accordingly, gain visibility of risky behaviours



**Measurable secure
behavioural change**

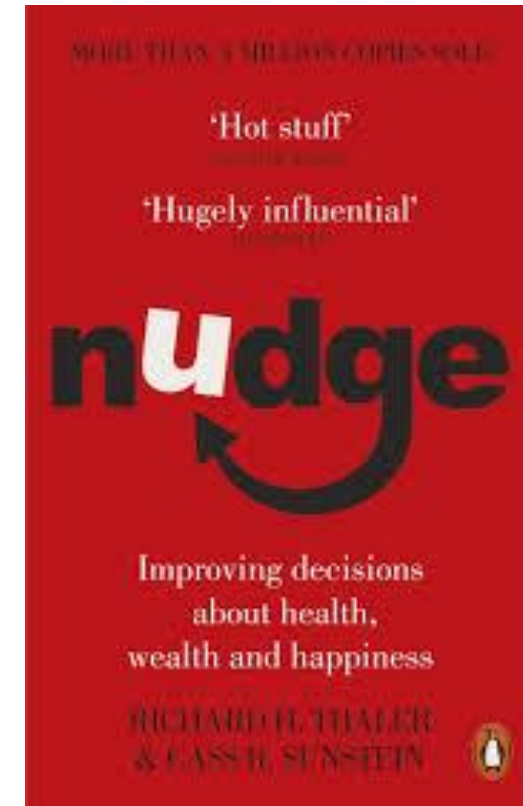
Behaviour models

Attempt to predict or explain how and why behaviours happen

Provide frameworks for behavioural interventions – to change behaviour

HEALTH WARNING

Provide simplified models of complex processes, involving less-than-rational human beings...



Behaviour takes place in context

ABC model (Stern, 2000)

Behaviour (B) is 'an interactive product of personal **attitudinal variables** (A) and **contextual factors** (C)'

Attitude-behaviour link is strongest when contextual factors are weak or non-existent

There is virtually **no link between attitudes and behaviours** when contextual factors are strong

Building a good disruptive “cue”

BJ Fogg – the three factors for ANY behaviour to happen...

- ▶ Ability
- ▶ Motivation
- ▶ Prompt

The “Nudge Unit” –four components of an effective nudge... EAST

- ▶ Easy
- ▶ Attractive
- ▶ Social
- ▶ Timely

<https://www.behaviormodel.org/>
<https://www.bi.team/publications/east-four-simple-ways-to-apply-behavioural-insights/>

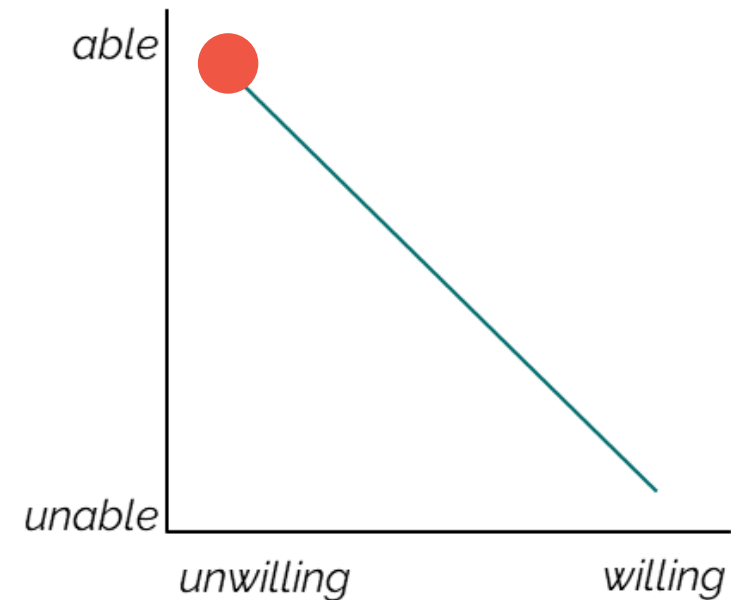
More insights (courtesy of BJ Fogg)

The relationship between
Motivation and Ability
...the reality of where Secure
Behaviour Change sits on this line

People will be unwilling, so it
needs to be easy!

