



# Metronos

A call to order

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Project Management Community  
Software Metrics Knowledge Owner



Chair UK Software  
Metrics Association

**Local Government:** Strategic partners for service transformation, Consultancy, Applications development, infrastructure, e-processing & document management

**Central Government:** End-to-end managed services Civil Aviation Authority (CAA)

**Health:** Consultancy, applications development & integration, Infrastructure and Roll-out Services, including Northern Ireland Dept of Health

**Police & Emergency Services:** STORM (command & control), Duty Rostering, Imaging & Biometrics, Electronic documents and records management, Rapid business process improvement, Demand management. Kent, Grampian & Cambridgeshire Police Forces, Wiltshire Joint Emergency Services



**Steria Delivers to....**



- ▶ Local Government
- ▶ Central Government
- ▶ Health
- ▶ Police & Emergency Services
- ▶ Criminal Justice
- ▶ Defence
- ▶ Transport
- ▶ Financial Services



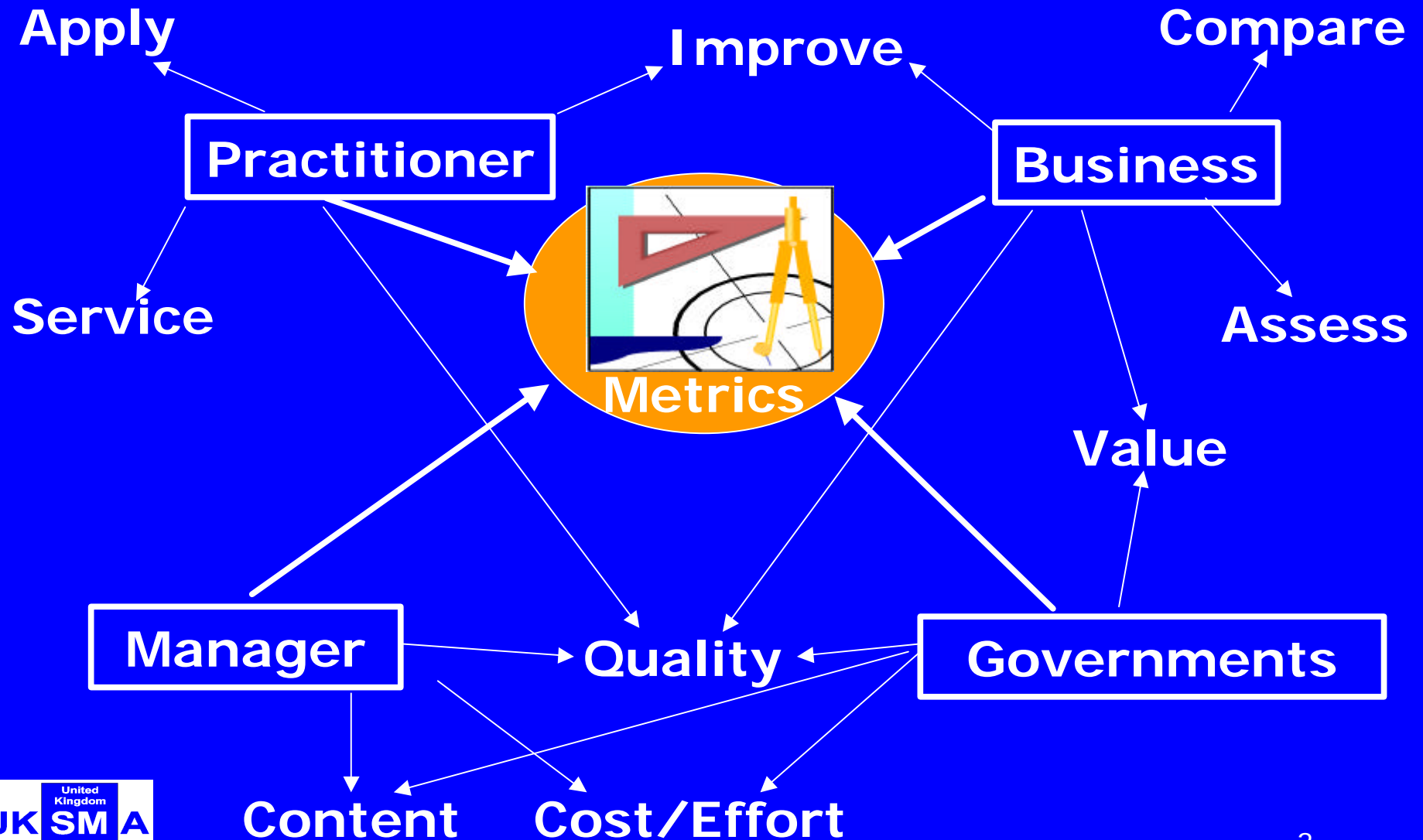
**Criminal Justice:** Systems & support services to the Prison Service for 14 years; IT infrastructure and support to National Probation Service for over 10 years

