

# Tracking the unmeasurable with OKRs

Adrian Banks

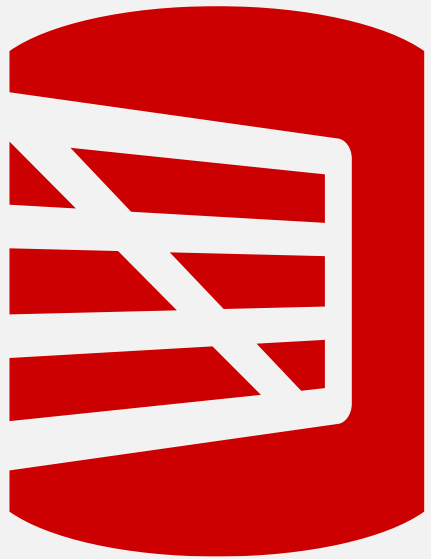


@adrianbanks

<https://linktr.ee/adrianbanks>





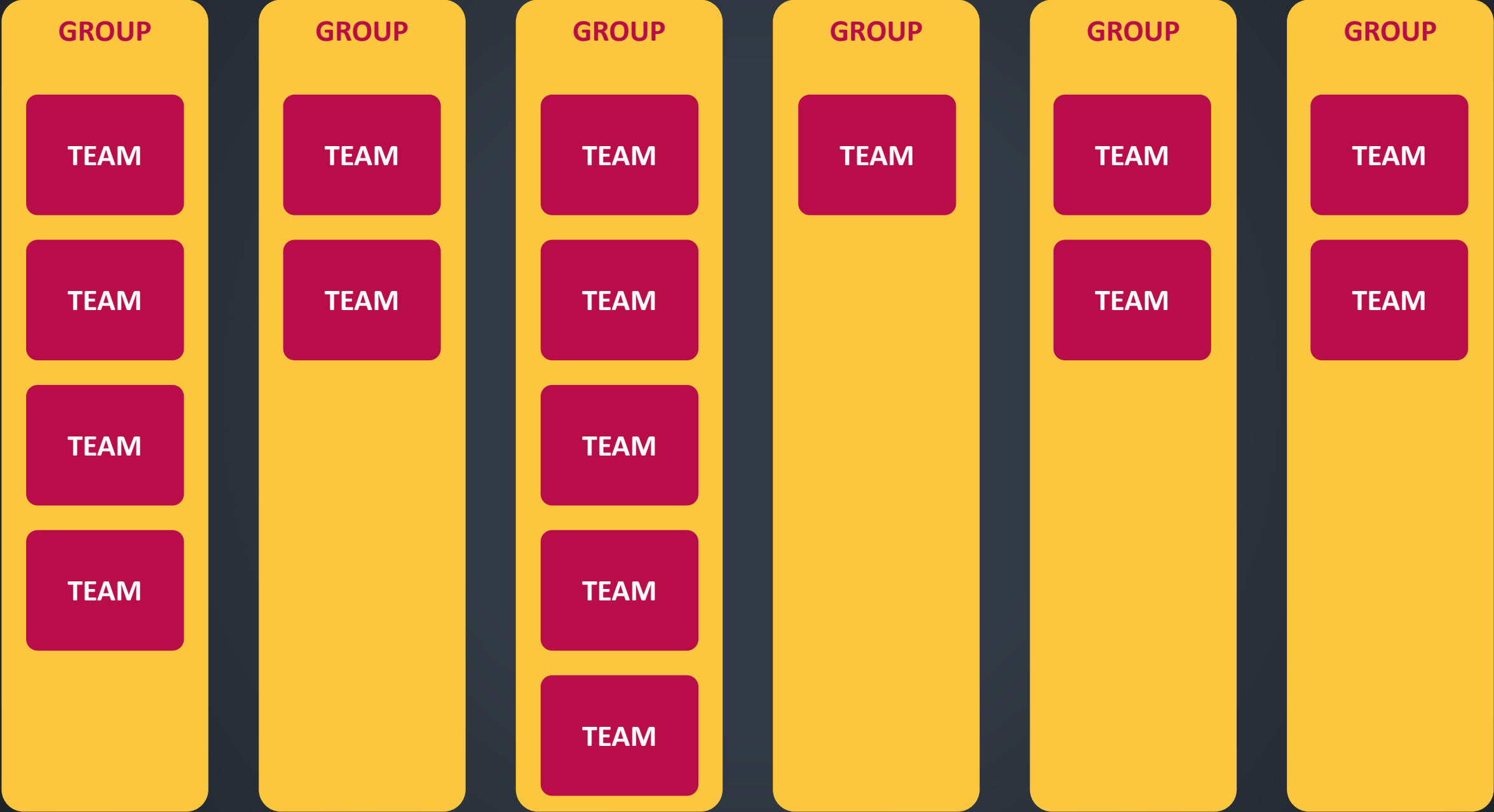


redgate

1

Setting the scene







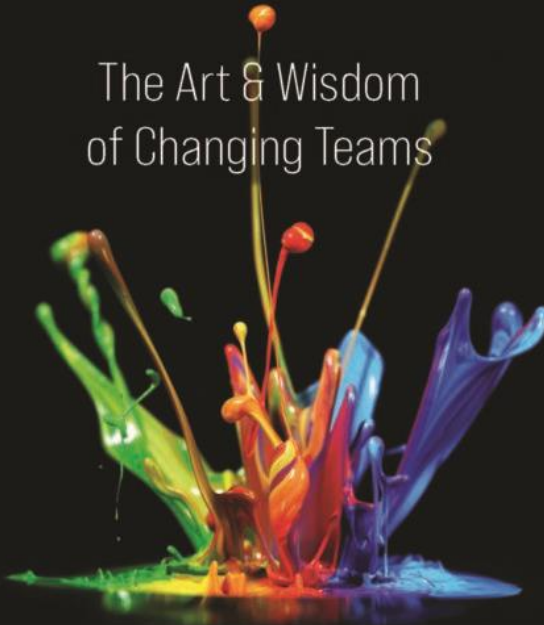


O'REILLY®

Second Edition

# DYNAMIC RETEAMING

The Art & Wisdom  
of Changing Teams



Heidi Helfand

