



# NLW effectiveness and standards

A team effort





## Contents

- › Emerging capabilities offered by NLW
- › Finding the right one (or two)
- › Making effectiveness explicit
- › Standards development
- › How to get NLW fielded





## NLW as emerging capabilities

- › Many potential applications
  - › Crowd and riot control
  - › Checkpoint operations
  - › Force protection
  - › Special operations
  - › ...

### **No single agency can provide comprehensive solutions**

- › Many specific issues, merits and limitations
  - › Effectiveness and risk characterisation
  - › Concept of use
  - › Legal framework
  - › ...







## NLW knowledge network

- › NATO
  - › Research & Technology Organisation / SAS Panel
  - › Army Armament Group / Land Capability Group 9
  - › Defence Against Terrorism (DAT-11)
  
- › Bilateral arrangements
  
- › Civil-military co-operation
  
- › Academia
  
- › Industry





## Some NATO deliverables



- |        |                   |                                      |
|--------|-------------------|--------------------------------------|
| › 2000 | SAS-ET15          | NLW Roadmap                          |
| › 2005 | AC225/LG3/NLW ToE | Proposed NATO NLC set                |
| › 2004 | SAS-040           | Outlook 2020 (Ops/Tech/Policy)       |
| › 2006 | HFM-073           | Need for Human Effects Research      |
| › 2004 | SAS-035           | Effectiveness Assessment Methodology |
| › 2009 | SAS-060           | Enhanced Methodology                 |
| › 2011 | SAS-078           | Capabilities Based Assessment        |
| › 2011 | DAT-11            | Rapid Fielding of NLW                |
| › 2014 | SAS-094 (ongoing) | Concepts of Use                      |
| › 2012 | NAAG LCG/9        | Materiel Standards and Co-ordination |



# NATO Capabilities Based Assessment

- ▶ “Conduct a CBA to determine NLW requirements, gaps, and candidate solutions, including associated work on experimentation”