**Defence:** Systems and applications development & integration, Infrastructure and Roll-out Services to the MoD for 25 years

**Transport:** Expertise in Specialist consulting and Application customisation and implementation to the transport sector for 30 years, including taxi management for BAA

**Financial Services:** Systems and applications development & integration, Infrastructure and Roll-out Services, including Northern Rock & Lloyd's

# Measurement Interests



# Measure Reasons

- **Managing**
  - **Cost**
  - **Effort**
  - **Content**
  - **Quality**
  - **Productivity**
  - **Benchmarking**
  - **Improvement**
  - **Outsourcing**



**"Desperate diseases require desperate measures."**

# Why it's important

## Said

We have a important project and need an estimate from you.

What is the basis of your estimate?

I'm not sure size and productivity metrics are any use to us.

## Meaning

**We want to be able to say it's your fault!**

**Your numbers are different from ours!**

**I've got a budget and a date, so don't confuse things!**

# Measurement Credentials

- Academic backing
- Level of scholarship
- Degree of research
- Pedigree
- Quality
- Calibre
- Enthusiasm
- People involved
- is Outstanding

# Measurement Perceptions

- Industry expanding
  - Power, degree, ability
- Metrics problematic
  - immature
  - fuzzy
  - outdated
  - costly
  - errors perpetuated
  - assumptions undeclared
  - ill considered
  - no standards

## Problems

- Accessibility
- Credibility
- Relevance

..value only what is measurable,  
...measure what you value!

# Summary

- Practitioners

- Starting difficult
- Acquisition difficult
- Application Uneven
- Contradictory
- Declining

- Business
- Managers
- Government

- Use Begrudged
- Non Acceptance
- Misunderstood
- Seen as Expensive
- Unjustified
- Esoteric

# Practitioners Starting

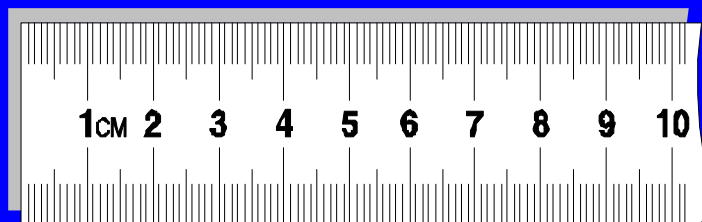
- Disparate information
- Their Need
  - accessible
  - understandable
  - dependable help
- There are
  - good books
  - some good websites
  - i.e. [SEI & Measurement.fetcke.de](http://SEI & Measurement.fetcke.de)
  - many studies
  - courses
- We need to attract new people
- We owe them more