Order matters

- Don't start with motivation, start with a prompt



See BJ Fogg - <https://www.tinyhabits.com/>



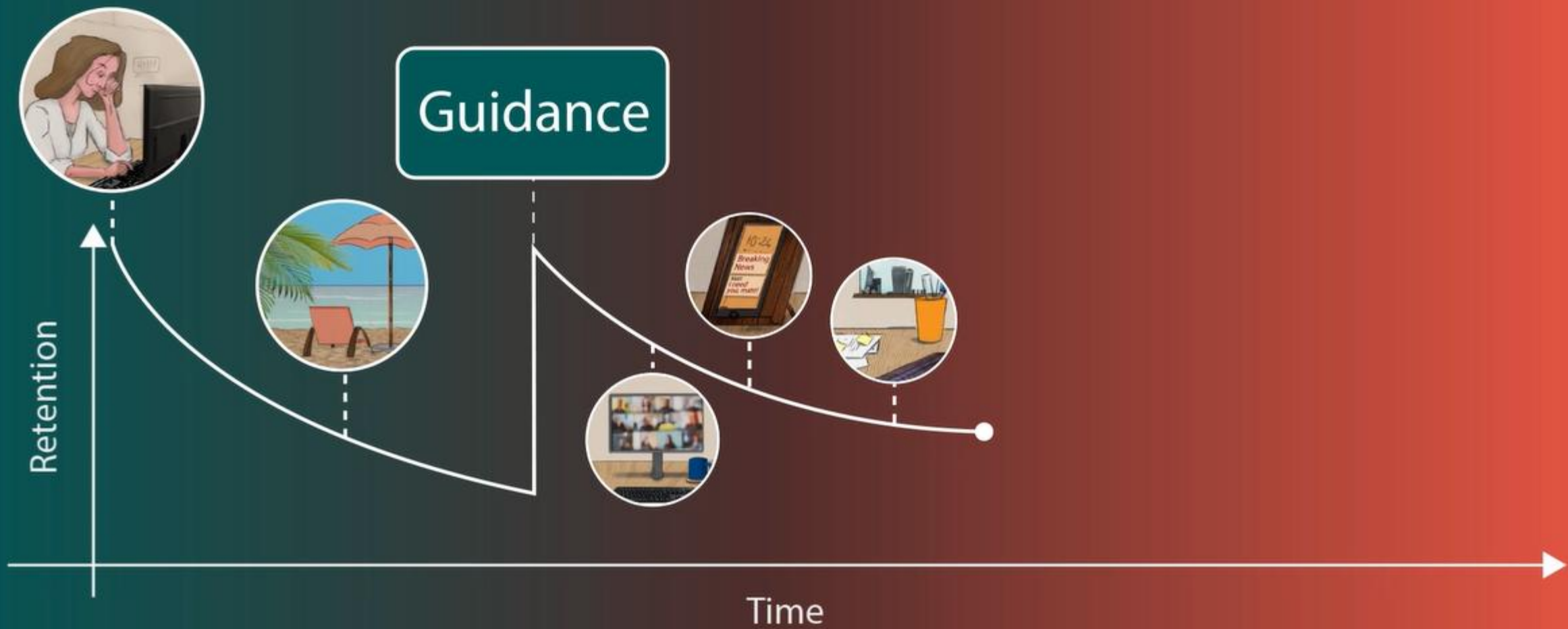


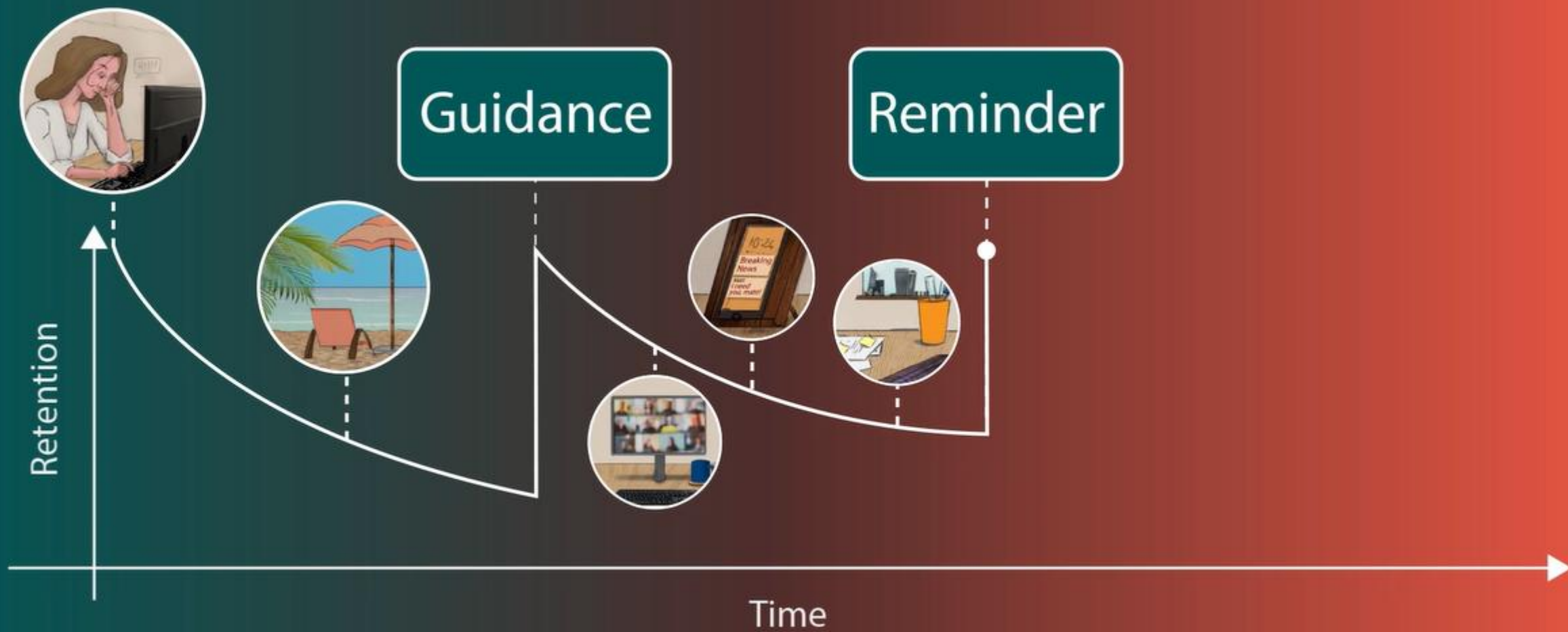
Guidance

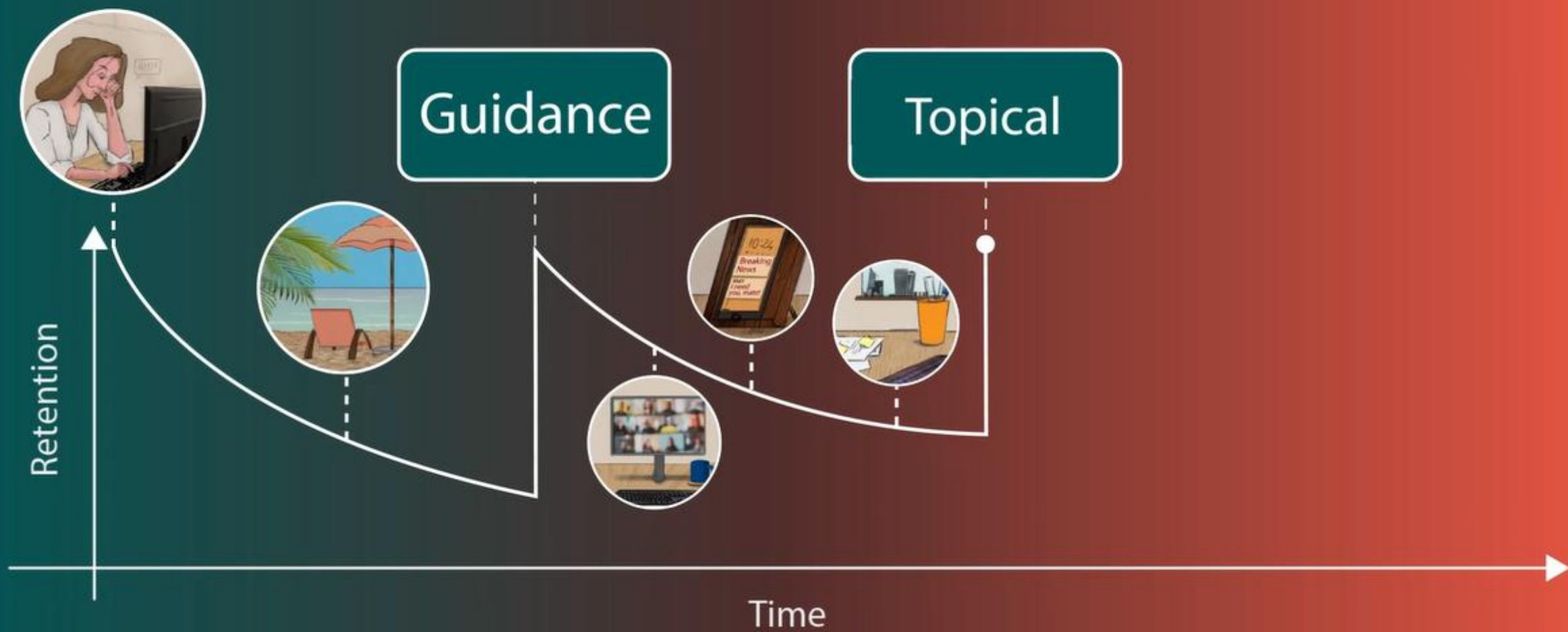


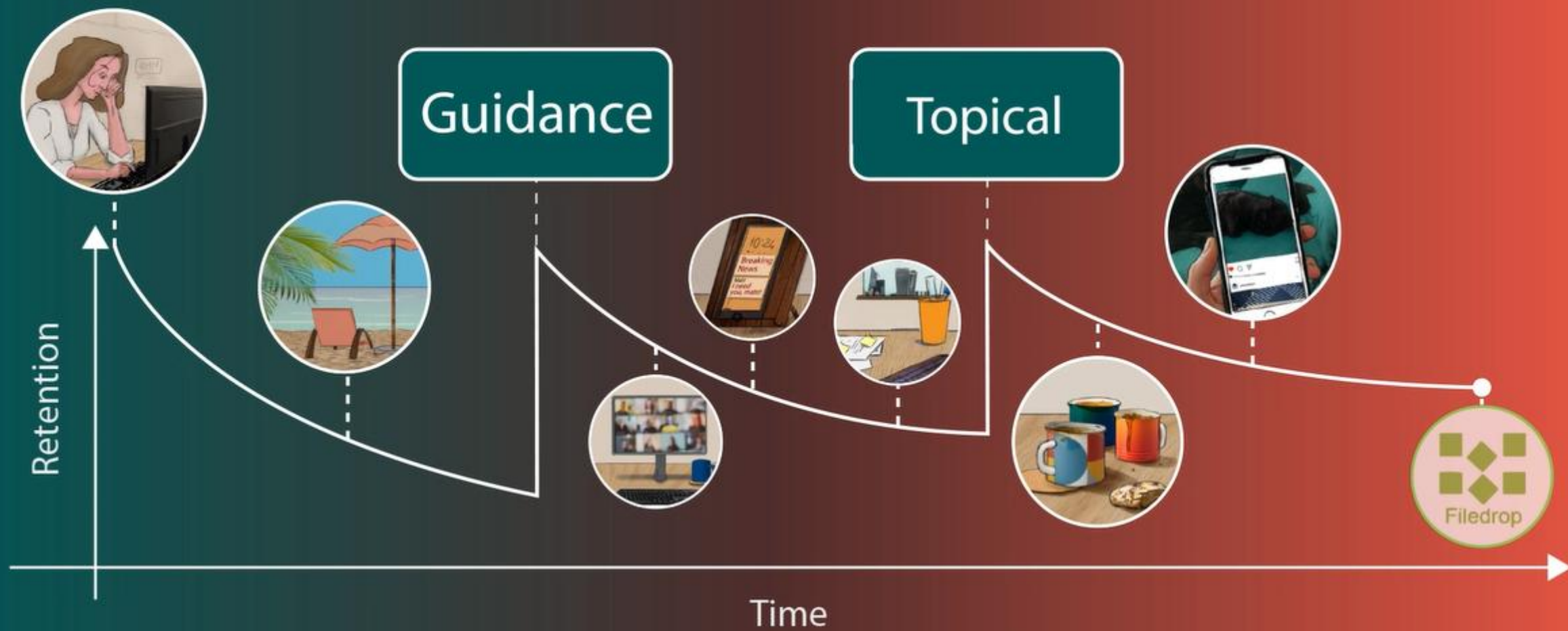
Retention

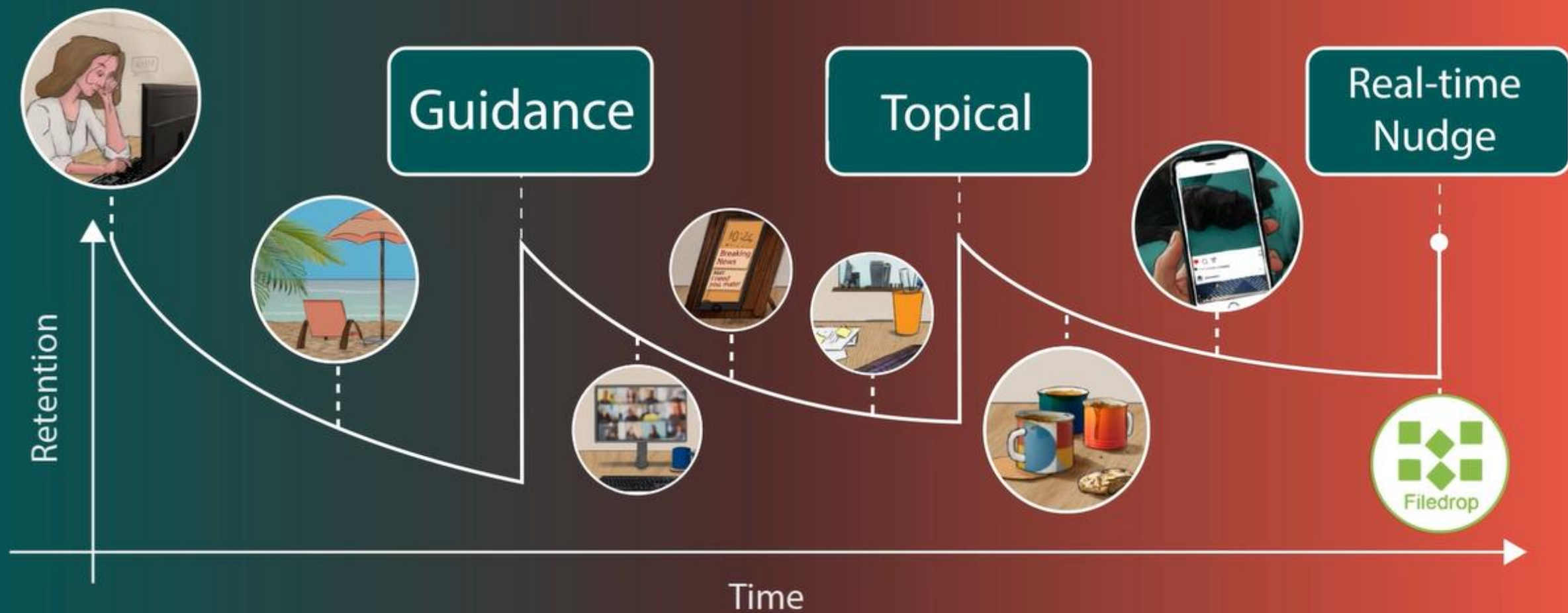
Time











When do we intervene?



eLearning
Videos

TOO SOON

Quickly forgotten
Out of context

CONTEXT



TRIGGER



ACTION

Prime before
the behaviour

Intervene
just-in-time

Baseline
behaviours



Post incident
simulations

TOO LATE

Punishment with training
Hard to contextualise

Summary of key points

