University of Glasgow

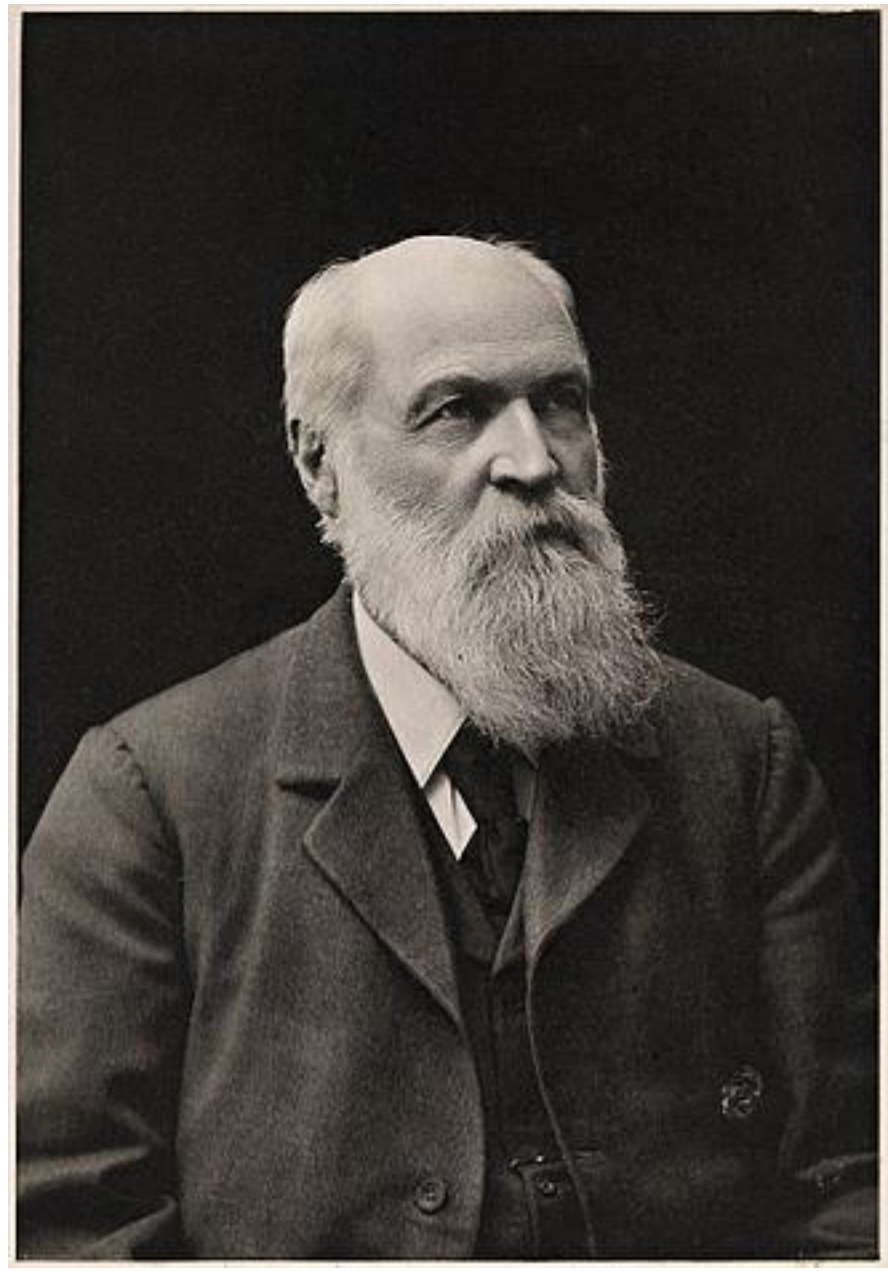
Trade-offs in connecting people to FRAM

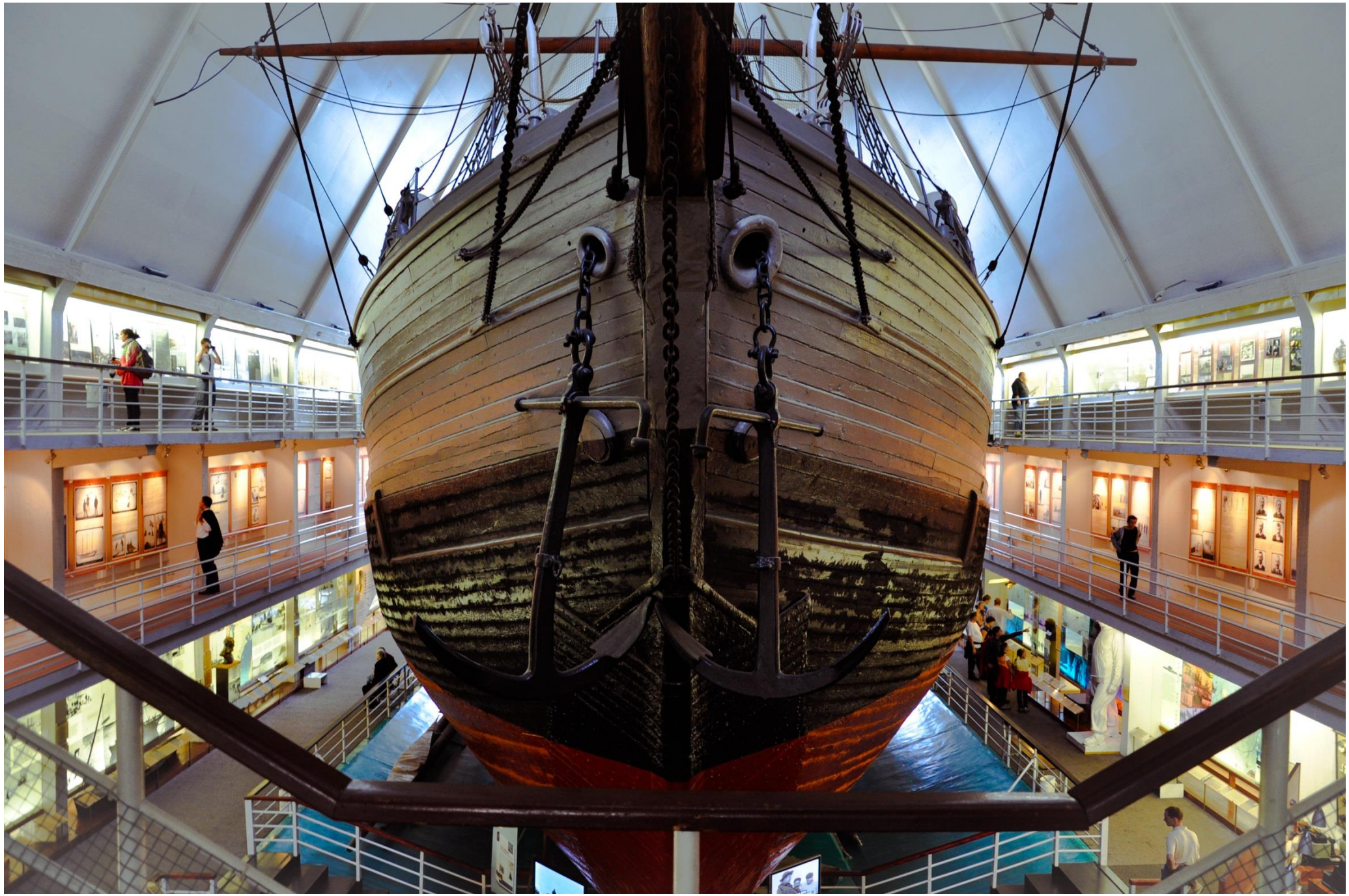
Al Ross PhD C.Erg.HF C.Psychol

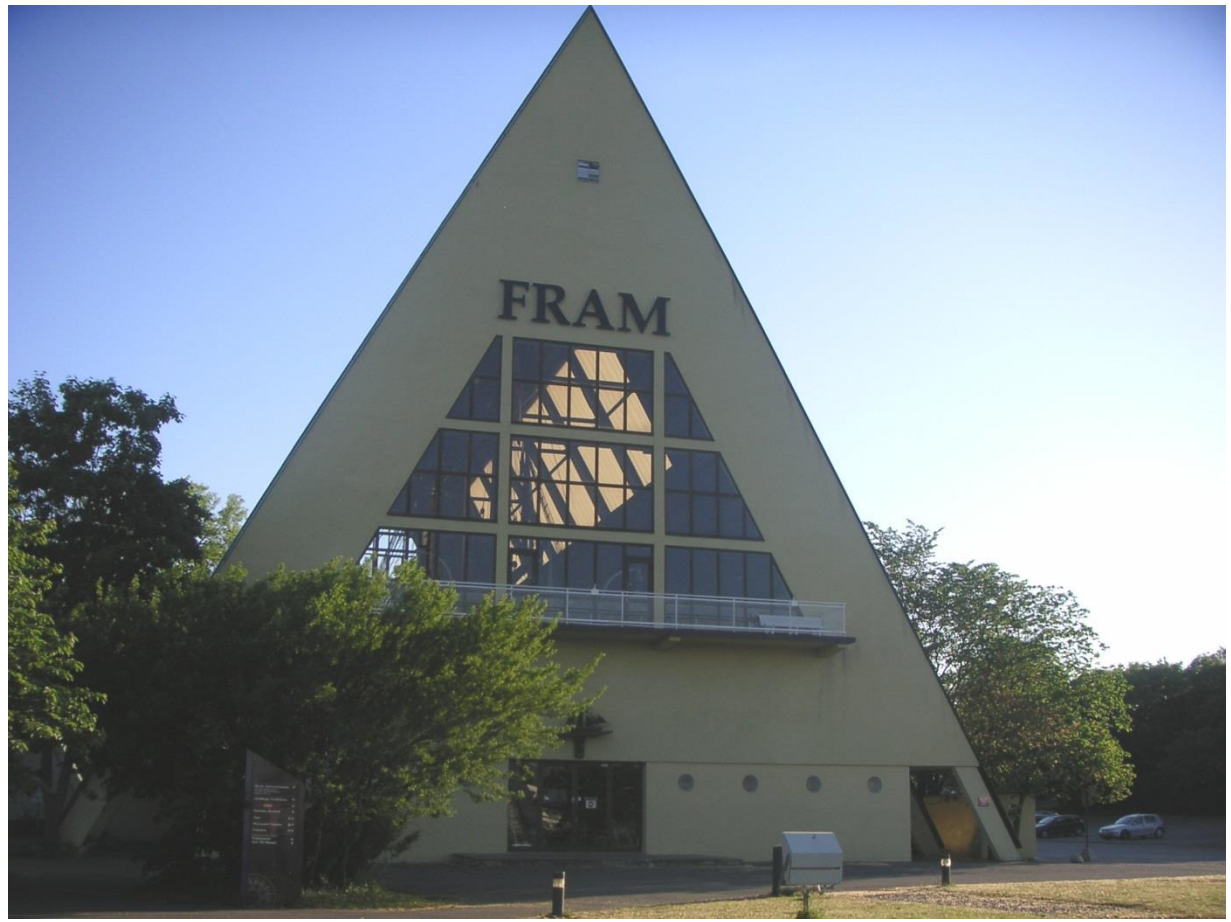
INSPIRING PEOPLE

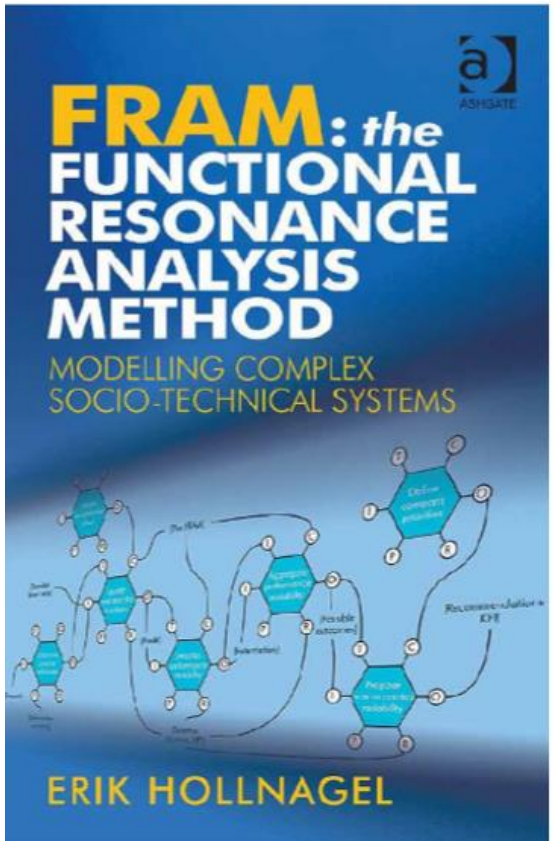
CARe

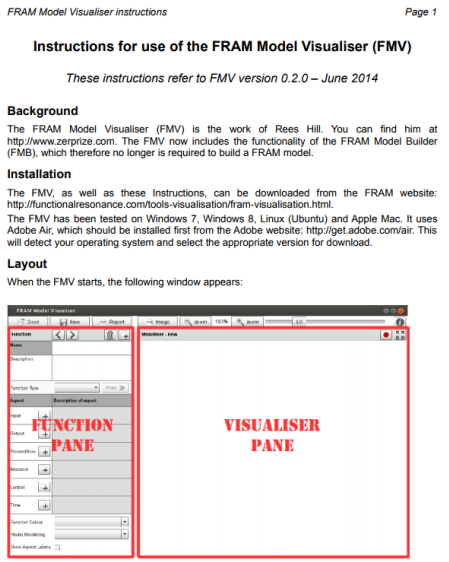
University of Glasgow | Dental School






FRAM





What is the good ship FRAM?

Reliability Engineering & System Safety