# Standards!

- standards are given.....elsewhere

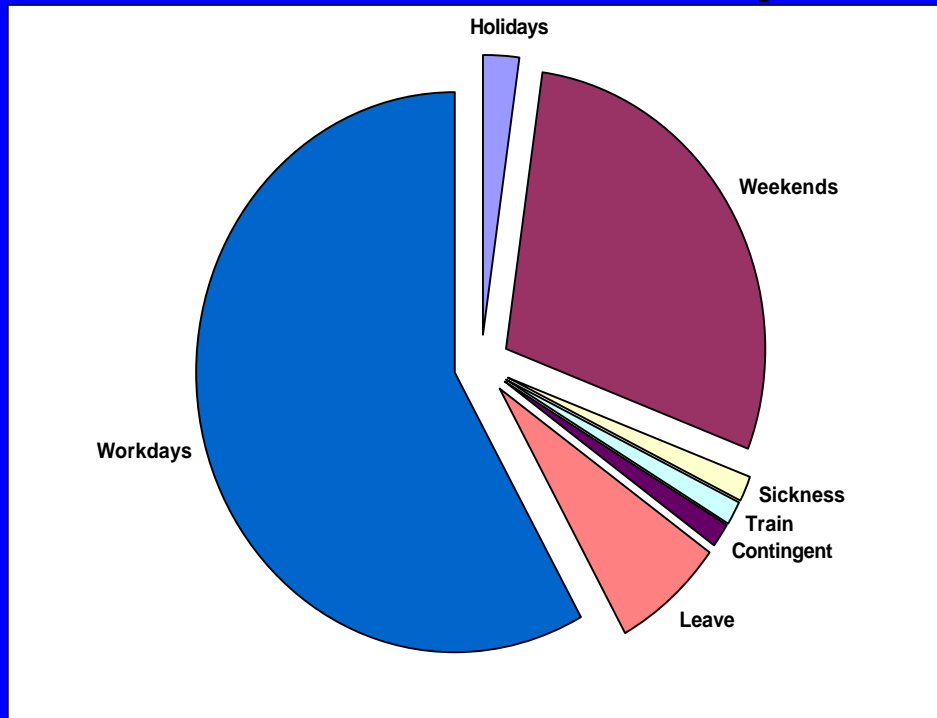
- length
- weight
- luminance
  - established
  - defined
  - credible
  - repeatable



- a year!

- 365 days
- 5 hours
- 48 minutes
- 45.2 seconds
- 365.24219 days
- rounded 365.24 days
- The tropical year

# Example – an FTE?



## Allowances v Actual

Sickness 5 / 6.5

Training 5 / 3.1

Leave 25 / 18.8

Full Time Equivalent  
Working days in a year?

252 = Workdays

222 = Less leave

212 = Less leave/Train

- Contract
- Support & Enhancement
- No definition of an FTE
- Expectation 2.5 FTE'S
- Working days year = ?