Forewords by John Cutler & Diana Larsen




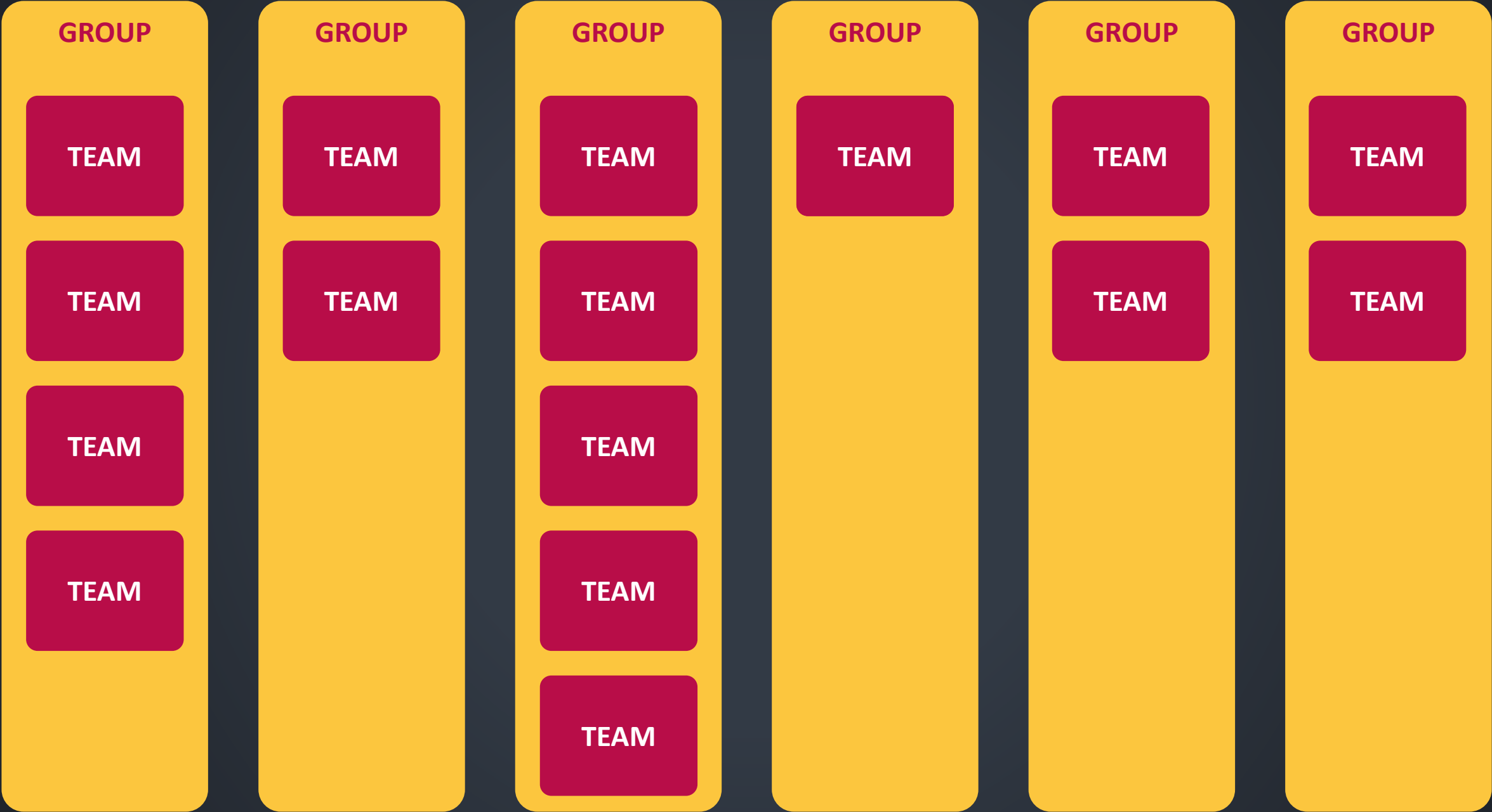
Friday morning

# Five years of self-selection reteaming at Redgate

Agile Cambridge 2023



**Chris Smith**  
Director of Engineering  
 redgate





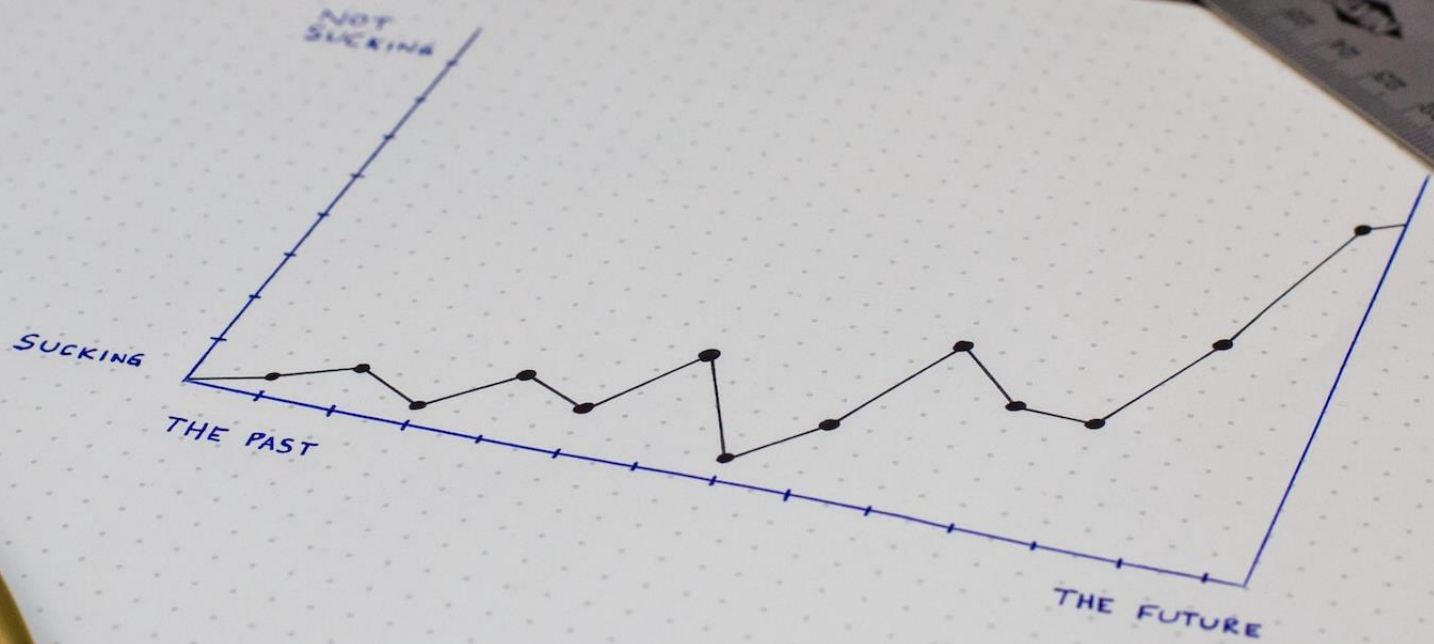














“

Successfully hand over the products to the other team, while maintaining their commercial value.