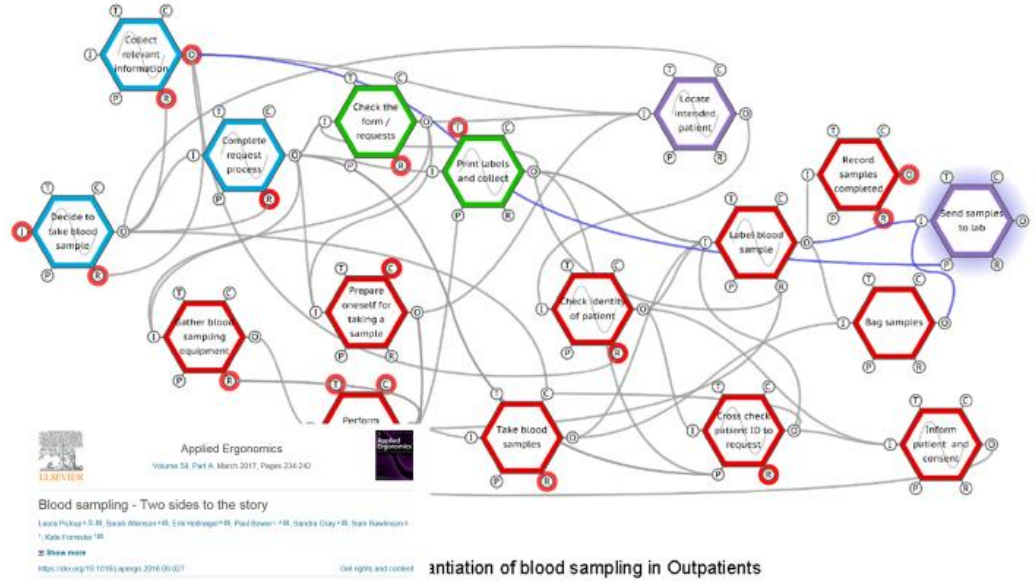
Available online 31 August 2017

In Press, Accepted Manuscript

Learn from what goes right: a demonstration of a new systematic method for identification of leading indicators in healthcare

Ditte Caroline Raben [a], Søren Bie Bogh [b], Birgit Viskum [c], Kim L. Mikkelsen [d], Erik Hollnagel [e]

Show more



antiation of blood sampling in Outpatients

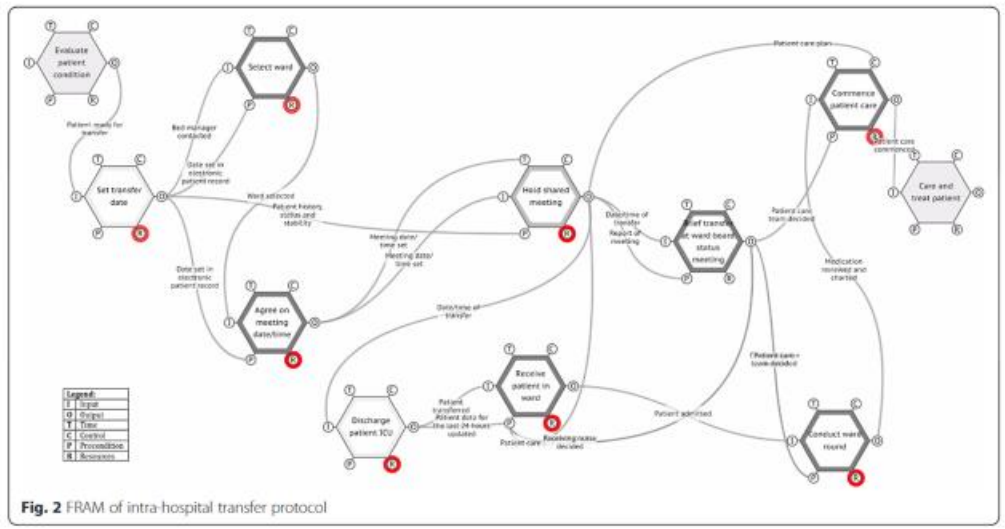
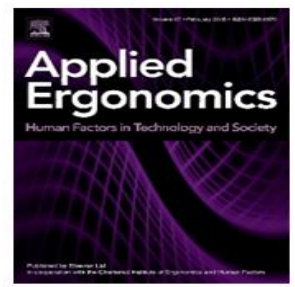