Working year = 630

Assumed year = 555

Planning year = 530

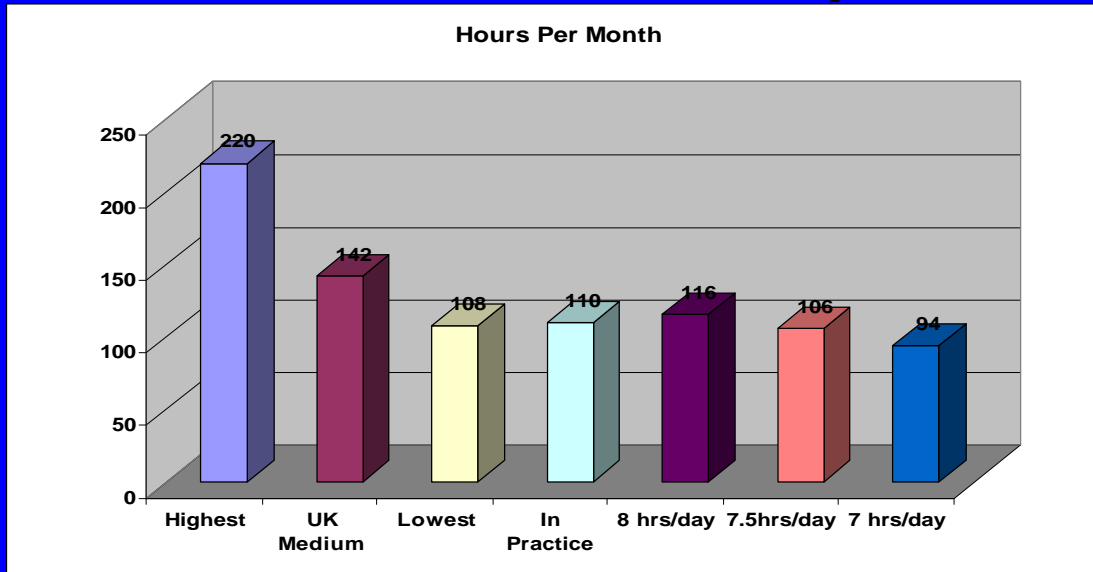
# Example – Real work

<u>OFFICE TIMETABLE</u>	
9.00	STARTING TIME
9.30	ARRIVE AT WORK
9.45	COFFEE BREAK
11.00	CHECK E-MAIL
11.15	PREPARE FOR LUNCH
12.00	LUNCH
2.45	BROWSE THE INTERNET
3.00	TEA BREAK
4.00	PREPARE TO GO HOME
4.30	GO HOME
5.00	FINISHING TIME

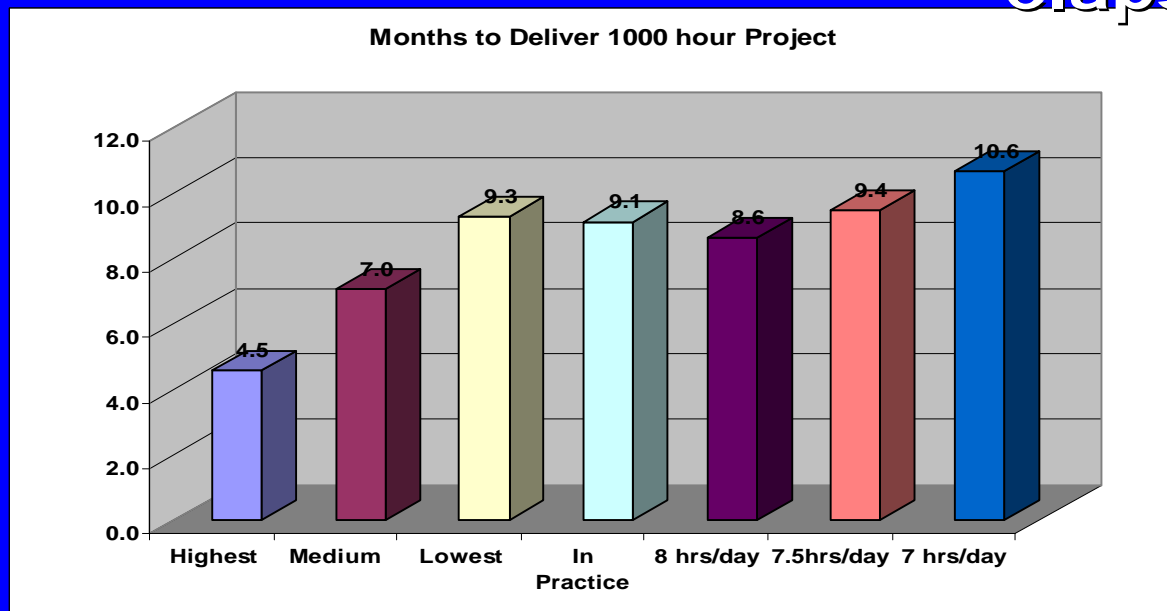
- Elapsed day v Work day
- 20% of a person's time
  - housekeeping
  - breaks
  - other things!
- When booking
- Not separately identified
- Work overruns by 25%.

"Warning: Dates in Calendar are closer than they appear."

