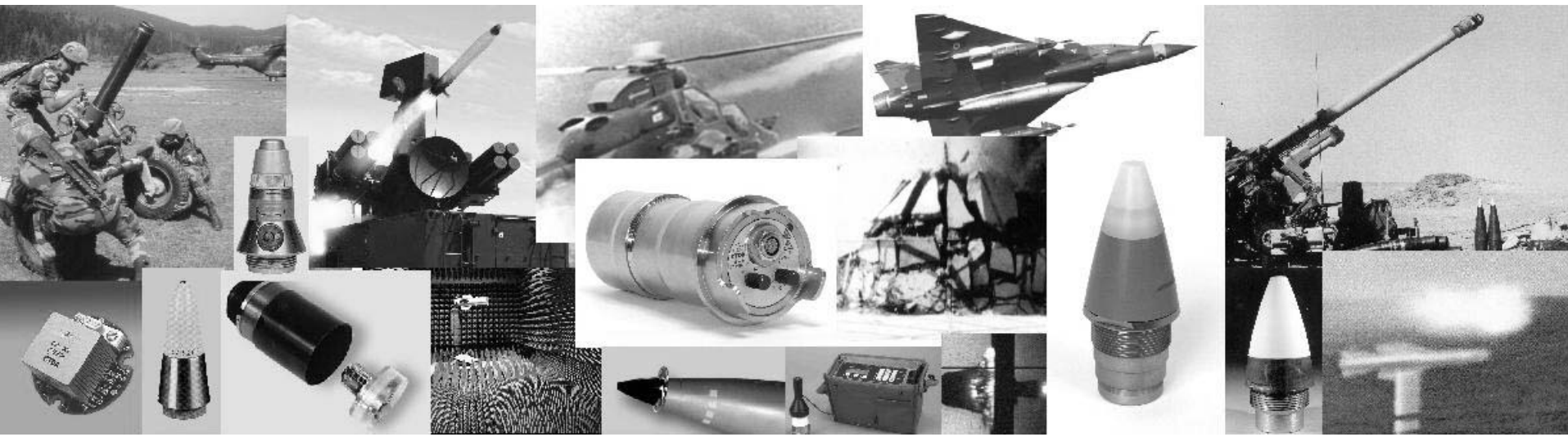
FRAPPE - Multi-Function Fuze



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NDIA 49th FUZE CONFERENCE

April 5-7, 2005

Seattle, WA, USA

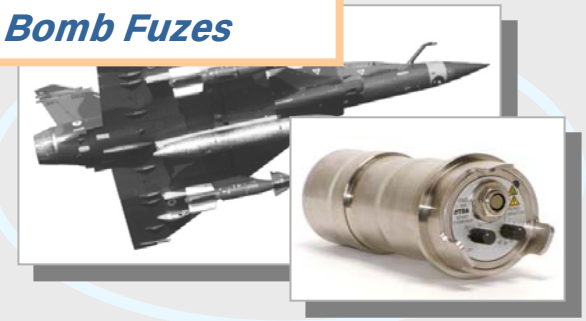
Outline

- TDA Fuzing Product Background
- Fuze Main Features
- Fuze Design
- Sensor Performances
- Operational Flexibility

TDA - Munitronics Activities

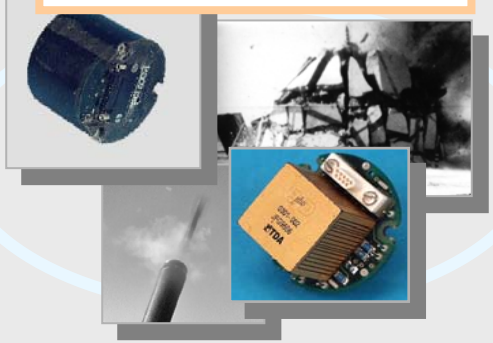
Electronic Fuzes for Artillery and Mortar