”



2

Meanwhile...



# DDDSW

---

2022







“Calculate a monetary value for  
the inherent risk associated  
with highway assets”



$$\text{Risk} = \text{Probability}(\text{failure}) * \text{Cost}(\text{failure})$$





MADE IN CHINA  
40

ITTF APPROVED  
40

ITTF  
40

DOUBLE CIRCLE

adidas  
40+  
MADE IN CHINA

40  
JAPAN

DOUBLE CIRCLE  
40  
MADE IN CHINA

adidas  
40

DOUBLE CIRCLE  
40

CEVO  
DOUBLE STAR  
SPECIAL SELECTED

adidas  
40+  
MADE IN CHINA

adidas  
40  
GERMANY

DOUBLE CIRCLE  
40  
MADE IN CHINA

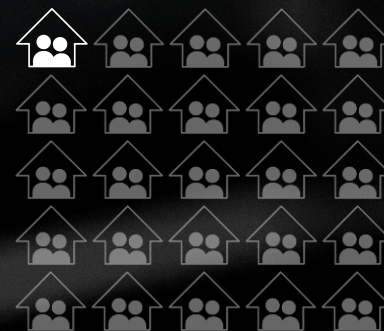




3m



1.5m



5%



1 year



2 hr



x1000



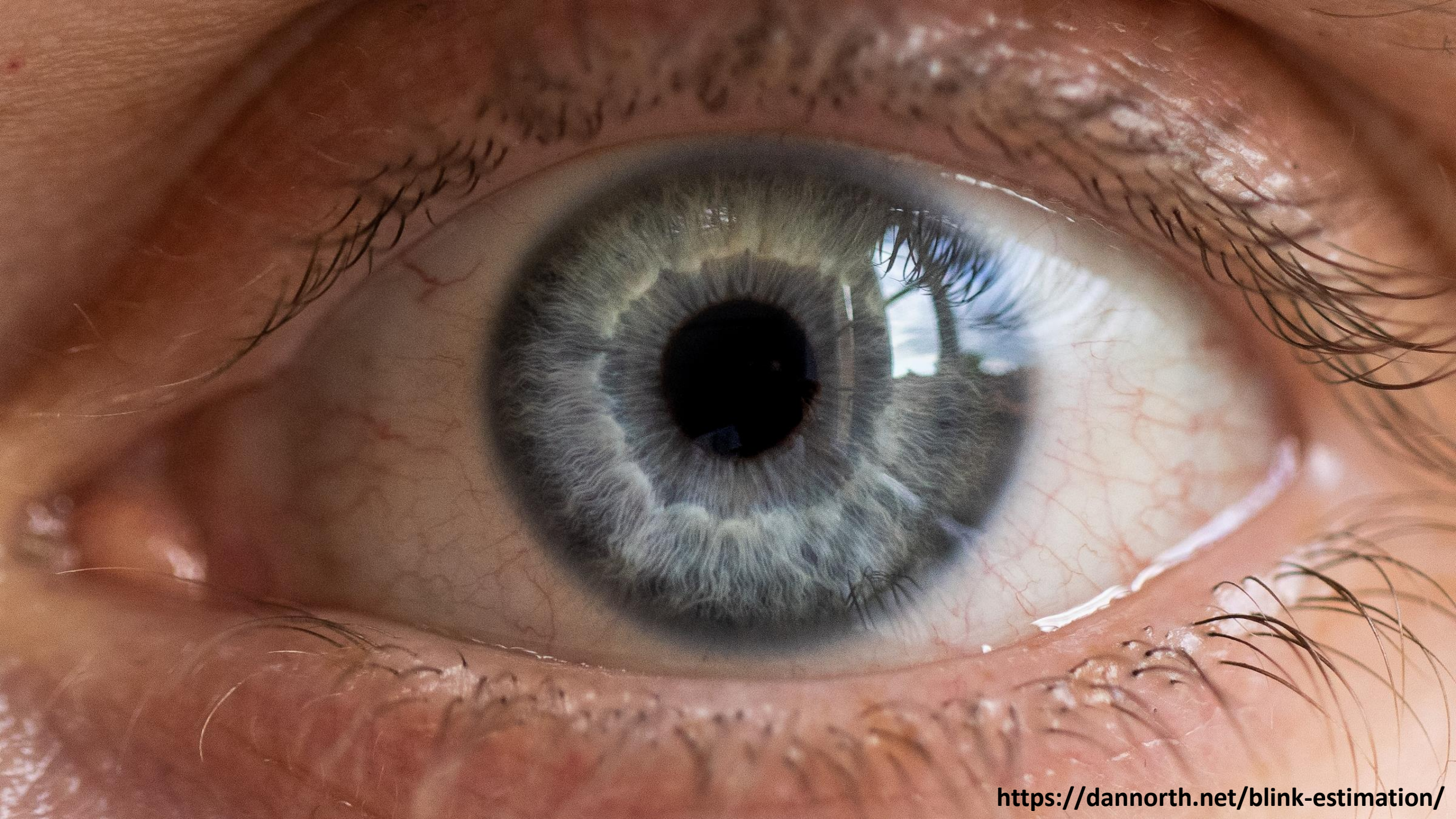
*From the  
real experts*

THE ULTIMATE INSIDERS' GUIDE  
WHAT





















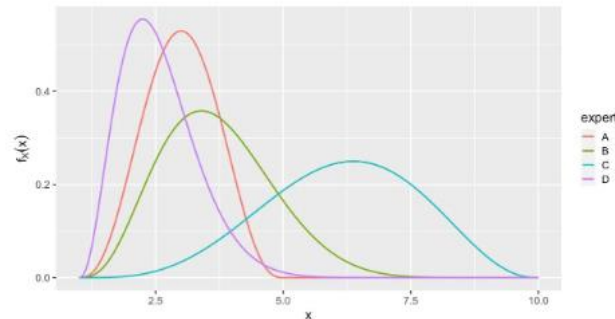






# The Sheffield Elicitation Framework (SHELF)

SHELF is a package of documents, templates and software to carry out elicitation of probability distributions for uncertain quantities from a group of experts. Elicitation is increasingly important for quantifying expert knowledge in situations where hard data are sparse. This is often the context in which difficult policy decisions are made.



It is generally important to elicit from a group of experts, rather than a single expert, in order to synthesise the range of knowledge and opinions of the expert community. However, SHELF may be used for a single expert with only trivial modification.