Fig. 2 FRAM of intra-hospital transfer protocol



Applied Ergonomics 68 (2018) 294–303

Contents lists available at ScienceDirect

Applied Ergonomics

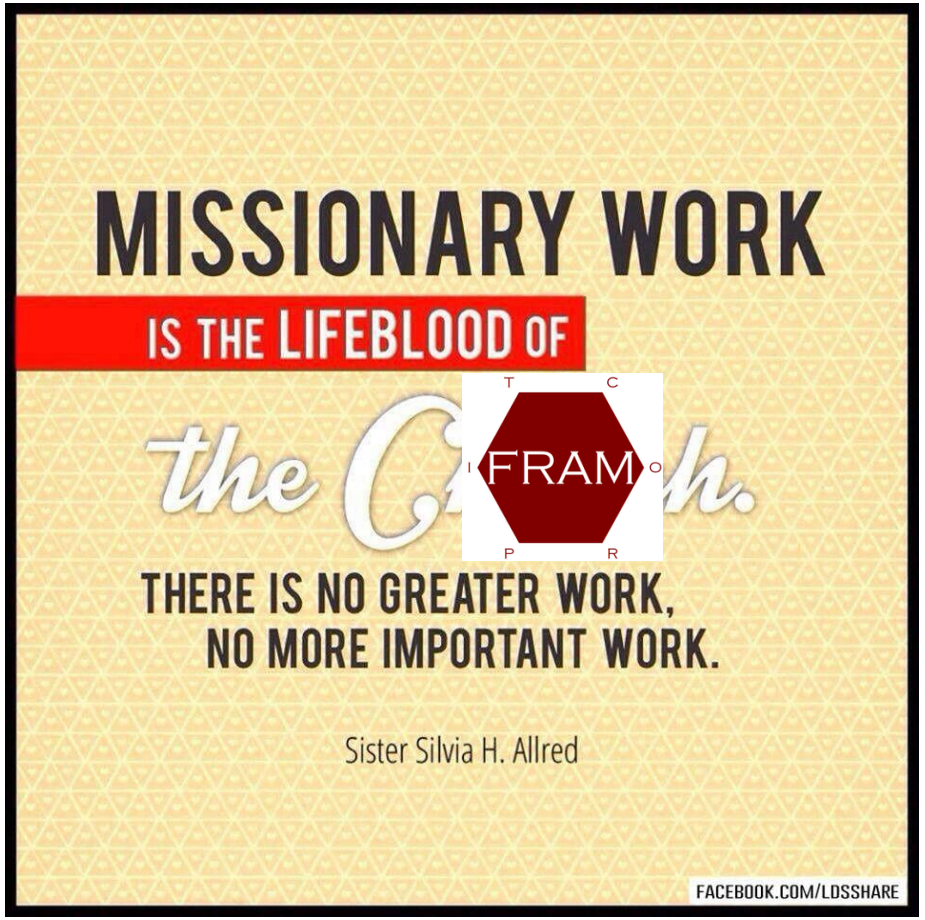
journal homepage: www.elsevier.com/locate/apergo

A systems approach using the functional resonance analysis method to support fluoride varnish application for children attending general dental practice

Al Ross[a,*], Andrea Sherriff[a], Jamie Kidd[a], Wendy Gnich[a], Janet Anderson[b], Leigh Deas[c], Lorna Macpherson[a]

University of Glasgow | Dental School

Missionary work



Beyond pot noodles…the abstraction-utility trade-off

- Simple system/ hard translation
  - Going to cinema
  - Getting cash at ATM
  - Made cup of tea
  - Going to work in am
- OR
- Hard system/ direct application
  - Results handling

Hard to know at this stage ***how useful the FRAM will be going forward***

Interesting but ***unclear transferability….***

Beyond human error…the systems theory trade-off

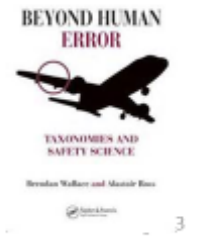
- Explains ‘why FRAM’?
- Important for project aims and dissemination

- People expect technique training
- Theory takes time
- Can be too simplistic

Classic medical sociology

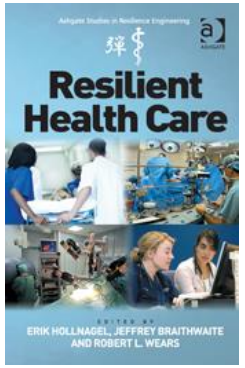
- ***hardly anyone knows all the extant rules, much less exactly which situations they apply to*** *for whom and with what sanctions*
- *[…]* ***the area of action covered directly by clearly enunciated rules is really very small***

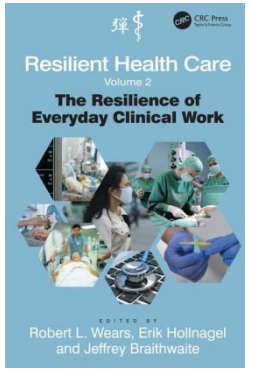
Strauss A et al. (1963)