All behaviour takes place “in context”

- so that is where efforts to empower your people must start

Easy and actionable.

- Desired changes need to be as easy as possible.
- Be realistic: assume motivation will be low.

Social proof is an essential motivation.

- “If others are doing it, so will I”.

Timeliness is key.

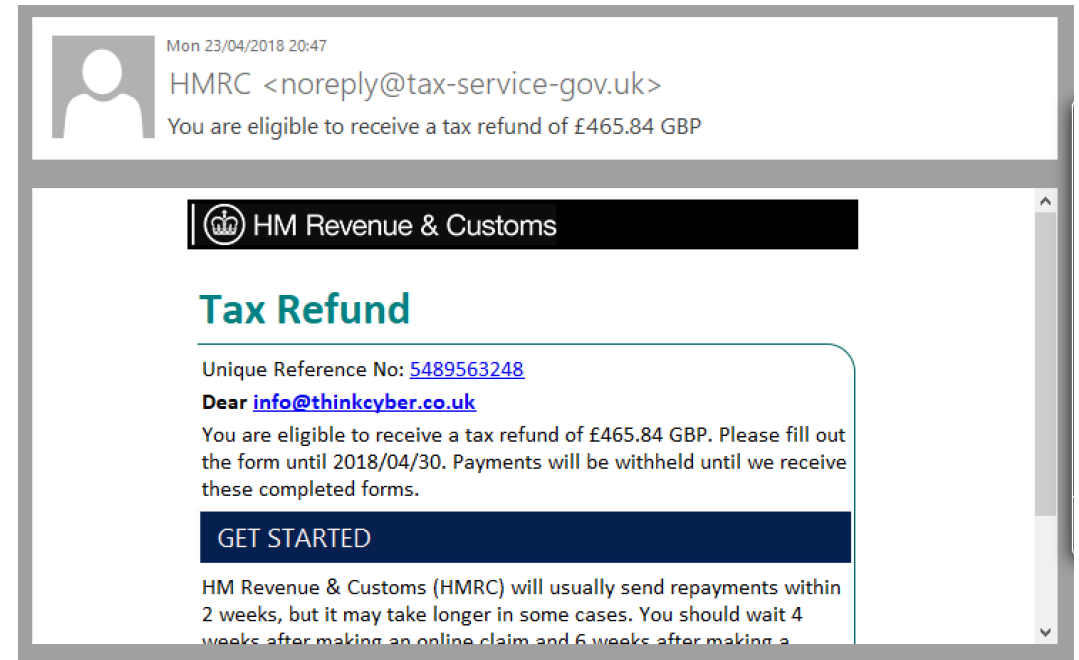
- Behaviour change won't happen without prompts.

Annual or even quarterly awareness is not timely!

Example: safe email use

Key behaviours to avoid phishing:
Think before you click
Report suspicious emails

How to change end-user behaviour to think before clicking links and report suspicious emails?



Example: safe email use

PROMPT

(Prompt the change)

Timeliness is key

- ▶ Deliver the prompt when in email
- ▶ A clearly visible reporting button can be a good prompt
- ▶ "You're in email, remember phishing"
- ▶ "Is this link safe?"

ABILITY

(Make it easy)

Easy to remember

- ▶ Don't over-complicate
- ▶ Reinforce need to be cautious with email

Easy to act

- ▶ Simple message: "if it doesn't feel right, then report it"
- ▶ Reporting button

MOTIVATION

(Make people want to)

Threat appraisal

- ▶ How many phishing emails received?
- ▶ Distribute real examples

Social proof

- ▶ How many reports have been made? ("Your colleagues are reporting...")