Despite this growing role for elicitation, there is little in the way of training and support available to those who wish to conduct elicitations. SHELF is a response to this shortage. By reading and carefully following the SHELF documentation, it should be possible for an untrained facilitator to carry out competent elicitation.

## About us

SHELF has been developed by Tony O'Hagan and Jeremy Oakley, originally in the School of Mathematics and Statistics in the University of Sheffield. It arose out of our long-standing commitment to research and practice in elicitation.

The principal spur for developing SHELF was discussions in the project 'Bayesian analysis in

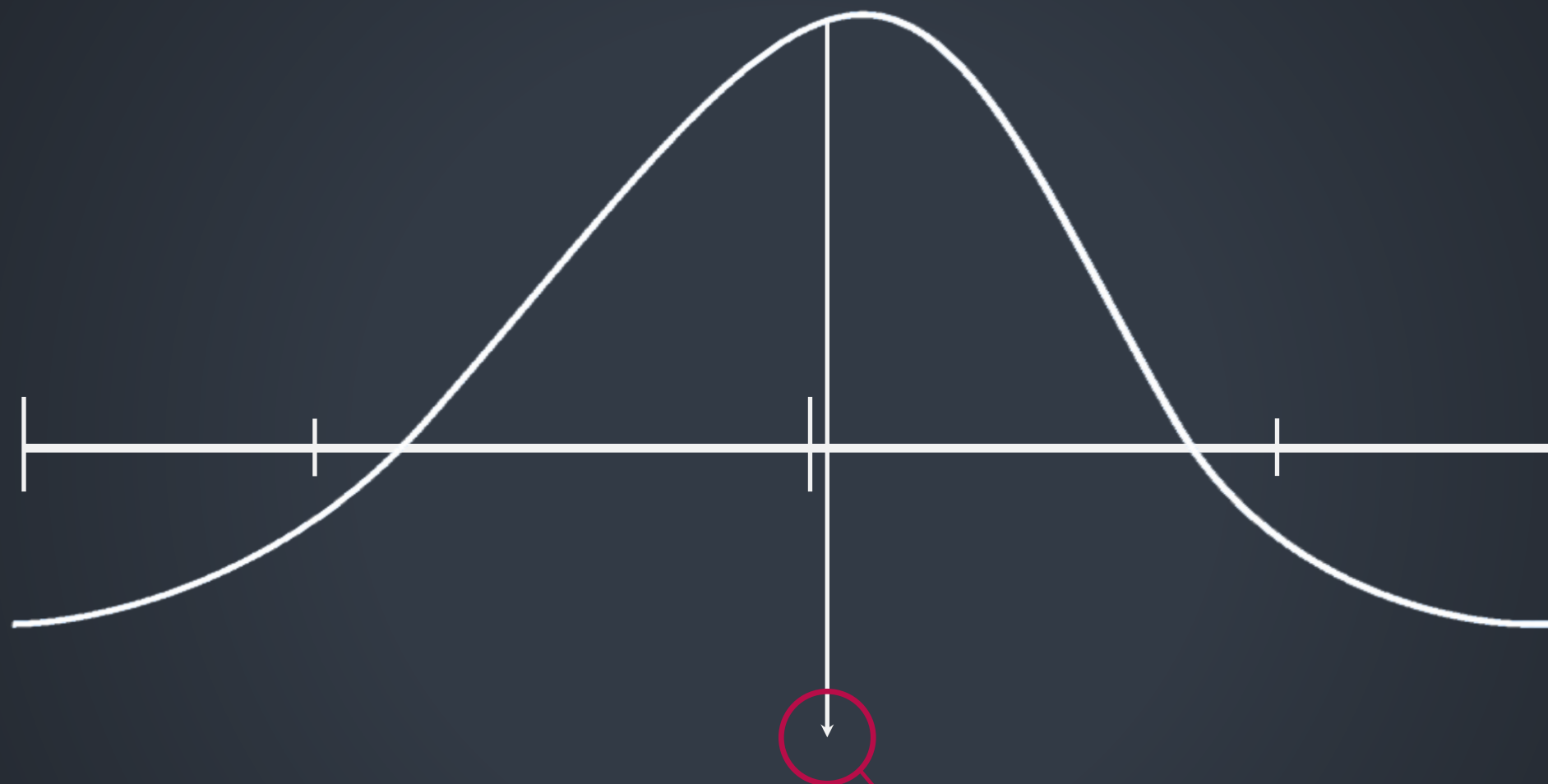
<https://shelf.sites.sheffield.ac.uk>











This is the answer

17.2

16.5

17.5

18.2

17.4

16.8

17.2

17.6

17.3

17.5

17.7

17.5

18.0

17.2

17.9

16.9

17.9



#dddsw

JUNE  
25  
2022

## TRADITIONAL AI DEMOS

1. LOAD DATA
2. CLEAN DATA
3. SELECT ALGORITHM
4. TRAIN ALGORITHM
5. MAKE PREDICTION



THESE DON'T WORK WITH

## FERMI QUESTIONS

QUESTIONS WITH NO ANSWERS

YOU HAVE TO USE SCIENTIFIC  
METHODS TO ESTIMATE AN  
ANSWER

@adrianbanks



HOW MANY PIANO  
TUNERS ARE THERE  
IN CHICAGO?

DATA SCIENTISTS: MAKING SHIT UP  
SINCE 1974  
GARY SHORT

@garyshort

CURRENT WORK: CALCULATE A MONETARY  
VALUE FOR THE INHERENT  
RISK OF HIGHWAY ASSETS



$$\text{RISK} = P(\text{FAILURE}) \times \text{COST}(\text{FAILURE})$$

OR DO WE?

WE CLEAN  
GRIDS TWICE  
PER YEAR, SO  
PROBABILITY CAN'T  
BE HIGHER THAN THAT

WE DON'T KNOW THIS



"UGLY GRASS  
IS A FAILURE MODE"