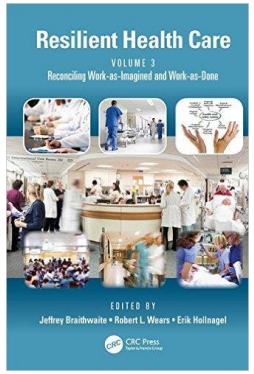


see title verso for ISBN details

Flavours of FRAM

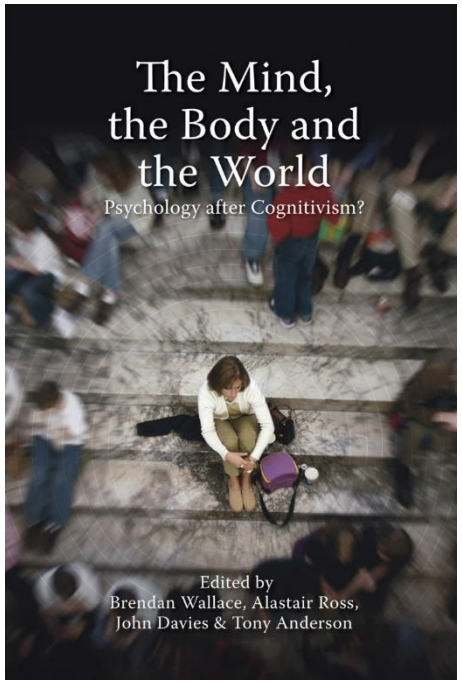


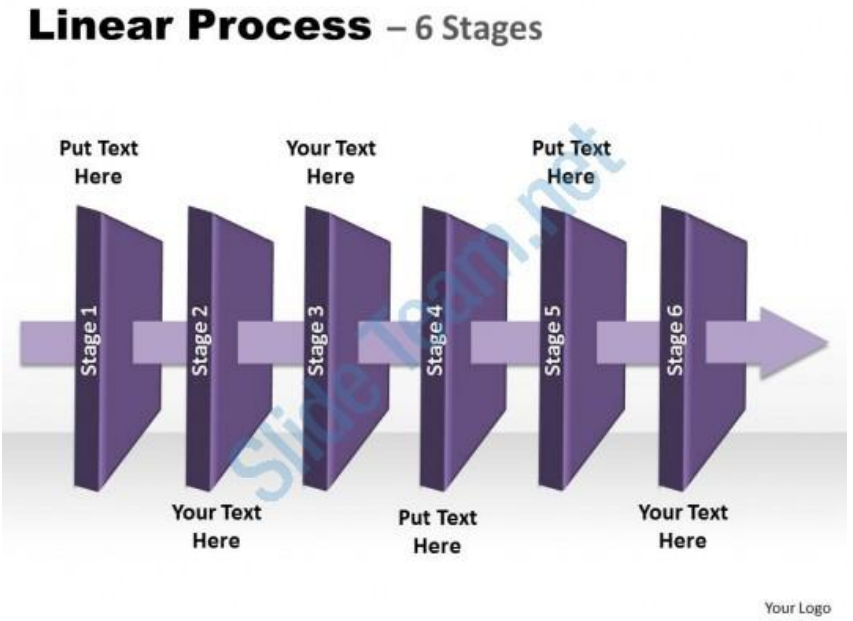


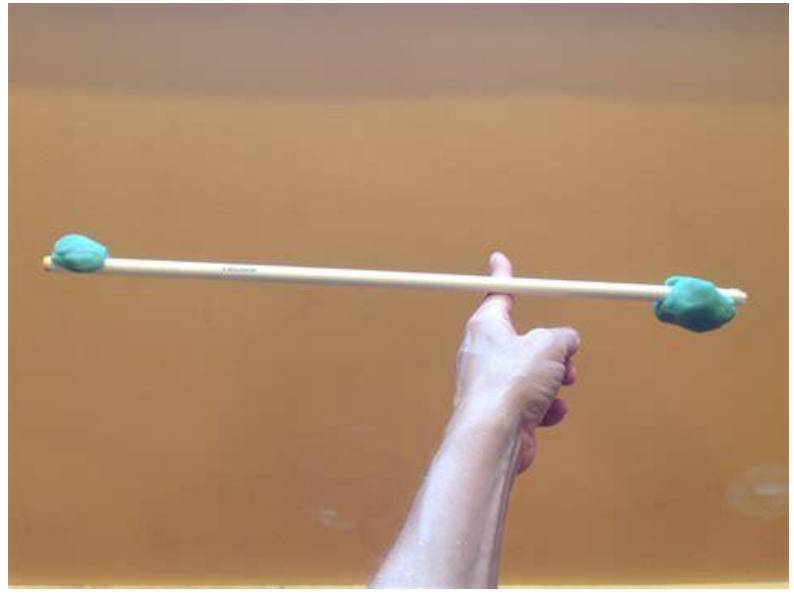


Showing complexity: the granular/linear trade-off

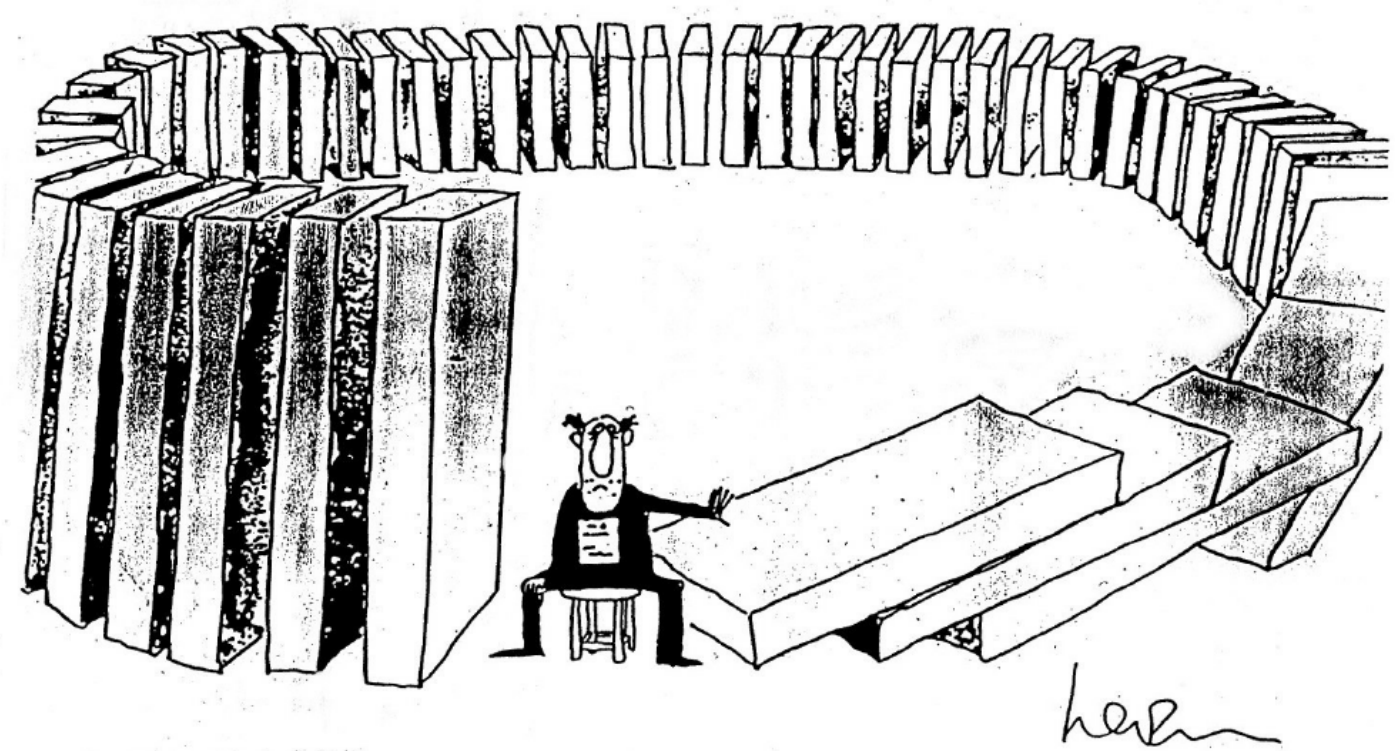
- The broader the FRAM functions, the more linear the model can appear
- The complexity is in the granularity
- But this can eventually appear trivial







It is important to have the right model

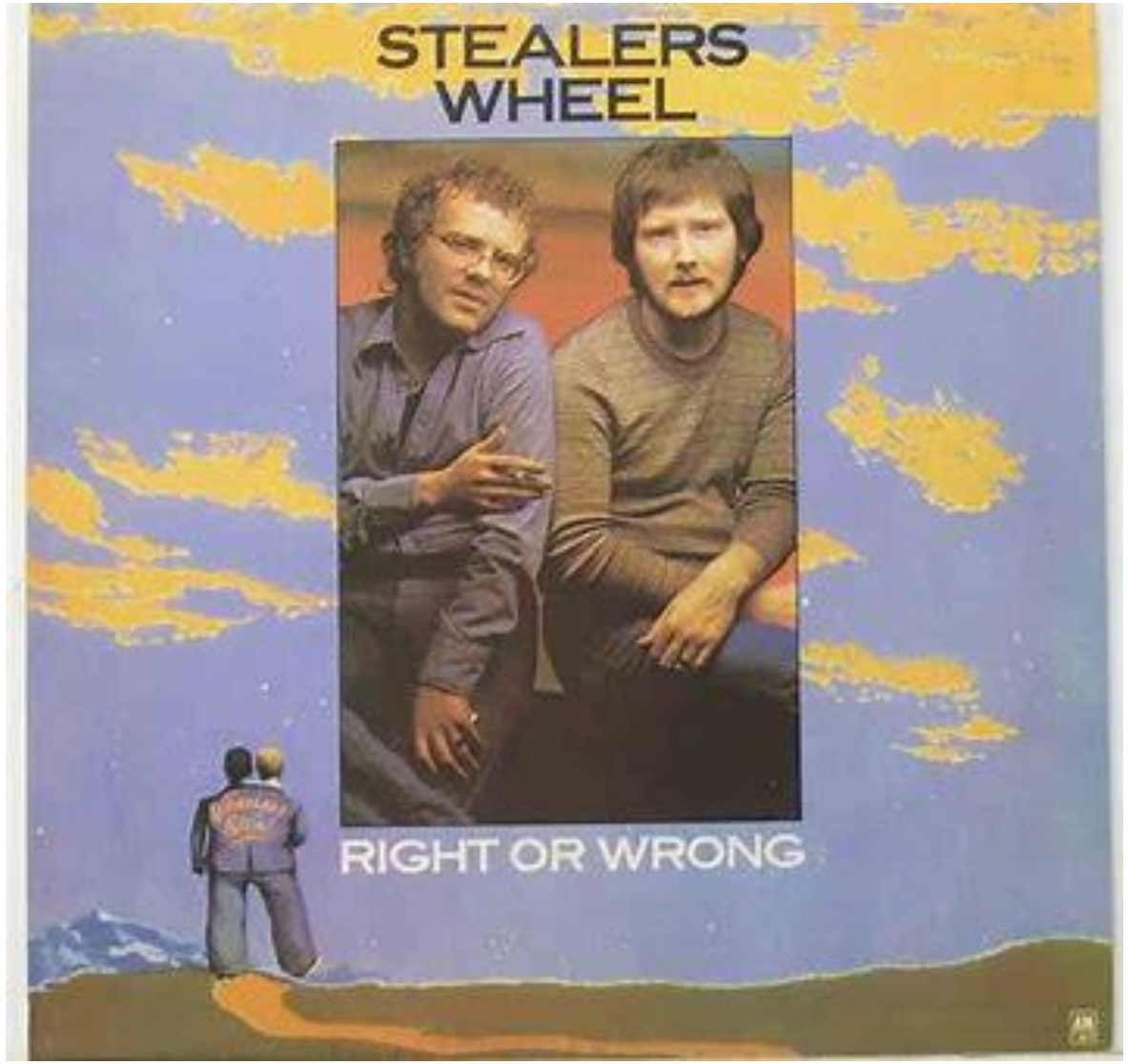


wing by Levin; © 1976 The New Yorker Magazine, Inc.

© Erik Hollnagel, 2016

Getting FRAM ‘wrong’…the expertise trade-off

- E.g. THAT IS NOT A PRECONDITION!!
- People in the system are confused about the model, not the system



Showing impact: the time and motion trade-off

- Need FRAM projects showing impact
- Can seem luxurious

I liked the idea of this method however thought it might be **quite time-consuming to actually apply** to smaller scale improvement projects.

I see the benefit over simpler process maps but … not sure if I would be able to apply this to the projects I support.