In context nudges

Delivered in context

Nudge the user when they encounter a link in an email from an external sender

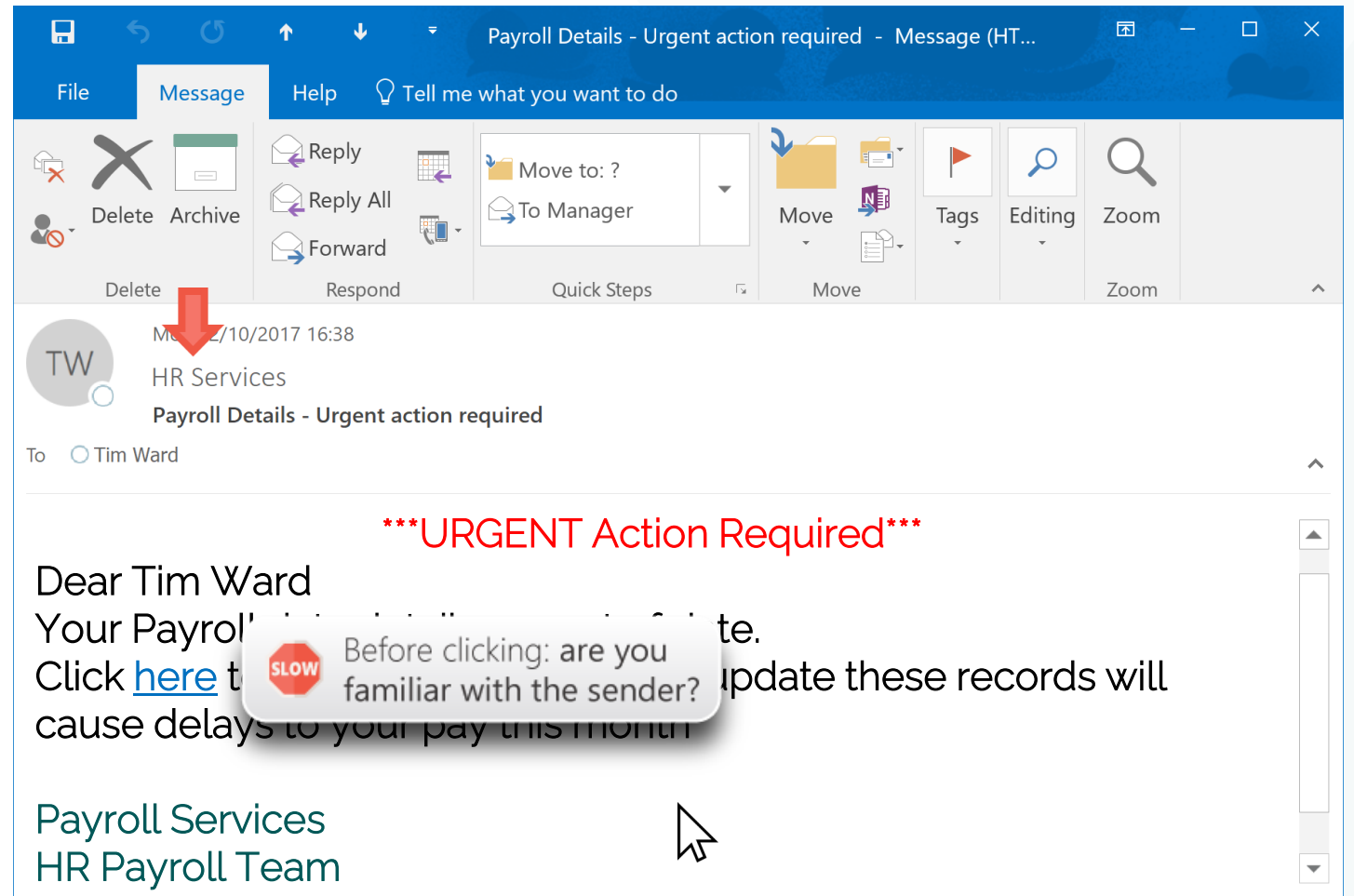
Promotes desired behaviour

Move from System 1 (automatic) to System 2 (deliberate) thinking

Engagement tracking

Measurement of nudge statistics to track trends Link hovered vs link clicked

“Disruptor” or “Spark”



In context nudges

Delivered in context

Nudge the user when they enter credentials AFTER clicking

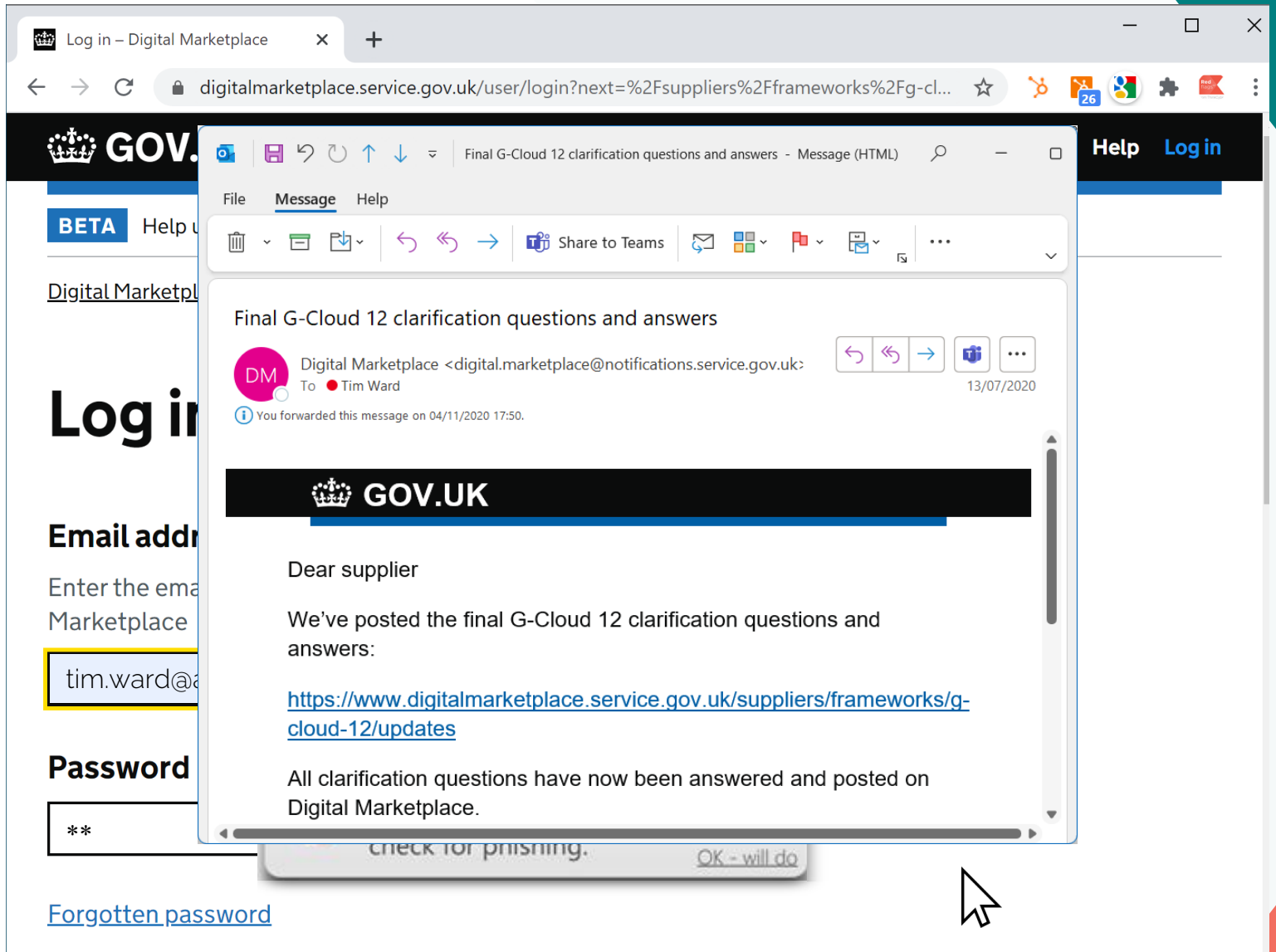
Promotes desired behaviour

Move from System 1 (automatic) to System 2 (deliberate) thinking

Engagement tracking

Measurement of nudge statistics to track trends

“Disruptor” or “Spark”



Engagement

How to increase both engagement and retention?