## ELICITATION

1. WHAT IS LOWER BOUND?
2. WHAT IS UPPER BOUND?
3. FIND THE MEDIAN +  $Q_1$  +  $Q_3$
4. DO FOR EACH FACTOR

## LET'S PREDICT THE SUCCESS OF THIS CONFERENCE

FEATURES: ATTENDANCE, SPEAKERS

INTERACTION, ACCESSABILITY

WEIGHT: IMPORTANT,  
V. IMPORTANT,  
CRUCIAL

MEASURE: % FOR EACH

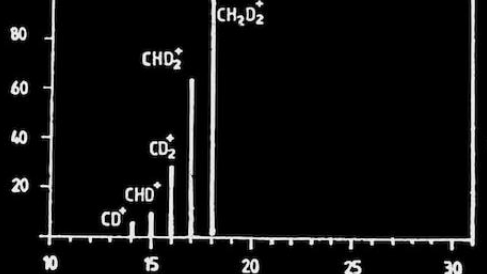
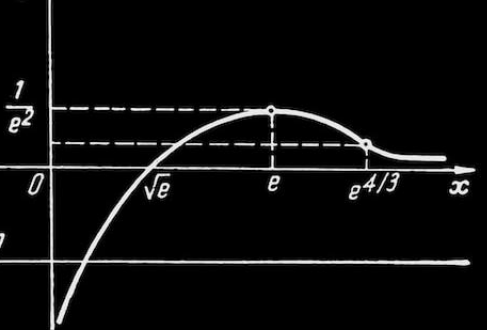
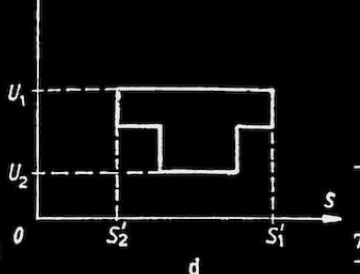
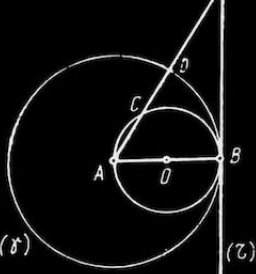
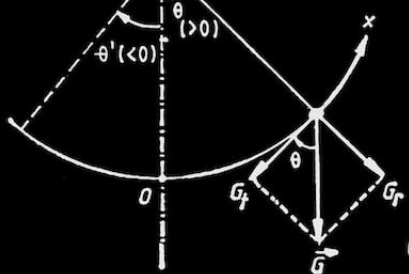
$$\text{SCORE} = \text{WEIGHT} \times \text{MEASURE}$$

PERFECT = WEIGHTING

$$\text{SUCCESS} = \frac{\text{SUM OF SCORES}}{\text{SUM OF PERFECTS}}$$



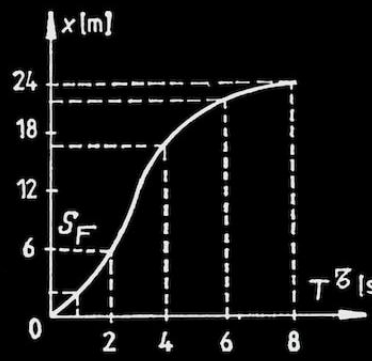
A WAY TO CREATE  
SYNTHETIC DATA



$$= \sin\left(\frac{\pi}{2} + n\pi\right); n = 0, 1, 2, \dots$$

$$t_p = \frac{\pi}{3} \left(n + \frac{1}{6}\right); n = 0, 1, 2, \dots$$

$$E_c = E_{c_{\max}} \Rightarrow \cos^2\left(3t_c + \frac{\pi}{3}\right) = 1 \Rightarrow \cos\left(3t_c + \frac{\pi}{3}\right) = \pm 1 = \cos(n\pi) \Rightarrow t_c = \frac{\pi}{3} \left(n - \frac{1}{3}\right)$$



$$\frac{1 - \left(-\frac{1}{n+2}\right)^{n+1}}{1 + \frac{1}{n+2}} + \frac{1}{n+1} \cdot \frac{1 - \left(-\frac{1}{n+1}\right)^{n+1}}{1 + \frac{1}{n+1}} = \int_{-a}^0 x^2 e^{ax} dx = \frac{1}{a} (x^2 e^{ax}) \Big|_{-a}^0 - \frac{2}{a} \int_{-a}^0 x e^{ax} dx$$

$$= -a^2 - \frac{2}{a} \left[ \frac{1}{a} (x e^{ax}) \Big|_{-a}^0 - \frac{1}{a} \int_{-a}^0 e^{ax} dx \right]$$

$$= -a^2 - \frac{2}{a} \left[ \frac{1}{a} (e^{ax}) \Big|_{-a}^0 \right] = -a e^{-a^2} - \frac{2}{a} e^{-a^2}$$

$$= \frac{1}{a^3 e^{a^2}} [2e^{a^2} - 2 - 2a^2 - a^4]$$

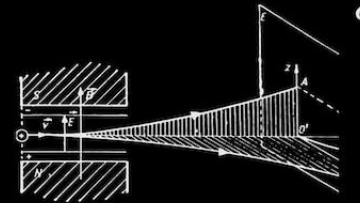
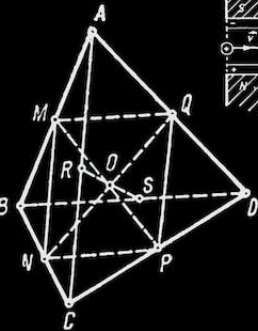
$$(-1)^{n+1} \frac{1}{(n+2)^n} + (-1)^n \cdot \frac{n+3}{n+1} \cdot \frac{1}{(n+2)^{n-1}}$$

$$= \int_{-a}^0 x^2 e^{ax} dx = \frac{1}{a} (x^2 e^{ax}) \Big|_{-a}^0 - \frac{2}{a} \int_{-a}^0 x e^{ax} dx$$

$$= -a^2 - \frac{2}{a} \left[ \frac{1}{a} (x e^{ax}) \Big|_{-a}^0 - \frac{1}{a} \int_{-a}^0 e^{ax} dx \right]$$

$$= -a^2 - \frac{2}{a} \left[ \frac{1}{a} (e^{ax}) \Big|_{-a}^0 \right] = -a e^{-a^2} - \frac{2}{a} e^{-a^2}$$