# Example - Effort



- Lack of agreement
- Productive hrs
- Most projects start
- Over-estimate
  - of capability
- Underestimate
  - staff
  - elapsed time



# Example - Faults

- Priority is - management & resolution of faults
- Importance
  - level of impact on ability to do business
  - deliver value to our customers
- Urgency
  - stopping delivering of value
  - receiving income due
  - damaging our reputation and credibility
- **Priority - decision by the supplier**
- **Importance & Urgency**
  - attributes of the fault
  - and its impact

# Example - Faults

		Urgency			
		Not urgent	Routine	Urgent	Very Urgent
Importance (Impact)		4	3	2	1
A	Critical	A4	A3	A2	A1
B	Major	B4	B3	B2	B1
C	Minor	C4	C3	C2	C1
D	Cosmetic	D4	D3	D2	D1

		Urgency				Priority
		Not urgent	Routine	Urgent	Very Urgent	
Severity (Impact)		4	3	2	1	
A	Critical			A2	A1	First
B	Major		B3	B2	B1	Second
C	Minor	C4	C3	C2	C1	Third
D	Cosmetic	D4	D3	D2		Four

Severity (Impact)	Cosmetic	Minor	Major	Critical
	Priority (Urgency)			
	4	3	2	1

"If the facts don't fit the theory,  
change the facts." *Albert Einstein.*

# Average

- As in 'small', 'average', 'large'
- Means when applied to software projects?
- Does it mean medium –
  - halfway between small and large?
- Or does it mean typical –
  - the most common or most likely value?

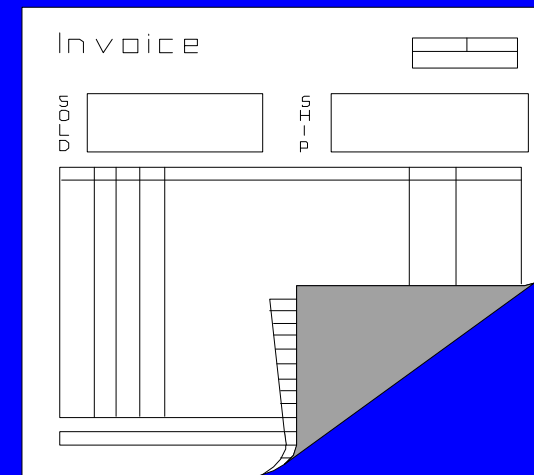
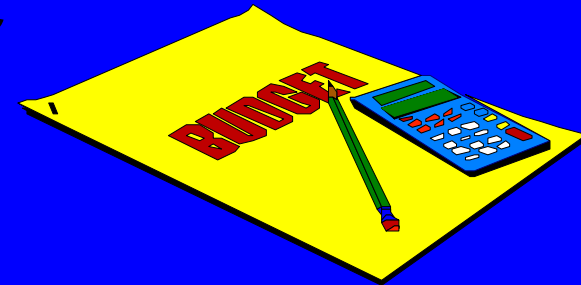


# Complexity v Size

- Big is not necessarily = Complex
- Complexity is a measure
  - interconnections
    - various elements
  - composition
    - a thing (or set of things)
- Size is a measure (or count)
  - number of things
  - how much or how many
- Terms - Small, medium, large
  - cannot be measures of complexity
- Lack of clarity
  - confounds understanding
  - ability to think clearly

# Budget etc

- Budget
  - allocated quantity
- Estimate
  - assessment of the quantity needed
  - with a level of uncertainty
- Cost
  - reality
- Billing
  - what is charged
- Not qualified or separated
  - confusion
  - creative accounting
  - the future jeopardised



# Conversion

- Source Lines Of Code (SLOC)
  - much used metric
- So is the Function point (FP)
  - to get from one the other
  - backfiring is practised
  - for PL1  $x$  (SLOC) = 1 FP
  - common technique
  - especially in Benchmarking
  - accuracy of backfiring
  - a matter of opinion
  - ranging from 10% to
  - 400%