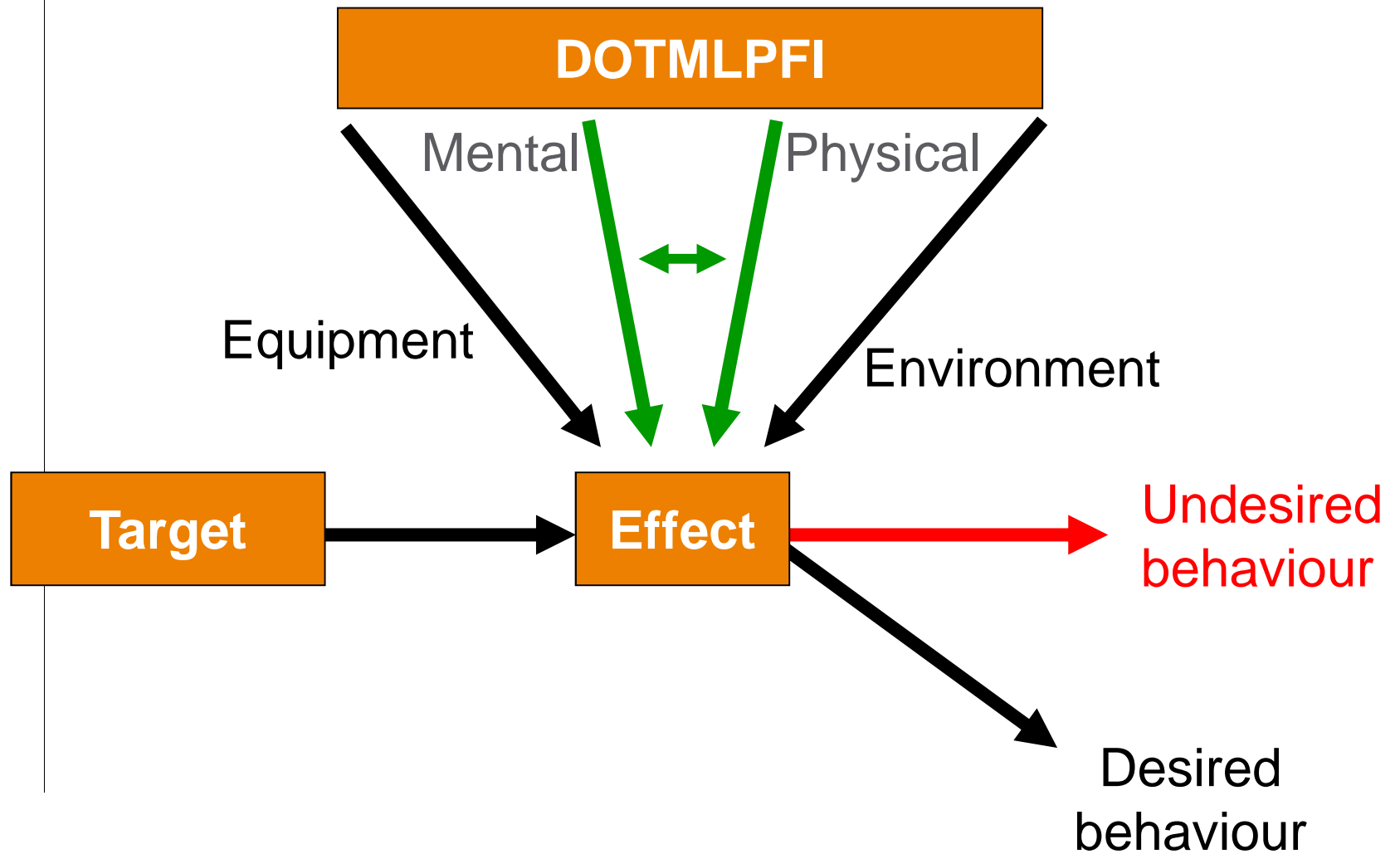
Requirement (Assessment of Gap Priority – Top Ten, Middle, or Lowest Ten)		Highest Scoring Current/Programmed NLW	Highest Scoring Candidate Materiel Solution	Highest Scoring Candidate Non- Materiel Solution
Context				
Domain	Required Domain(s)	Capability (Gap)	Yes	Yes
Space	Required Space(s)	Yes	Yes	Yes
Characterization				
Target Number	Target Number requirement	Yes	Yes	Yes
Targeting	Targeting requirement	Capability (Gap)	Capability (Gap)	Capability (Gap)
Mobility	Mobility requirement	Yes	Yes	Yes
Physical Properties	Physical Properties requirement	Yes	Yes	Yes
Range	Range requirement (showing the desired range and the range that covers most cases)	Yes	Yes	Yes
Coverage	Coverage requirement (Results are shown with circular areas of a given radius and the equivalent area in m <sup>2</sup> )	Capability (Gap)	Yes	Yes
Onset	Onset requirement	Yes	Yes	Yes
Duration	Duration requirement	Yes	Yes	Yes
Score from assessment model		xx%	yy%	zz%

Candidate non-materiel and materiel solutions

Verified in Solutions Workshop hosted by ACT (03/2011)