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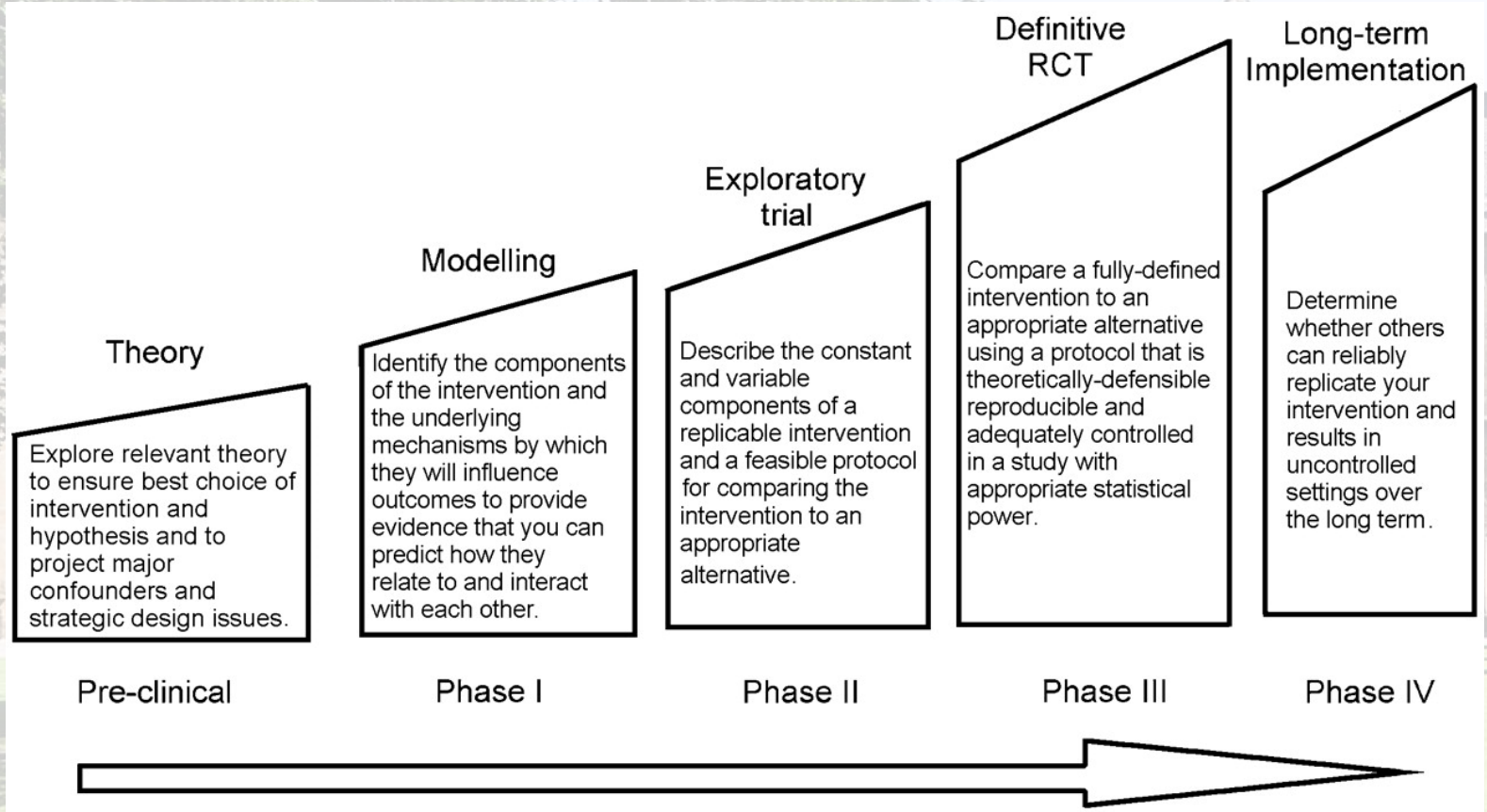
How do we begin to intervene?

MRC Medical Research Council



A **Systems Analysis** of Fluoride Varnish Application in General Dental Practice in Scotland Using the Functional Resonance Analysis Method

Ross AJ, Sherriff A, Kidd J, Gnich W, Deas L, Rhouma, O, Macpherson L

- **Issue: fluoride varnish application in practice is variable**
- **Simple question: why?**
  - **Draw from multiple data sources**

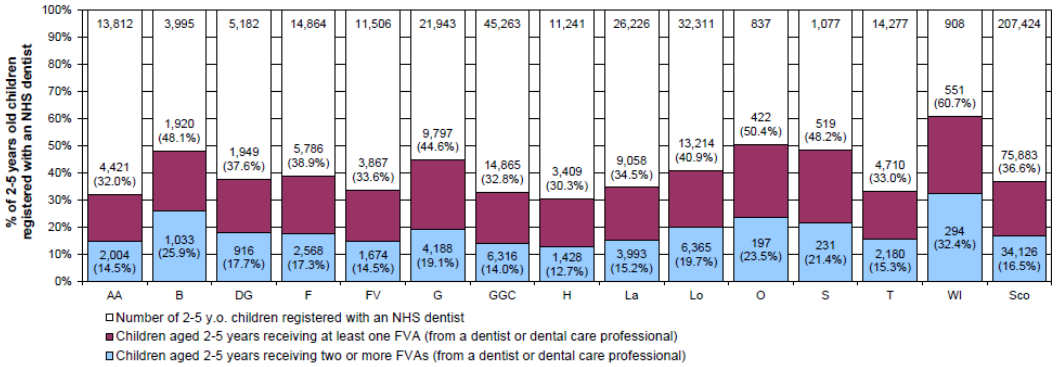


Figure 32: Proportion of 2-5 year old children registered with an NHS dentist receiving at least one FVA or two or more FVAs – Scotland, by NHS Board, 2014/2015 financial year

FVA – fluoride varnish application.

- **In 15/16 just 18% of 2-5 yr olds received the recommended twice yearly application in practice**

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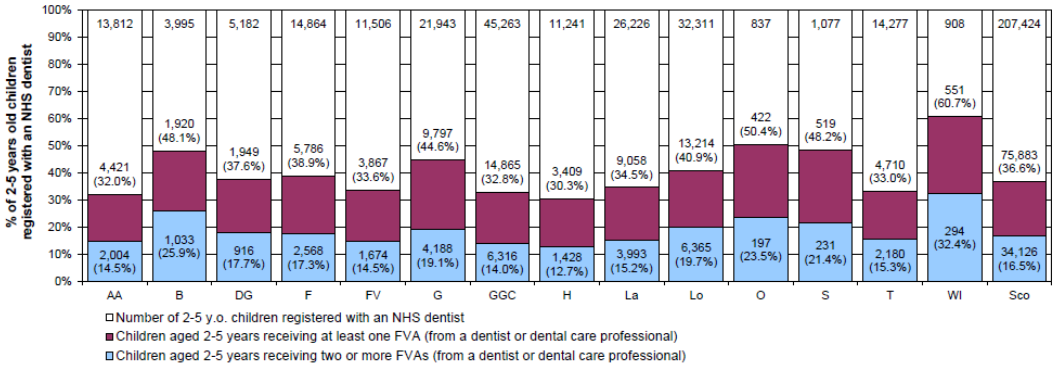

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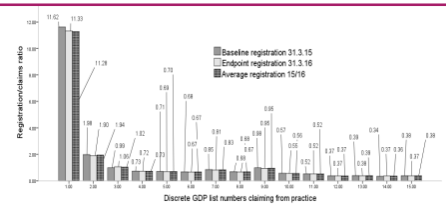
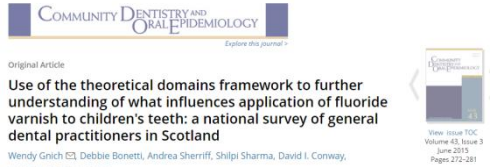
Childsmile **evaluation monitoring data**





GDP surveys (n= 1,090; n= 709)

Workshop (n= 56)

Interviews (n=43)