How to measure and adapt?



Engagement

PROMPT

(Prompt the change)

Timeliness is key

- ▶ Drip feed
- ▶ Ongoing
- ▶ Topical

Annual awareness training is a poor prompt

ABILITY

(Make it easy)

Easy to access

- ▶ Content delivered to the user
- ▶ Quick and easy to digest
- ▶ User choice

Easy to do

- ▶ Actionable advice

MOTIVATION

(Make people want to)

Threat appraisal

- ▶ Personal context
- ▶ Real examples
- ▶ “Fear of loss”
- ▶ “Positive frame”

Exploit curiosity

- ▶ Engaging content
- ▶ Stories & narrative

Biases & learning science techniques

Security Stories

Focus on key learning points

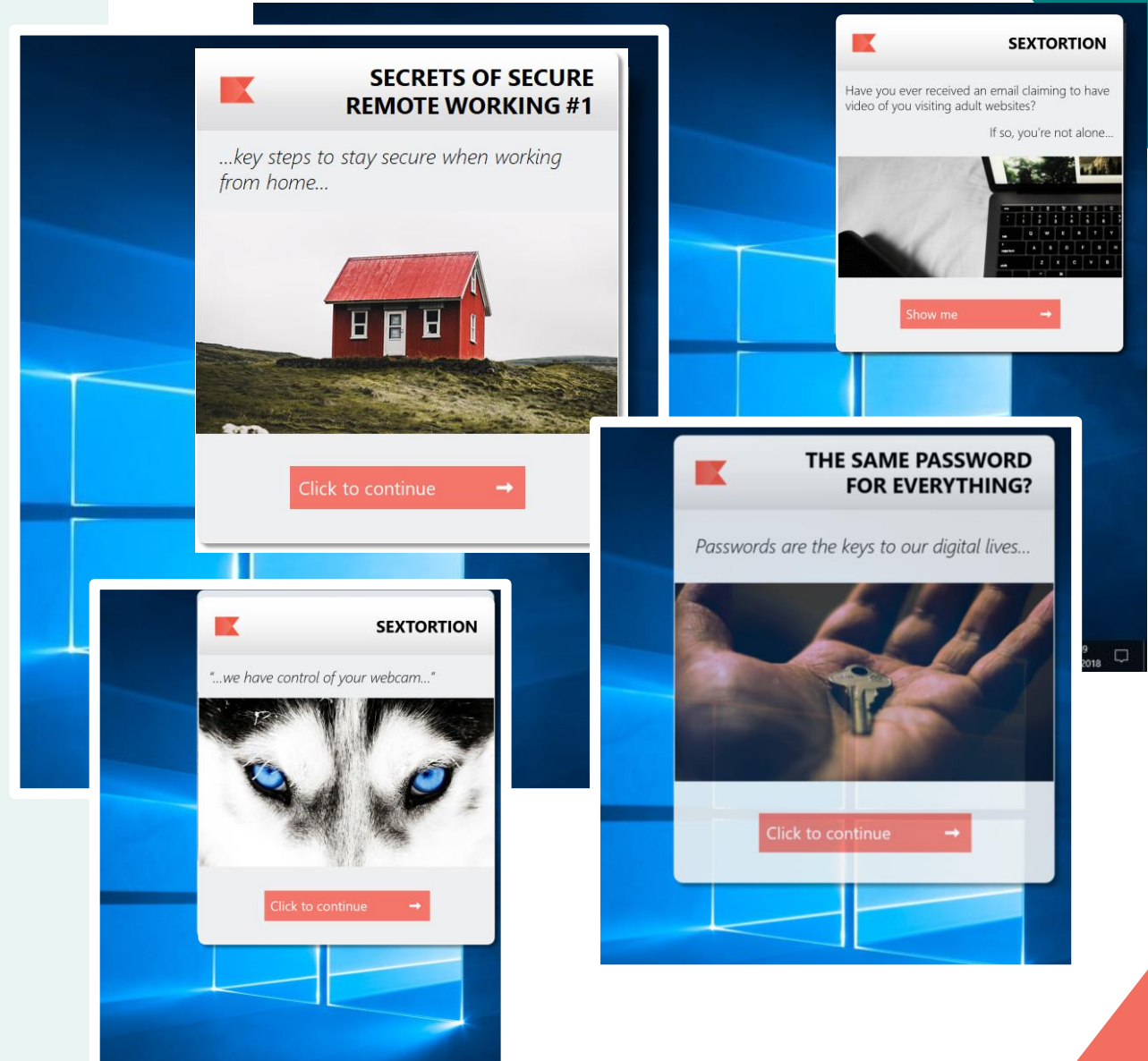
Provide actionable security advice, with click-through for more information and Q&A

Desktop 'overlay' format

Low friction but conspicuous.