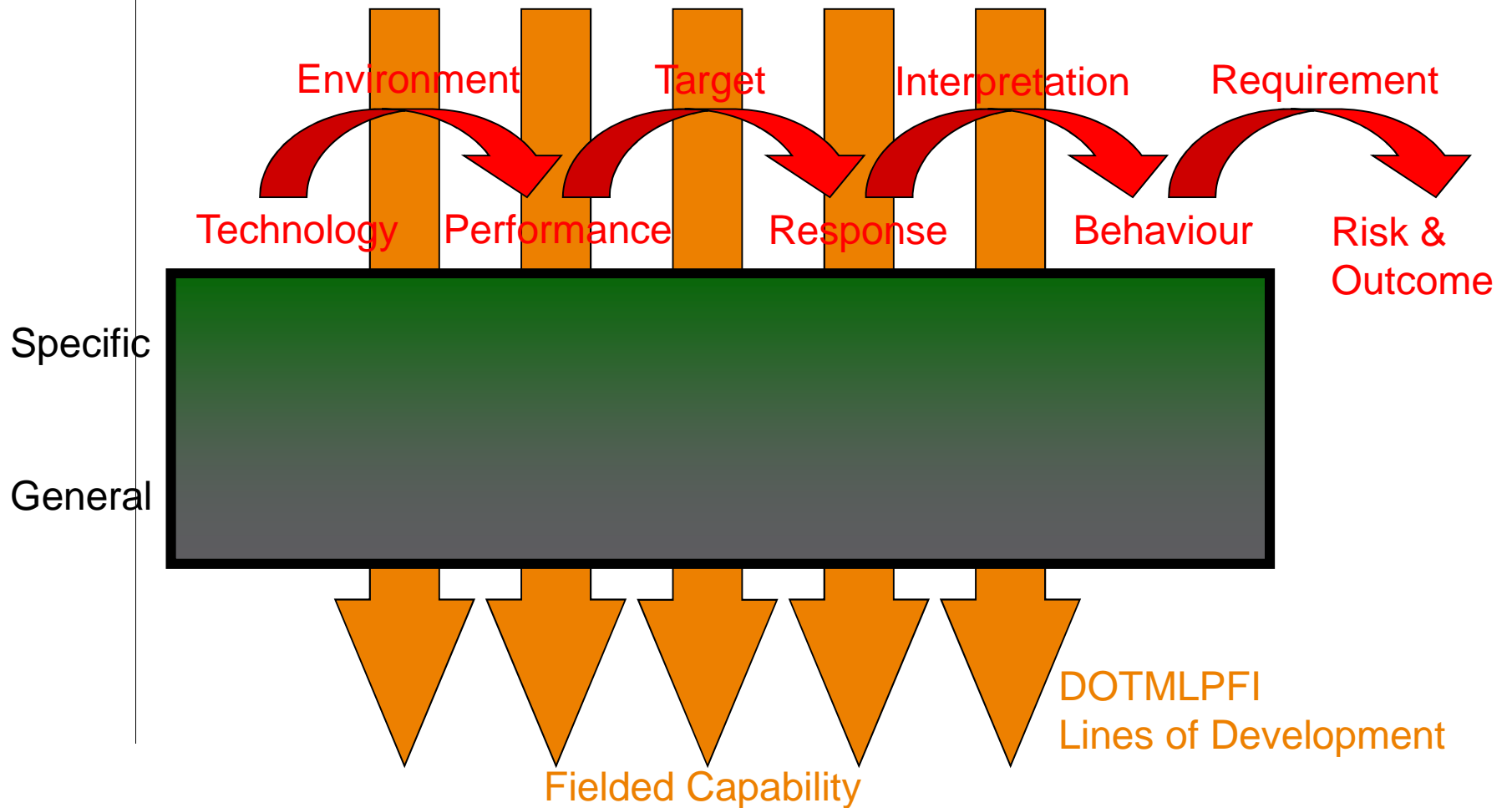
## Employment characterisation





# Integrated NLW Experimentation Framework

Capability Gaps and Emerging Solutions







## REAL DEAL

- › “Does INEF provide the right guidance for setting up proper NLW experiments?”
- › Joint NLW effectiveness test protocol
- › Three cases
- › Involving human subjects





## STANREC VAD



- › No dedicated NATO standard for Non-Lethal Capabilities



- › “Propose a standard for the performance of Vehicle Arresting Devices (VAD), in order to capture current practices and explore desired properties of a Capability Based Standard”

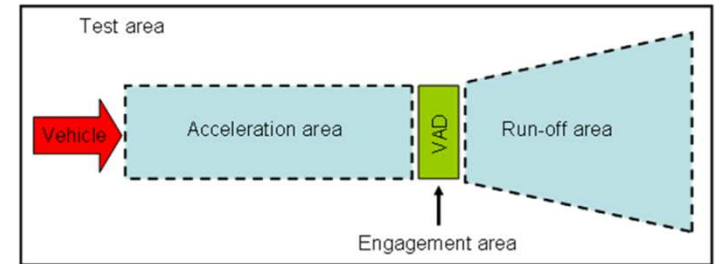


- › “...to promote the comparison and exchange of test results”

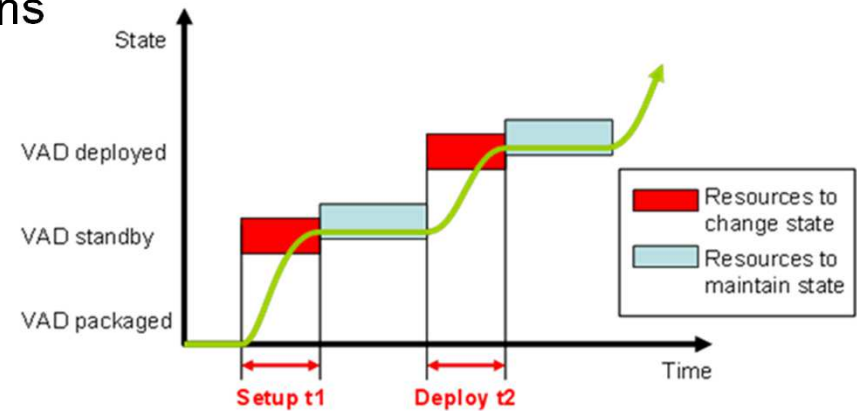




# Capability description



- › A capability is well-described when the commander knows
  - › What the primary intended effect is (i.e. ‘what does it do?’)
  - › Against which range of targets
  - › Requiring which resources to operate and maintain
  - › Performing under which conditions
  - › Ability to integrate in operations
  - › Safety issues to consider