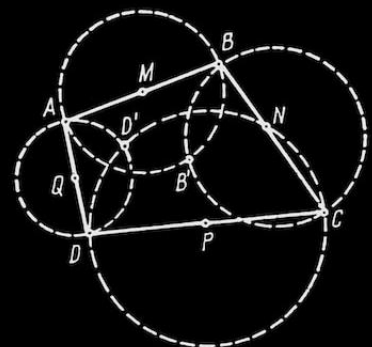
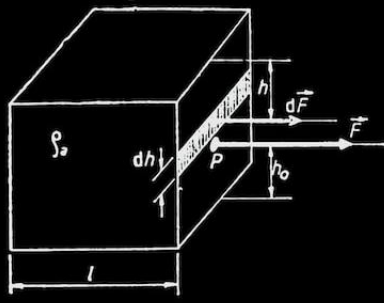
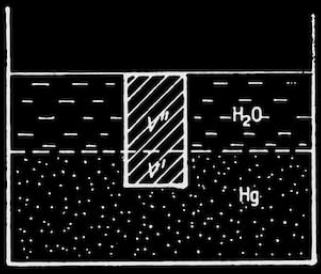
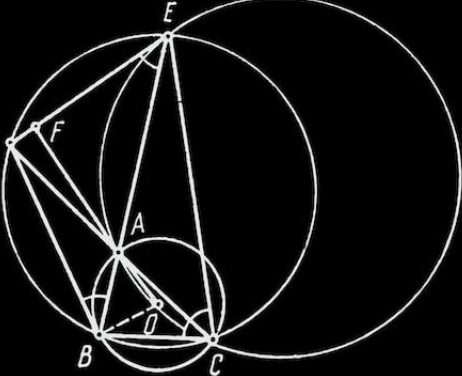
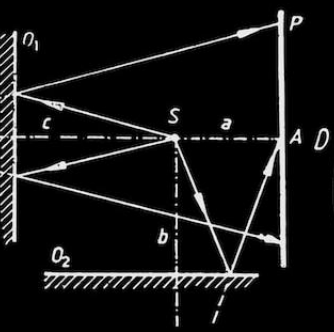
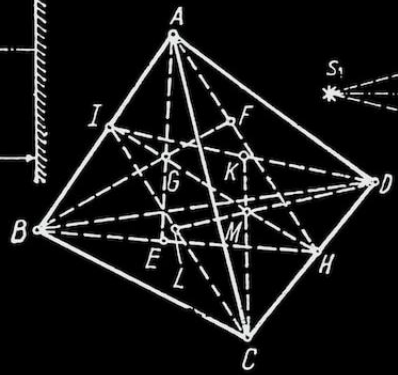
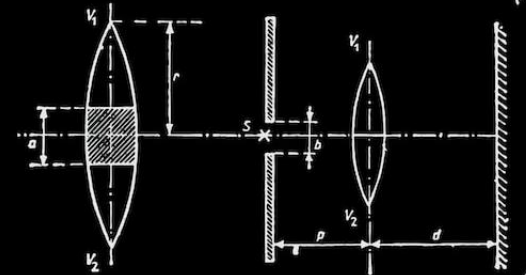
$$= \frac{1}{a^3 e^{a^2}} [2e^{a^2} - 2 - 2a^2 - a^4]$$



$$\omega = \sqrt{\frac{k}{m}} = \sqrt{\frac{4\pi m_1 K \rho}{3m_1}} = \sqrt{\frac{4\pi K \rho}{3}}$$

$$\omega = \sqrt{\frac{g_0}{R_0}}$$

$$T = \frac{2\pi}{\omega} = 2\pi \sqrt{\frac{R_0}{g}} = 5,03 \cdot 10^3 \text{ s}$$

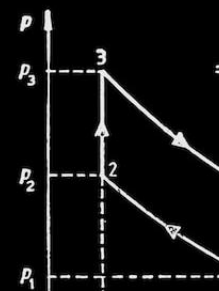


I [mA]	0	0	4	50	104	170
U [V]	0	0,5	0,6	0,8	0,9	1,0
I [mA]	0	-1,05	-2,1	-3,2	-4,2	-5,3
U [V]	0	-1	-2	-3	-4	-5
I [mA]	0	0	4	44	115	175
U [V]	0	0,4	0,6	0,8	0,9	1,0
I [mA]	0	-0,4	-0,76	-1,12	-1,5	-1,9
U [V]	0	-1	-2	-3	-4	-5
I [mA]	0	1,4	2,8	4,2	5,6	7,1

$$-(x+t)I_2 + (xt-yz)I_2 = 0.$$

$$\begin{pmatrix} x & y \\ z & t \end{pmatrix} - \begin{pmatrix} x+t & 0 \\ 0 & x+t \end{pmatrix} = \begin{pmatrix} -t & y \\ z & -x \end{pmatrix}$$

$$y \begin{pmatrix} -t & y \\ z & -x \end{pmatrix} = \begin{pmatrix} yz - xt & 0 \\ 0 & yz - tx \end{pmatrix} =$$



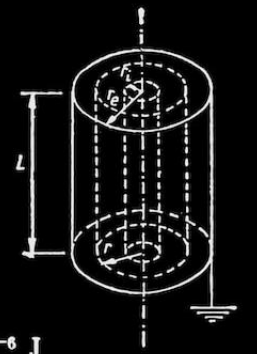
$$Q_{\text{total}} = Q_1 + Q_2 = 3\epsilon_0 \frac{S}{d_1} U_0$$

$$C_1 = C_2 = \epsilon_0 \frac{S}{d_1} = 8,85 \text{ pF}$$

$$Q = \frac{Q_1 + Q_2}{2} = 13,275 \cdot 10^{-9} \text{ C}$$

$$U = \frac{Q}{C_1} = \frac{3}{2} U_0 = 1500 \text{ V}$$

$$= \frac{1}{2} QU = \frac{9}{8} \epsilon_0 \frac{S}{d_1} U_0^2 = 9,956 \cdot 10^{-6} \text{ J}$$