Monthly tips delivered from curated and continuously updated syllabus

Measurement of dwell time and click-through statistics



Behaviour triggers

Real-time context aware guidance

- ▶ Prompt
- ▶ Easy actionable advice
- ▶ Motivation to change



Behavioural interventions

Delivered at the point of risk

Behavioural prompts delivered at the right time to be effective

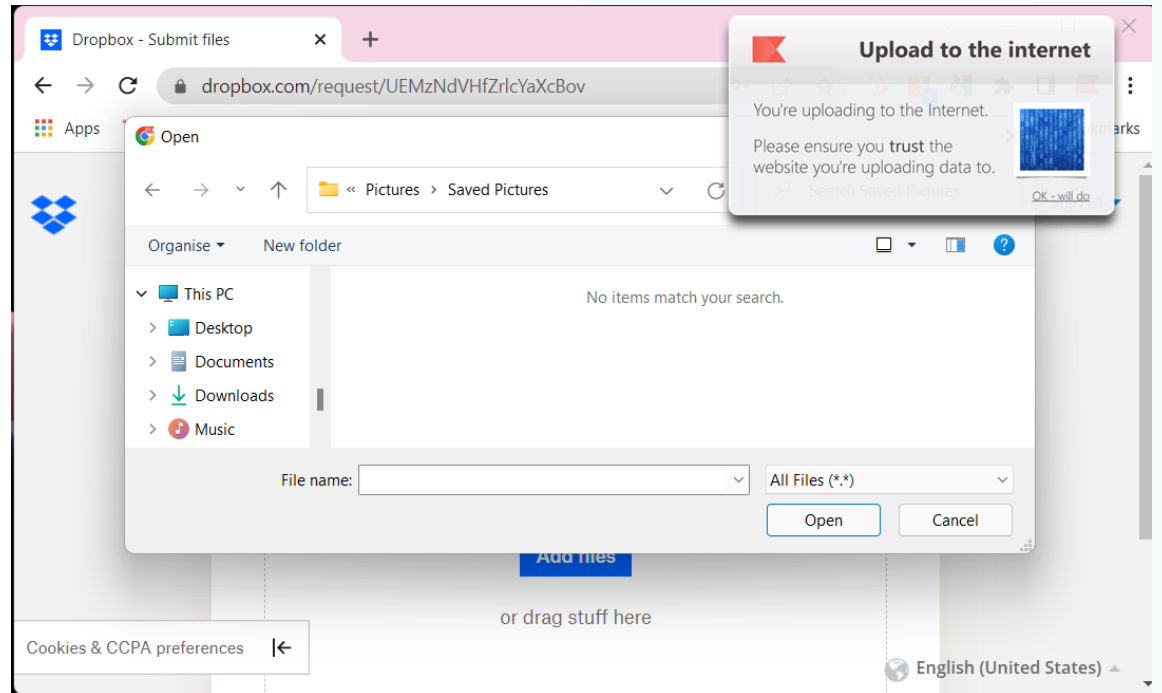
Multiple use cases

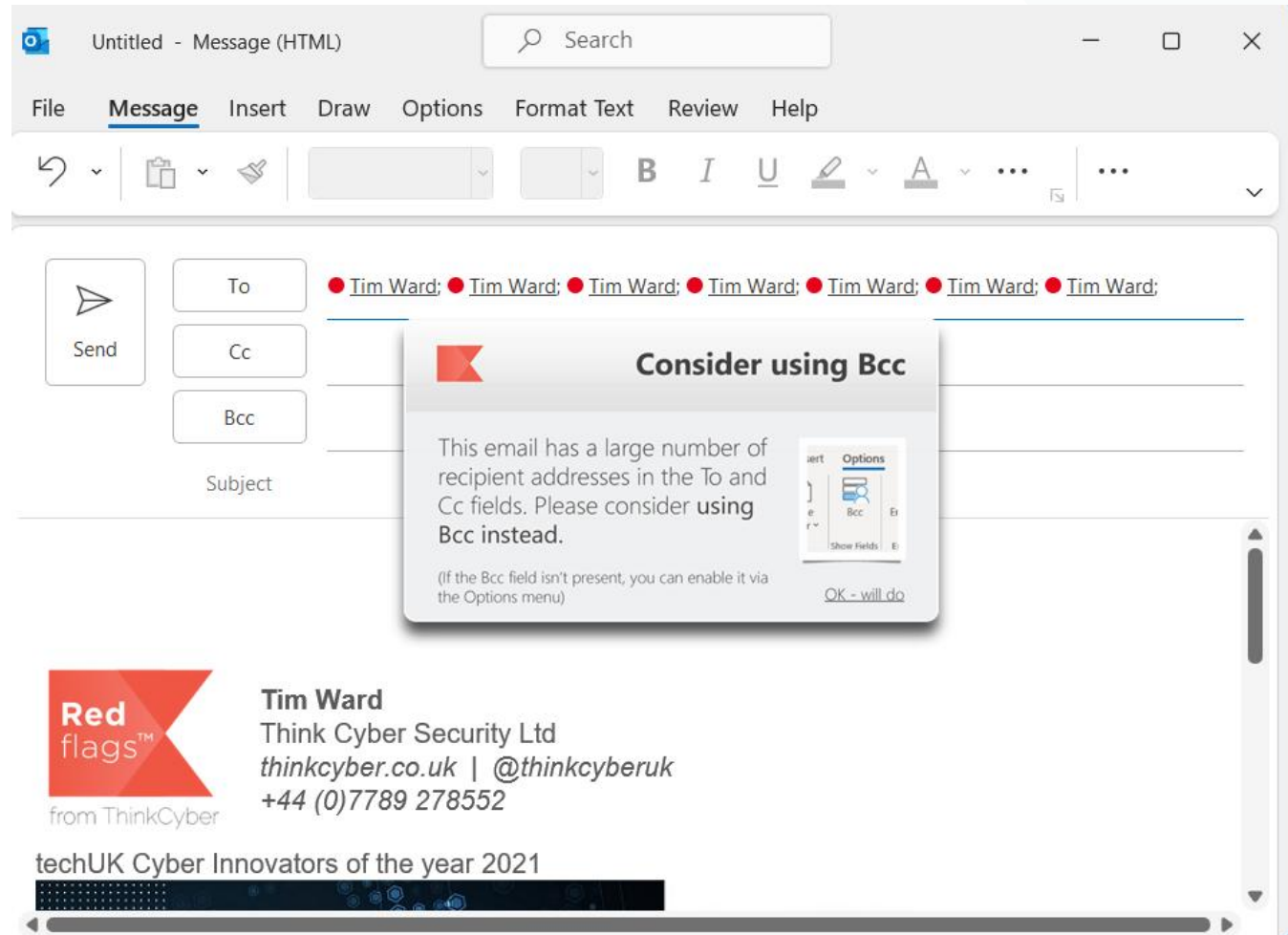
Phishing: link click, inbound attachments, username into browser

Data loss: web uploads / copy, outbound attachments, removable media

Safe browsing: web downloads, social media, insecure wireless

Policy: admin account use, screen locking, printing








Log in – Digital Marketplace

digitalmarketplace.service.gov.uk/user/login?next=%2Fsuppliers%2Fframeworks%2Fg-cl...