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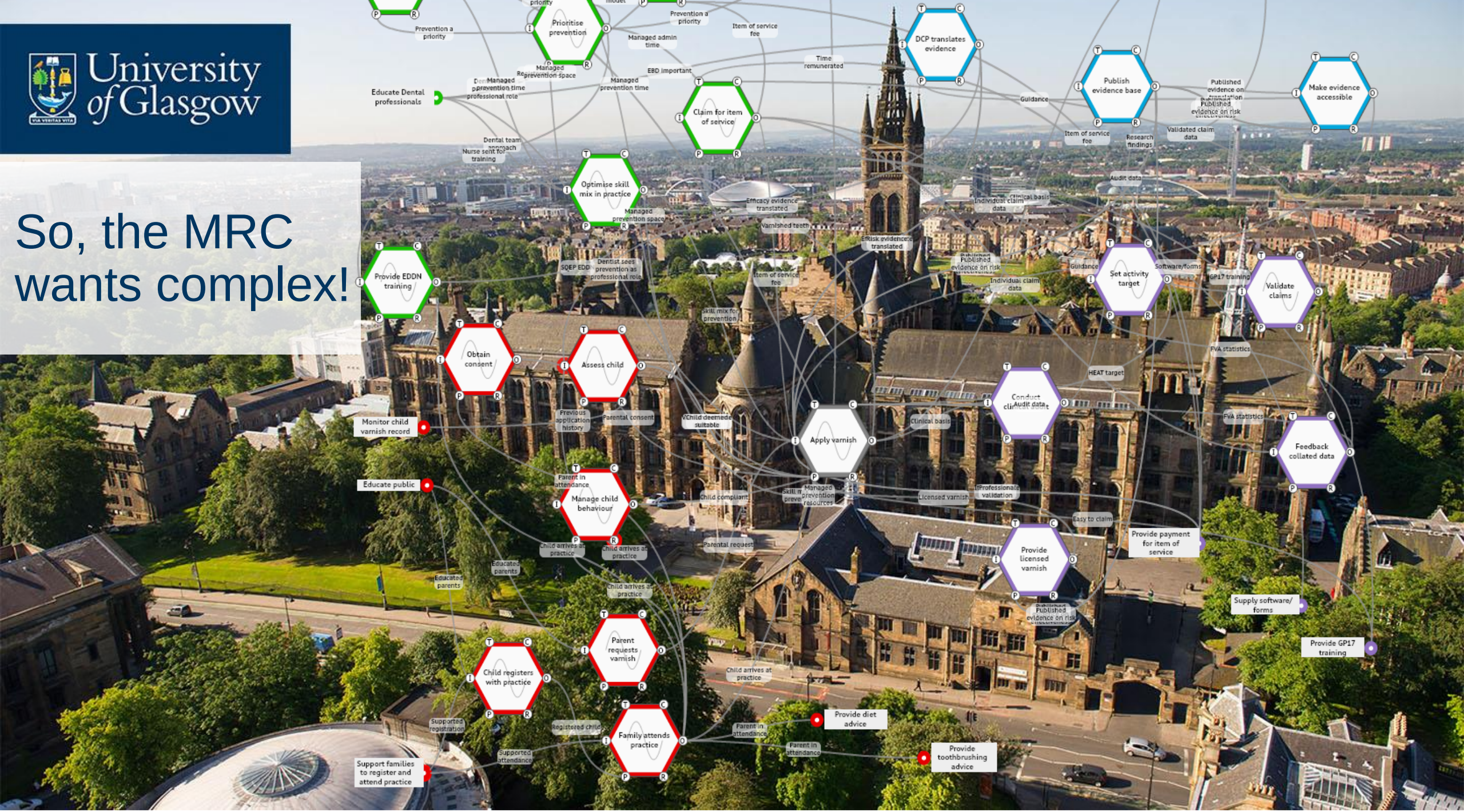
So, the MRC wants complex!



Did you need FRAM?

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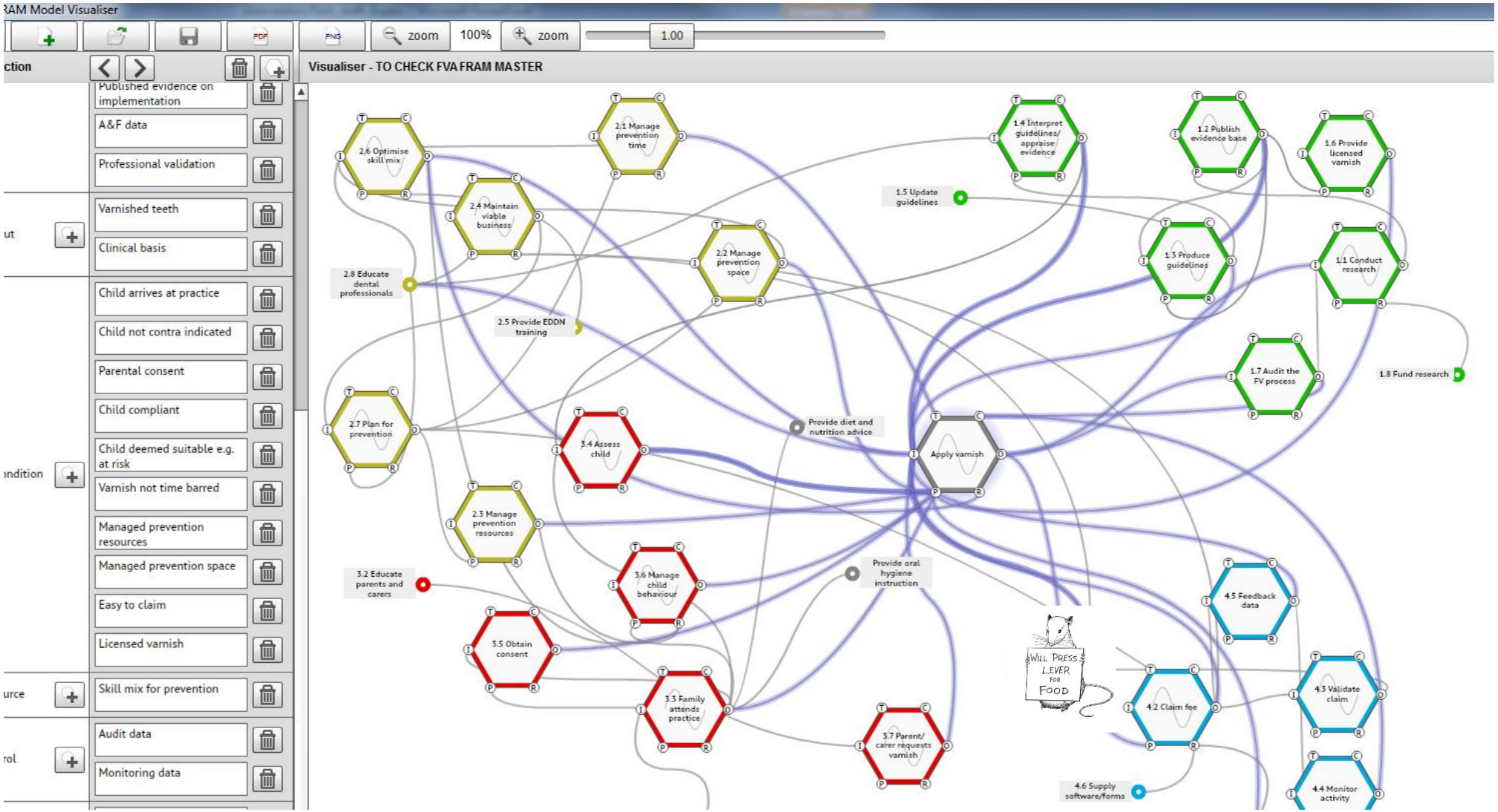

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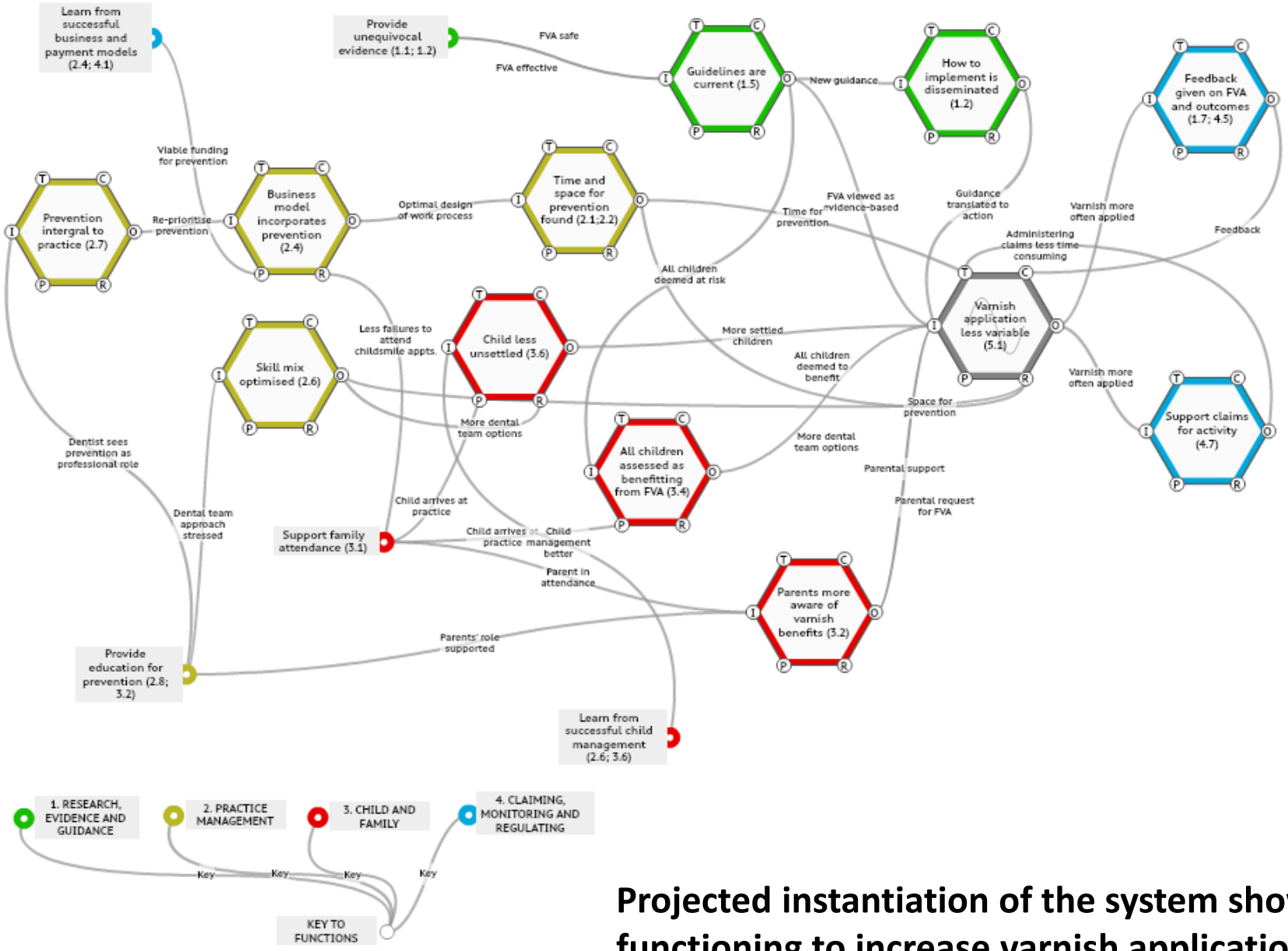
WARNING