$$-Q_{41} = \nu C T_1 (1 - \epsilon^{1/2}) + \nu C_V T_1 (\mathcal{K} - 1),$$

$$-Q_{34} = \nu C_V T_2 (\mathcal{K} - 1) + \nu C T_4 (1 - \epsilon^{1/2}),$$

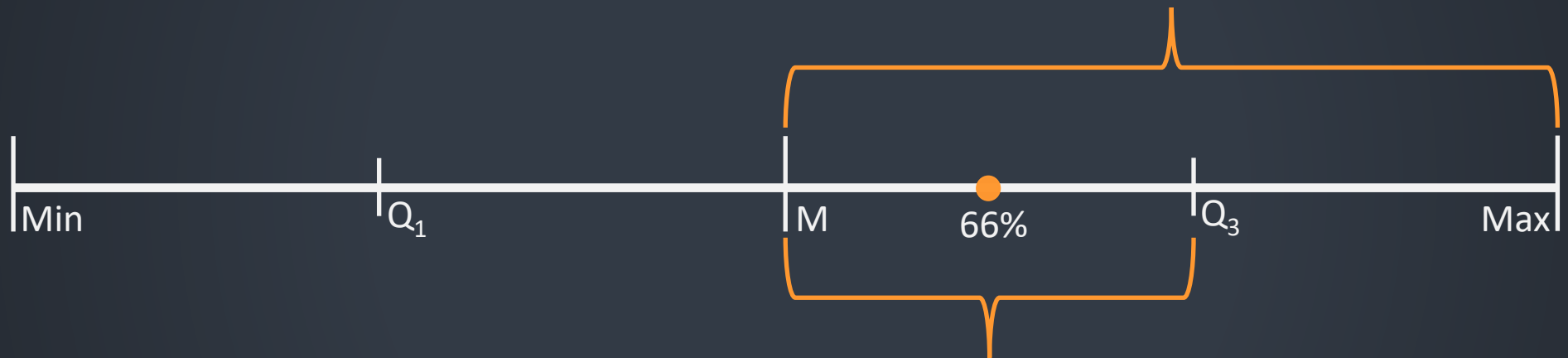


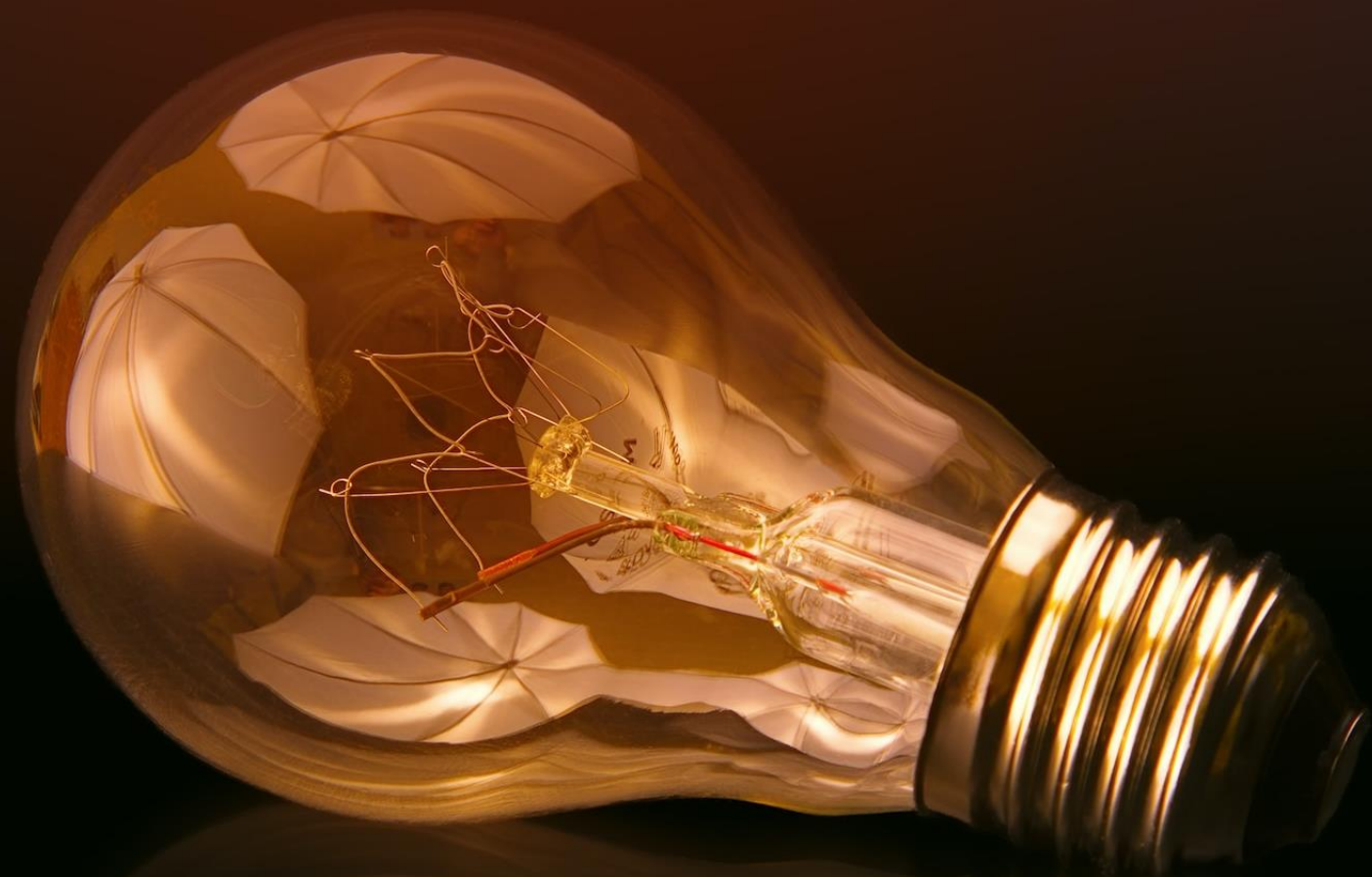


	Weight	Measure	Score	Possible
Conference is well attended	1	0.7	0.7	1
Quality of speakers	3	0.75	2.25	3
Interactions between attendees	2	0.6	1.2	2
Accessibility	1	0.8	0.8	1
			4.95	7

71%









3

Measuring our key results







Setting up is  
easy and  
hassle free

Short handover  
period where  
we work  
together

Managing the  
products  
doesn't feel  
difficult

We don't  
inherit a load  
of gnarly  
problems

We don't  
need to ask  
for help

No need for  
contact once  
the handover is  
done

We have  
proper  
support at the  
beginning

If we don't need  
to add new  
features, there  
isn't much to do

Instructions are  
clear so that we  
can deal with  
whatever comes  
our way

We feel  
confident fixing  
and releasing  
the product

We can ask for  
help if we  
need it

We feel  
comfortable and  
confident asking  
for help

There are clear  
communication  
channels

Once the  
handover is done,  
we don't need to  
query many things

Handover:  
- Demo  
- Build locally  
- Do a release



“

*Given that we have a two-week handover period with the other team, we will be contacted fewer than four times in the subsequent next four weeks.*

”

Well written  
documentation

2

The documentation covers how to build, run and release, plus covering the concepts of what the product is and how to use it.

Product is easy  
to release

2

Can the product be released with low effort, ideally automated but can be manual, without spurious errors?

Code is easy  
to maintain

2

Dependencies are up to date, there are no undocumented hidden gotchas, with automated builds as a safety net to catch breakages.

Any major feature  
work completed

3

Any feature work we have in-flight is either completed or removed.