 **GOV.UK** Digital Marketplace

Guidance Help Log in

BETA

 Help us improve the Digital Marketplace - [send your feedback](#)


[Digital Marketplace](#) > Login

Log in to the Digital Marketplace

Email address

Enter the email address you used to register with the Digital Marketplace

tim.ward@thinkcyber.co.uk

 You've entered your credentials.
Do you trust this website?

Password



File **Message** Insert Draw Options Format Text Review Help Tell me what you want to do

10 B I U

Send

From tim.ward@thinkcyber.co.uk

To Tim Ward <r@gmail.com>;

Cc

Subject

Please check the content of this email before sending it to a **webmail** account

Untitled - Message (HTML)

File Message **Insert** Draw Options Format Text Review Help Tell me what you want to do

Attach File Poll Signature Table Pictures

Send

From tim.ward@thinkcyber.co.uk

To Tim;


Cc





Subject

001-clock.png 16 KB


Instead of sharing attachments with **INTERNAL** recipients, try sending SharePoint links instead






 Home  My Network  Jobs  Messaging

PREMIUM






Tim Ward 

Co-founder and CEO at ThinkCyber. Delivering secure behaviour change with Redflags™, real-time security awareness.


Followers1,833


Drafts1



 1,366 views of your post in the feed





**Tim Ward**
Co-founder and CEO at ThinkCyber. Delivering secure behaviour change with...
1mo • Edited • 

No time for the marketing department to do a banner - scribbling the word WINNER will have to do. Because I just need to tell people....we've gone and done it again!!!
...see more



techUK
FOR WHAT COMES NEXT
WINNER
~~Finalist~~

from ThinkCyber
Cyber
Innovation
Den
#cyberinnovation

  104 • 22 comments

 Like  Comment  Share  Send

❏ Traditional approaches are not enough

- Infrequent
 - Overly complex
 - Boring or patronising
 - Out of context
-
- Only 15% of users change their behaviour as a result
 - Phishing test users feel tricked and embarrassed



Next generation security awareness

- Real time guidance delivered at the point of risk
- Ongoing awareness, drip fed in low impact chunks
- Engaging content continuously updated with real examples
- Integrating learning science and behavioural change techniques, nudge theory, spacing, interleaving, recall, social proof...

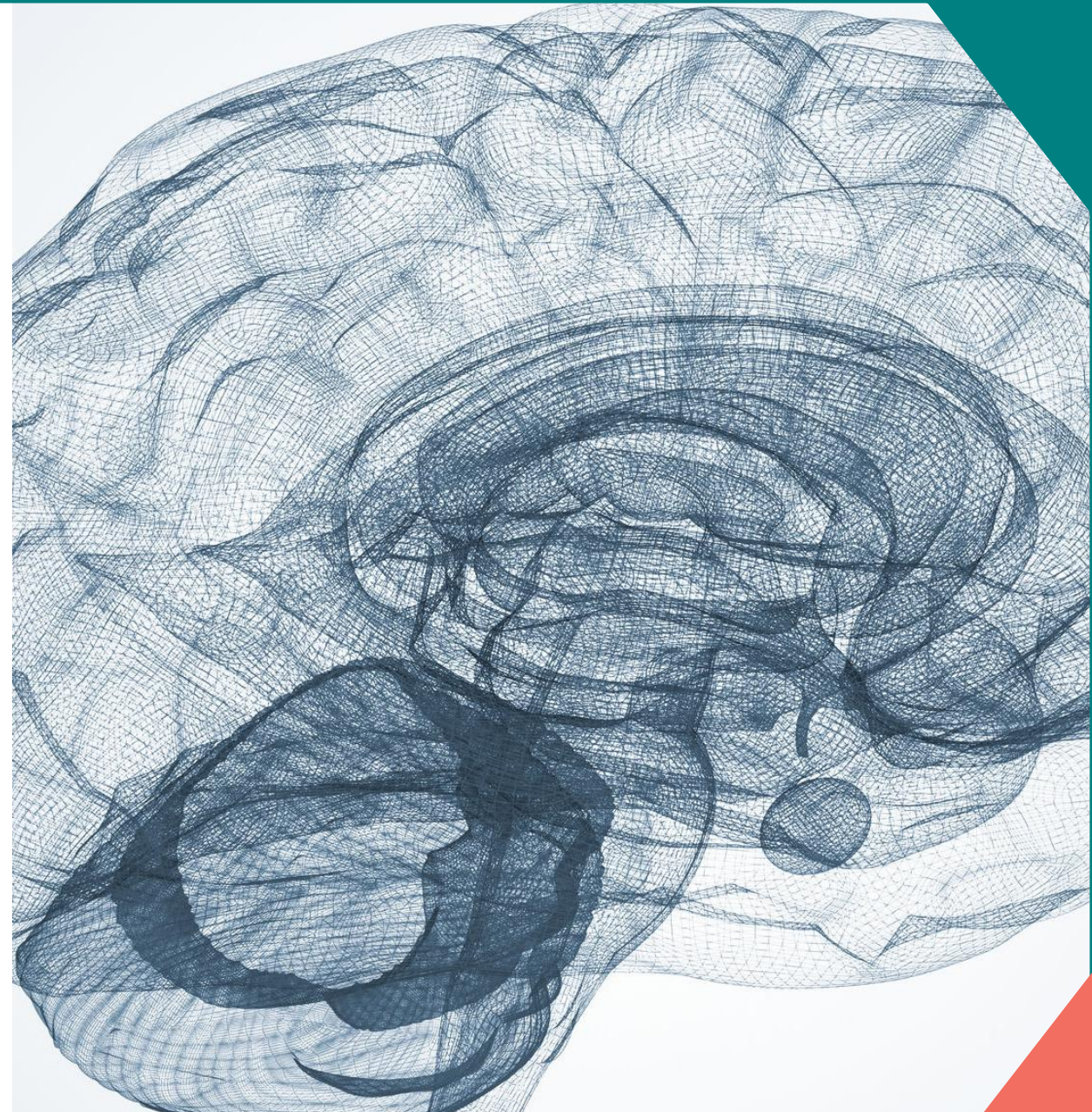


Final observations

- All behaviour takes place “in context” – so that is where efforts to empower your people must start
- Change requires: **Prompt. Ability. Motivation.**
- Annual or even quarterly awareness is not timely!
- Rapid content cycles are needed to adapt to changing context – but this is also an opportunity

To engage, change and sustain secure behaviours...

Requires the next generation of security awareness





Don't miss your chance to ask questions!

Find out more about
Redflags:

tim@thinkcyber.co.uk