Graphic Content:

VIEWER DISCRETION ADVISED

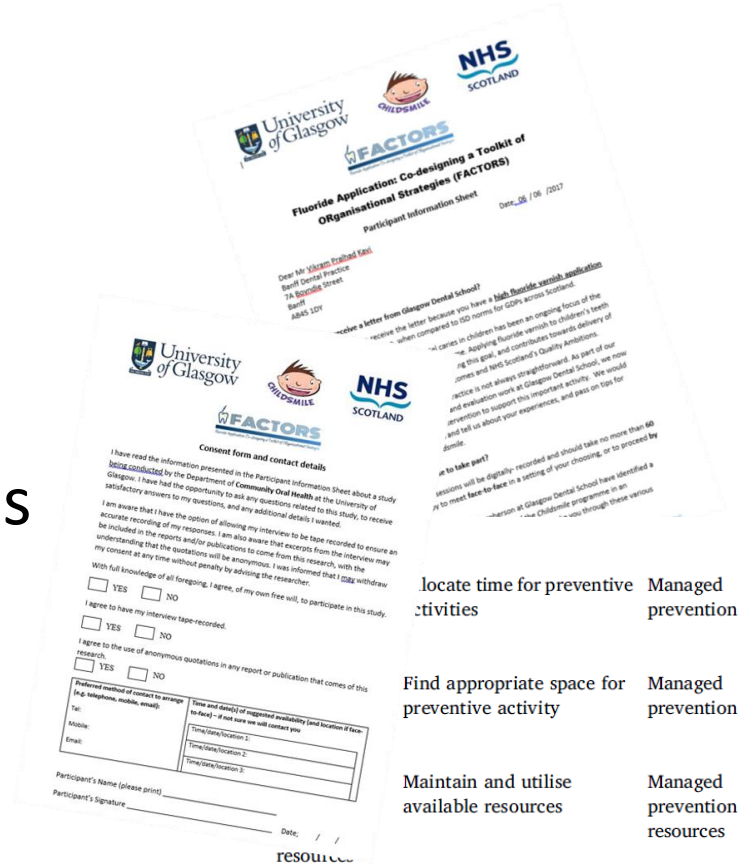


Projected instantiation of the system showing improved functioning to increase varnish application

QI intervention: co-designed toolkit

- 95th percentile for FV applications
- Tell us how to carry out the identified activities

1	Interview date	phone call	Date of 1st contact	No.	Name of Dentist	Location Number	Full Address of Dental Practice	POSTCODE	Tel:	Email:	HB	SIMD2016 Quintile	Practice size	Patients aged 2-5	carried out by each Dentist	patients aged 2-5	FVA/day	relation to Attendances
2		20/06/2017	06/06/2017	1	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Grampian	4	6	5	391	432	7.7	90.5%
3		20/06/2017	06/06/2017	2	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lothian	3	4	1	313	338	6.2	92.6%
4		20/06/2017	06/06/2017	3	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lanarkshire	1	8	187	212	234	4.2	90.6%
5			06/06/2017	4	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lothian	5	3	179	205	220	4.1	93.2%
6			20/06/2017	5	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lothian	5	12	-	194	207	3.8	93.7%
7				6	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Grampian	5	5	129	179	196	3.5	91.3%
8				7	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Fife	5	7	147	176	191	3.5	92.1%
9				8	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Grampian	5	5	-	176	188	3.5	93.6%
10			20/06/2017	9	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lanarkshire	3	4	179	169	179	3.3	94.4%
11	22/08/2017??	18/07/2017	03/07/2017	10	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Ayrshire & Arr	3	4	140	158	168	3.1	94.0%
12				11	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Highland	4	4	166	147	165	2.9	89%
13		20/06/2017	06/06/2017	12	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Greater Glasg	2	3	127	138	153	2.7	90.2%
14				13	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Fife	1	6	172	138	151	2.7	91.4%
15		19/07/2017	20/06/2017	14	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Grampian	2	8	146	137	155	2.7	88%
16			20/06/2017	15	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lothian	1	7	153	137	154	2.7	89%
17				16	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		2	6	109	136	149	2.7	91.3%
18		20/07/2017	03/07/2017	17	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Lothian	5	4	124	134	142	2.6	94.4%
19				18	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		5	3	103	134	148	2.6	90.5%
20	04/08/2017	07/07/2017	03/07/2017	19	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	e@yahoo.co.	2	4	87	134	136	2.6	98.5%
21				20	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		2	8	127	133	141	2.6	94.3%
22				21	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		1	3	210	128	140	2.5	91.4%
23			03/07/2017	22	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	ida.dental	3	4	84	122	137	2.4	89%
24				23	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		4	7	97	118	129	2.3	91.5%
25				24	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		2	7	100	115	117	2.3	98.3%
26	31/07/2017	11/07/2017	03/07/2017	25	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]	Greater Glasg	1	5	114	115	119	2.3	96.6%
27				26	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		5	12	77	114	125	2.3	91.2%
28				27	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		4	3	89	114	123	2.3	92.7%
29				28	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		3	4	97	114	124	2.3	91.9%
30				29	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		4	5	85	110	116	2.2	94.8%
31				30	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		2	8	-	107	116	2.1	92.2%
32				31	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		5	3	77	106	107	2.1	99.1%
33				32	[redacted]		[redacted]	[redacted]	[redacted]	[redacted]		5	7	112	100	112	2.0	89%



	locate time for preventive ctivities	Managed prevention time
	Find appropriate space for preventive activity	Managed prevention space
	Maintain and utilise available resources	Managed prevention resources
resources		
2.4 < Maintain viable business >	Undertake preventive activity within a successful business model	Viable business model
2.5 < Provide EDDN training >	Train Extended Duty Dental Nurses (EDDNs) through training course and observed procedures	Qualified and experienced EDDNs
2.6 < Optimise skill mix >	Utilise dental team in preventive activity	Skill mix for prevention
2.7 < Plan for prevention >	Plan prevention to be integral to practice	Prevention integral

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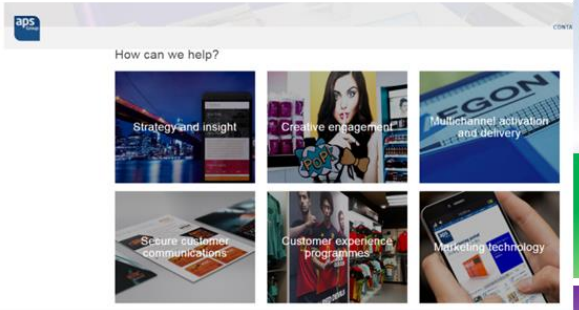
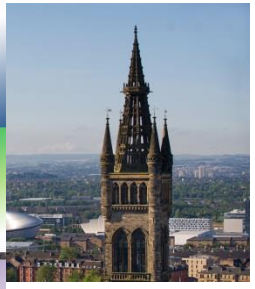
QI (Research)