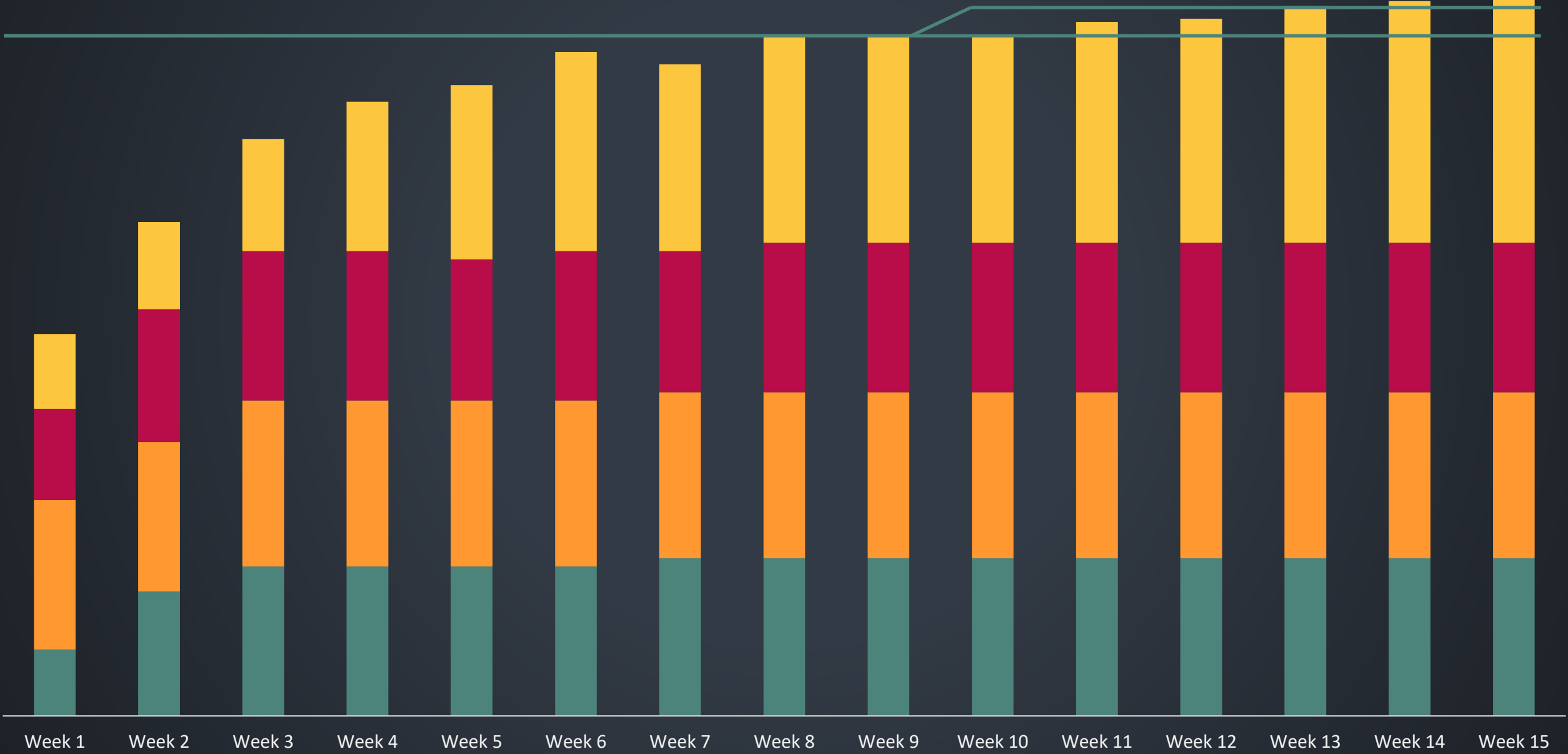


	Weight	Measure	Score	Possible
Well written documentation	2	0.4	0.8	2
Product is easy to release	2	0.9	1.8	2
Code is easy to maintain	2	0.55	1.1	2
Any current major feature work completed	3	0.3	0.9	3
			4.6	9

51%



- Well written documentation
- Product is easy to release
- Code is easy to maintain
- Any current major feature work completed









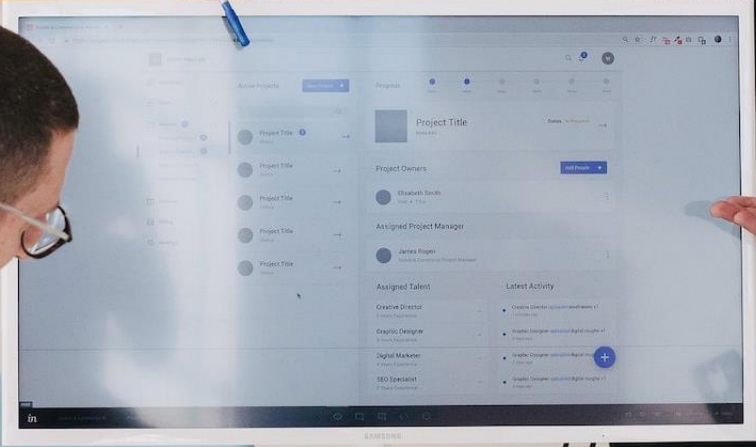
4

Applying this yourself





















COTOPAXI 5897m  
19347ft

CORAZÓN 4786m  
15700ft

PASOCHOA 4200m  
13776ft

ATACAZO 4410m  
14464ft

RUMIÑAHU 4200m  
13776ft

ANTIZANA 5755m  
18710ft

QUILINDAÑA 4877m  
16000ft

SINCHOLAGUA 4900m  
16076ft

5

Summary







## Marvels Of Teenage Engineering

Adrian Banks  
NDC London  
2022-05-11

engineering history



## Team Topologies, Software Architecture And Complexity Science

James Lewis  
NDC London  
2022-05-11

accelerate-metrics architecture team-topology



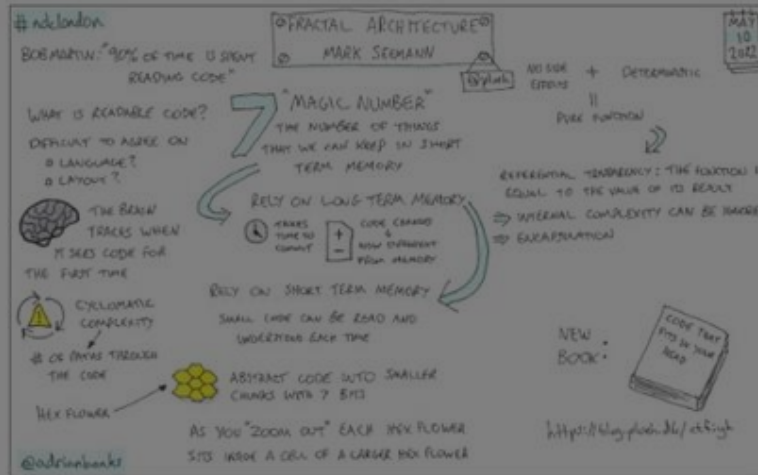
## Design For Developers

Lex Lofthouse  
NDC London  
2022-05-10

atomic-design design



@adrianbanks



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<https://blog.adrianbanks.co.uk/sketchnotes/>





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