- › STANREC VAD provides measures and metrics in support of answers to these capability questions





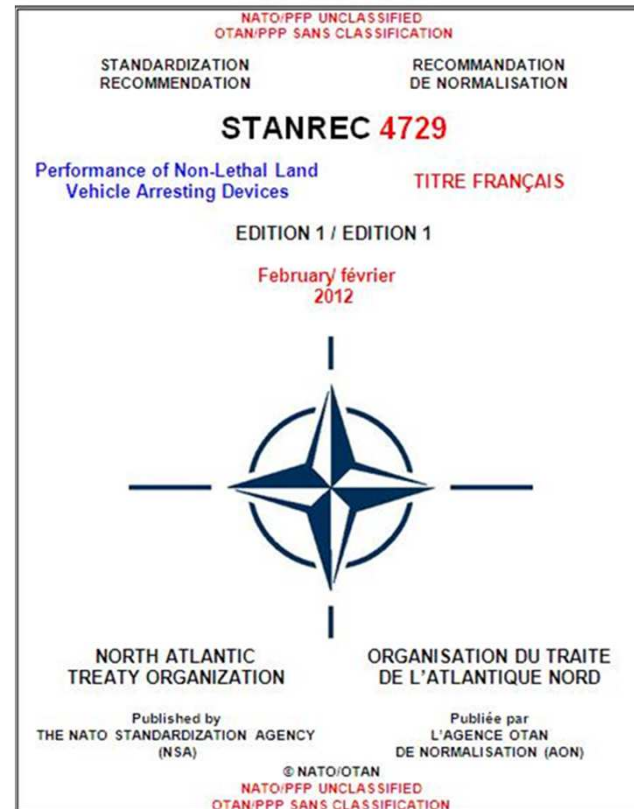
## STANREC VAD content



- › Current edition limited to
  - › Non-lethal VAD
  - › Mechanical technology
  - › Deliberative and hasty emplaced
  - › Wheeled, civil-based land vehicles

- › Measures and metrics on
  - › VAD system
  - › Target system
  - › Environment
  - › Interaction

**MoP: inherent properties of VAD or target, in environment**  
**MoE: outcome of engagement, in environment**  
**MoS: utility of VAD, in environment**





## WG for NLW KE Projectiles Standardization

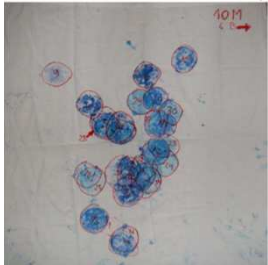
- › “...to develop a common frame of reference to promote the exchange of performance test results of NLW kinetic energy projectiles”