- |

Research Audit Credit

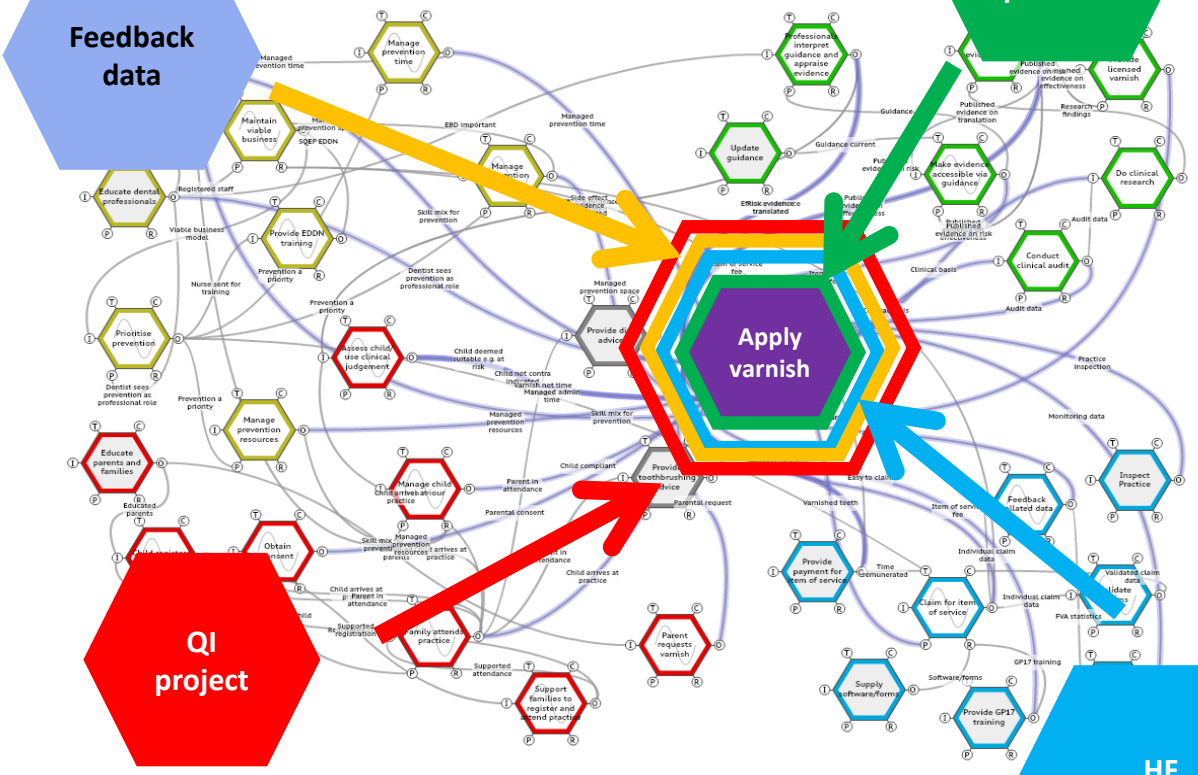
Under the new arrangements for clinical audit, participation in many dental research projects carried out by SDPBRN, universities and health boards will be eligible for up to five hours audit credit in each three-year clinical audit cycle. General Dental Practitioners will be able to claim Clinical Audit Allowance in respect of their Research Audit Hours.





Feedback data

Vignettes from practice



QI project

HF principles

- **Now to intervene..**

Co-design activity toolkit

With GDPs who apply high rates of FV

Feasibility test (late summer)

Test delivery and acceptability; Clinical audit approval sought

RCT (Jan 2019?)

Randomised to practice; Outcome is FV application rate

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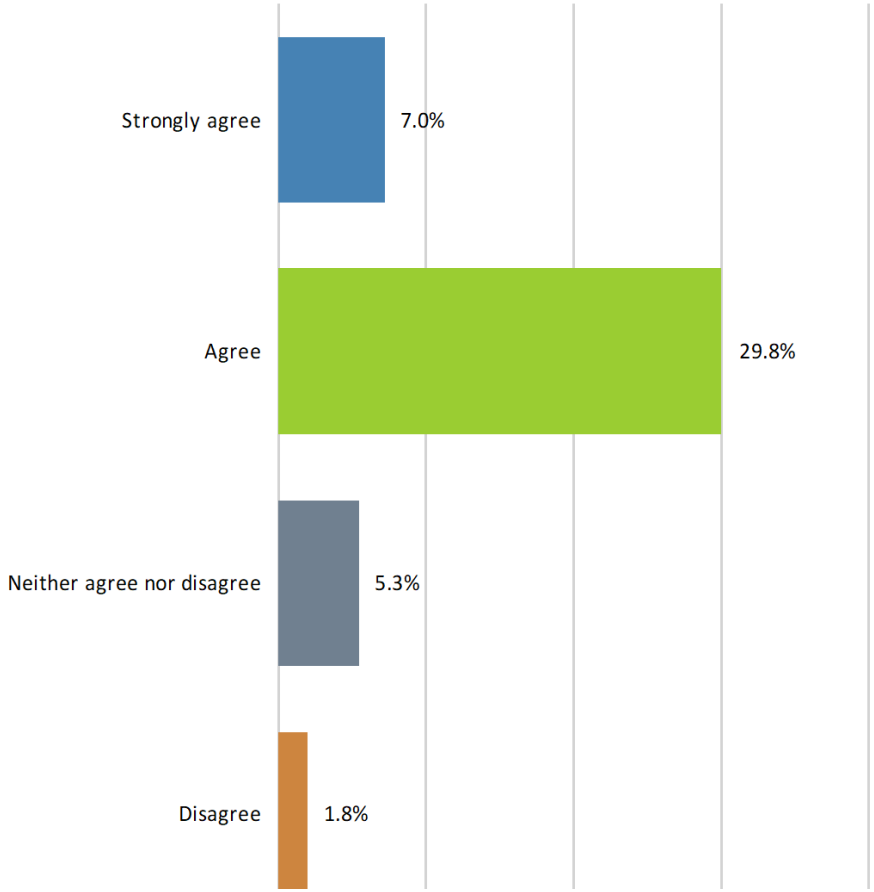
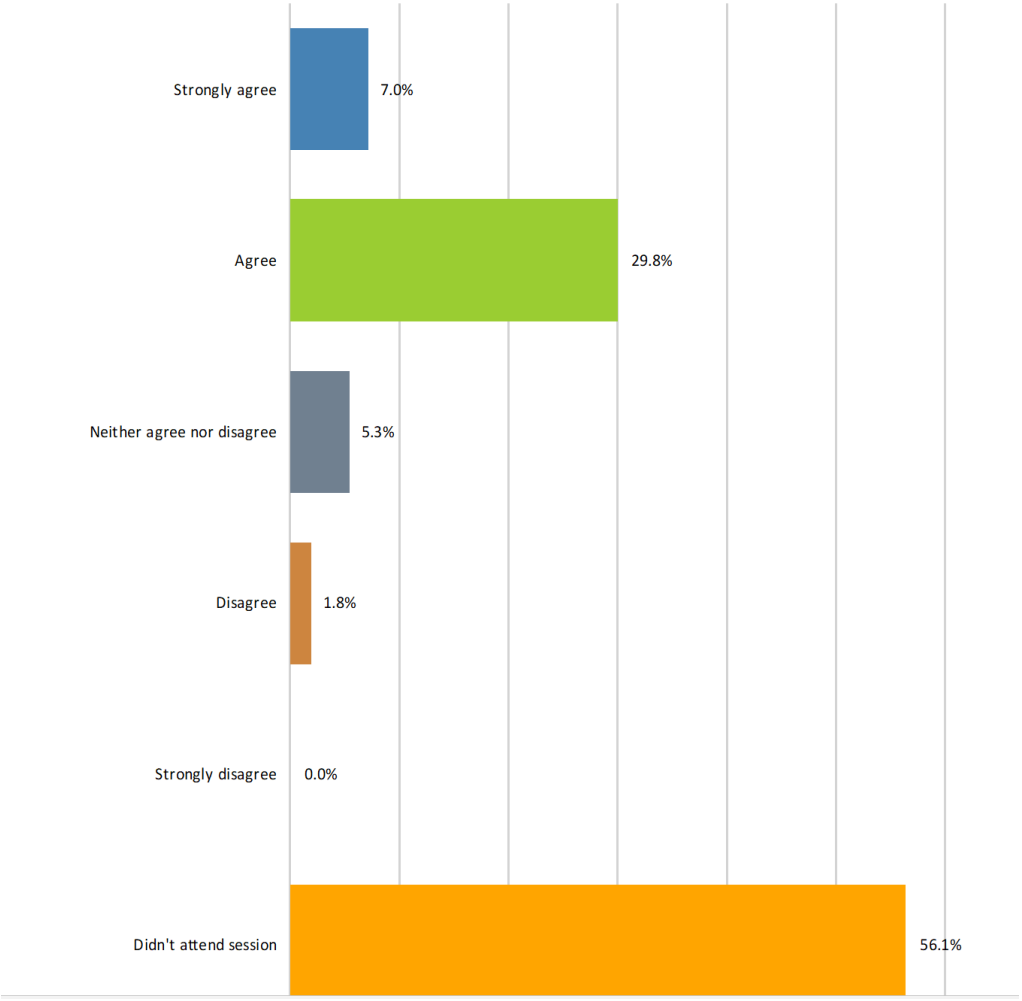
The good

1. The content was relevant to my role



The good


Strongly agree
7.0%
Agree
29.8%
Neither agree nor disagree
5.3%
Disagree
1.8%
Strongly disagree
0.0%
Didn't attend session
56.1%

The work continues..

- The session was great as an introduction but before I could use it in practice **I would need more in-depth training.**
- **I think it belongs to the family of improvement tools** around process and system mapping and could perhaps be presented as part of a session on that.
- Interested to learn about FRAM, **not sure** if I will use it, is **very open ended and broad.** Always good to learn about different techniques though.

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This is a closing slide

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