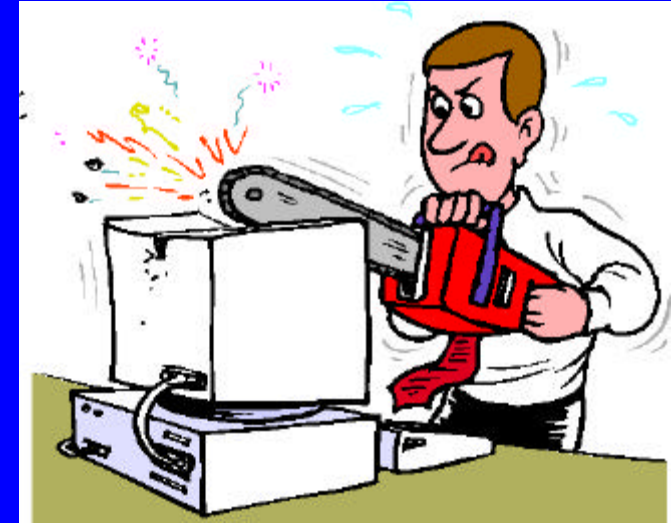
# Outsourcing

- One team initiates, another operates
- Legal & Financial Expertise – recognised
- Metrics Expertise - often ignored
- Tendency use existing measures
  - Created for other reasons
- Metrics not sufficiently understood
- Metrics not qualified
  - project Mix/Type/Language/Platform
- Metrics not given enough attention
- Metrics often left for later

.....never

# Results

- Destroys metrics credibility
- Confirms the prejudice
- Increases disenchantment
- Contributes to failure
- Encourages abandonment



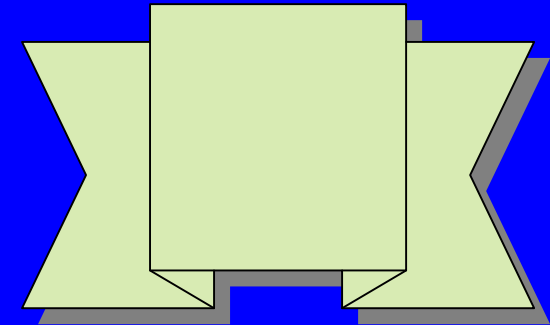
- **PROPOSAL**
- **Metronos**
- **UKSMA initiative**
- **Two elements**

# Measurement Repository

- Metronos
- Measurement repository
  - open to all
  - collaborative
  - web enabled
  - single source of knowledge
    - definitions
    - techniques
    - disciplines
    - areas of expertise
    - references
    - papers
- **Metronos will not**
  - **reinterpret**
  - **refine**
  - **redesign**

# Measurement Qualification

- Metronos
- Measurement qualification
- Measure of competence
  - to provide assurance
  - in software metrics
  - in software measurement
  - to assess
    - scope & degree
    - understanding
    - application
- levelled
  - foundation
  - practitioner
  - expert



# Benefits

- **Practitioner**
  - Up to date
  - Defined
  - Accessible
- **Business**
  - Restore confidence
  - Provide credibility
  - Assurance
  - Demonstrate 'house in order'
- **Voluntary**
- **Not externally imposed**

# Make it happen

- **No small task**
  - UKSMA has experience
  - History of contribution
  - Benefits for the industry
- **Needs to be International**
  - Collaborate
  - Not just PC
  - Essential
  - Broader knowledge & consensus
  - Increase appeal
  - Increase commitment



# How

- **The web**
  - **No travel**
  - **No direct cost**
- **Form a virtual team**
  - **Proposers**
  - **Reviewers**
  - **Approvers**
  -



# Participate

- We want your help
- Contributions
- Sponsors
- From Academia/Business/Consultancies
  - Interested
  - Contact us
  - email to register
  - [Metronos@UKSMA.co.uk](mailto:Metronos@UKSMA.co.uk)

# News Update

- We are not alone
- Independently
- Others recommending similar approaches
- IFPUG
  - Software Measurement Specialist Certification
- ISBSGs
  - Where intending something but have deferred to work with others
- Japan Function Point Users Group
  - SWMBOK
  - Using Goal, Question, Metric approach
  - Categorise metrics
- Checking with others too

# Questions!