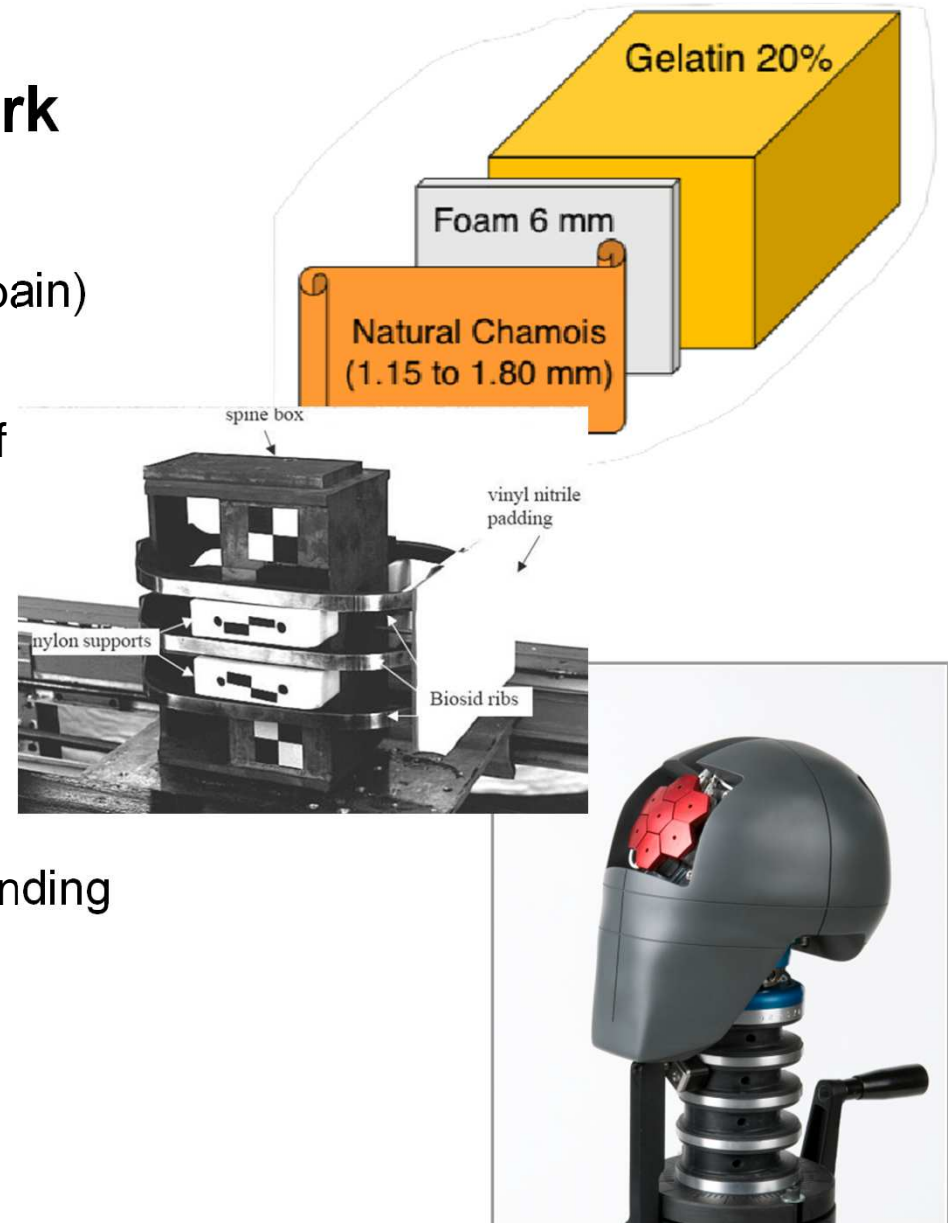




## WG Programme of Work



- › Effectiveness (accuracy plus pain)
- › Injury and damage potential of
  - › Skin
  - › Chest
  - › Abdomen
  - › Head (not a target)
- › Promotion to STANREC(s) pending





## Other capabilities next?

- › Promoting the exchange of test results on
  - › Kinetic impact (ongoing)
  - › Counter-mobility maritime
  - › Acoustic hailing
  - › Blinding light
  - › Strobe light
  - › Malodour
  - › ...

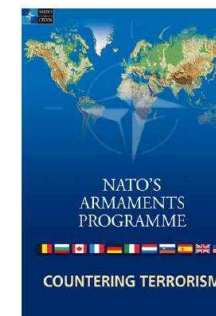
**What can be done (purpose and content)?  
Can it be done (resources and time)?**





## Fielding of NLW

- › Defence against Terrorism Non-Lethal Capabilities (DAT-11)
- › “To confirm and demonstrate existing, or soon to be fielded (TRL 7+), non-lethal technologies with a view to facilitating the rapid fielding of non-lethal capabilities in support of the NATO mission in Afghanistan (ISAF) and in Counter-Terrorism operations”
- › Identify tasks most relevant to NLC
- › Identify mature NLC
- › Demonstrate capabilities
- › Produce catalogue
- › Handover



Defence Against Terrorism  
Program of Work #11

Non-Lethal Capability

# DAT 11 Catalogue

Version – 16 June 2011



# North American Technology Demonstration

- › Hosted by Canadian MoD
- › 80+ vendors/exhibitors
- › 750+ participants (30+ countries)







## NATO NLC Concept development

- › NATO RTO SAS-094 (2012-2014)
- › 10 nations plus ACT, ACO, NURC
- › “Analytical support to the development and experimentation of NLW Concepts of Operations/Employment and Experimentation”
- › In support of NATO Allied Command Transformation

**Operational impact often results not from the advent of new technologies but rather from new concepts that capitalize on those technologies**





# Thank you for your attention



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