Air Bomb Fuzes



Missile ESAD

High-G Embedded Recorders



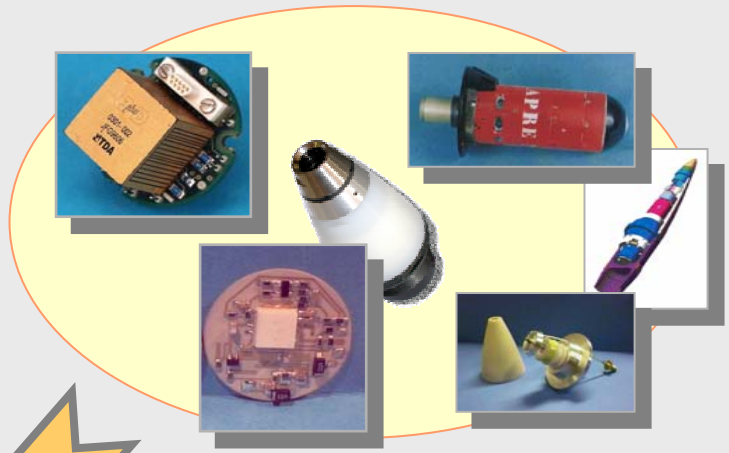
Air-to-Ground Rockets

Electronic Antitank Fuzes

TDA - R&D in Fuzing Domain

Product & Industrial Background

Technological & Advanced Studies



FBM 21

FRAPPE

New Fuzing Products

SPACIDO

DGA

Artillery Fuzes - TDA Product Evolution

Electronic Fuzes

40 year experience in TDA
> 4 millions fuzes produced

Mechanical Fuzes

1960

1990

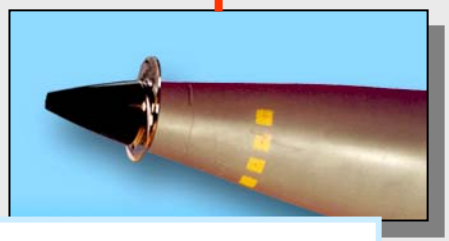
1998

Electronic Time Fuze
FUCHSIA

2006

Multi-Function Fuze
FRAPPE

2009

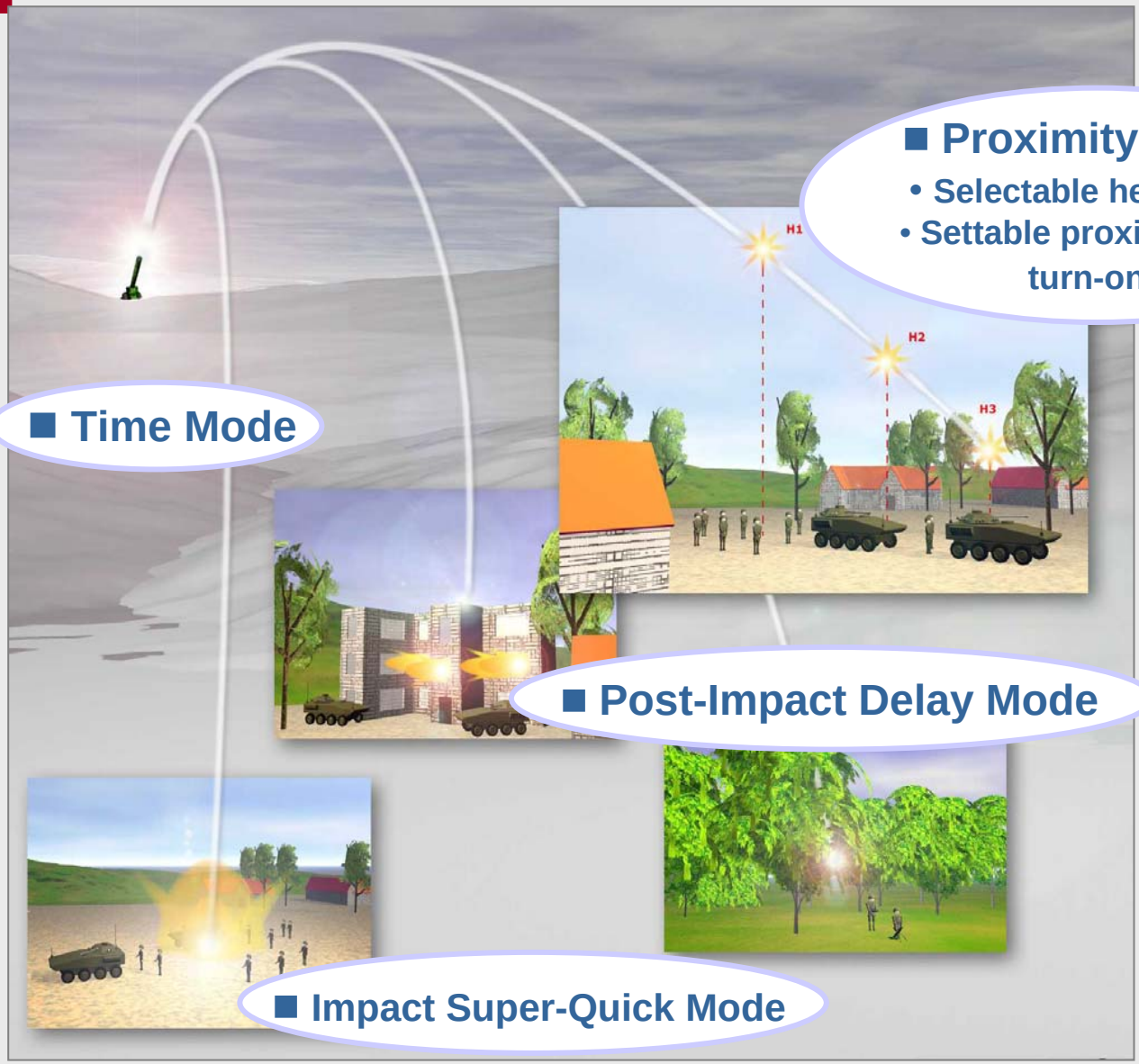


1D Course Correction
SPACIDO Fuze

A new generation state-of-the-art multifunction fuze

- For new 155mm/52 calibre munitions
- Compliant with IM requirements
- Compliant with modern gun environments
- Providing better operational flexibility
- Achieving optimum lethal effects
  - on a large variety of targets
  - in any type of operations and terrains
- With growth potential

FRAPPE Fuze - Operating Modes



■ **Proximity Mode**

- Selectable height of burst
- Settable proximity function turn-on time

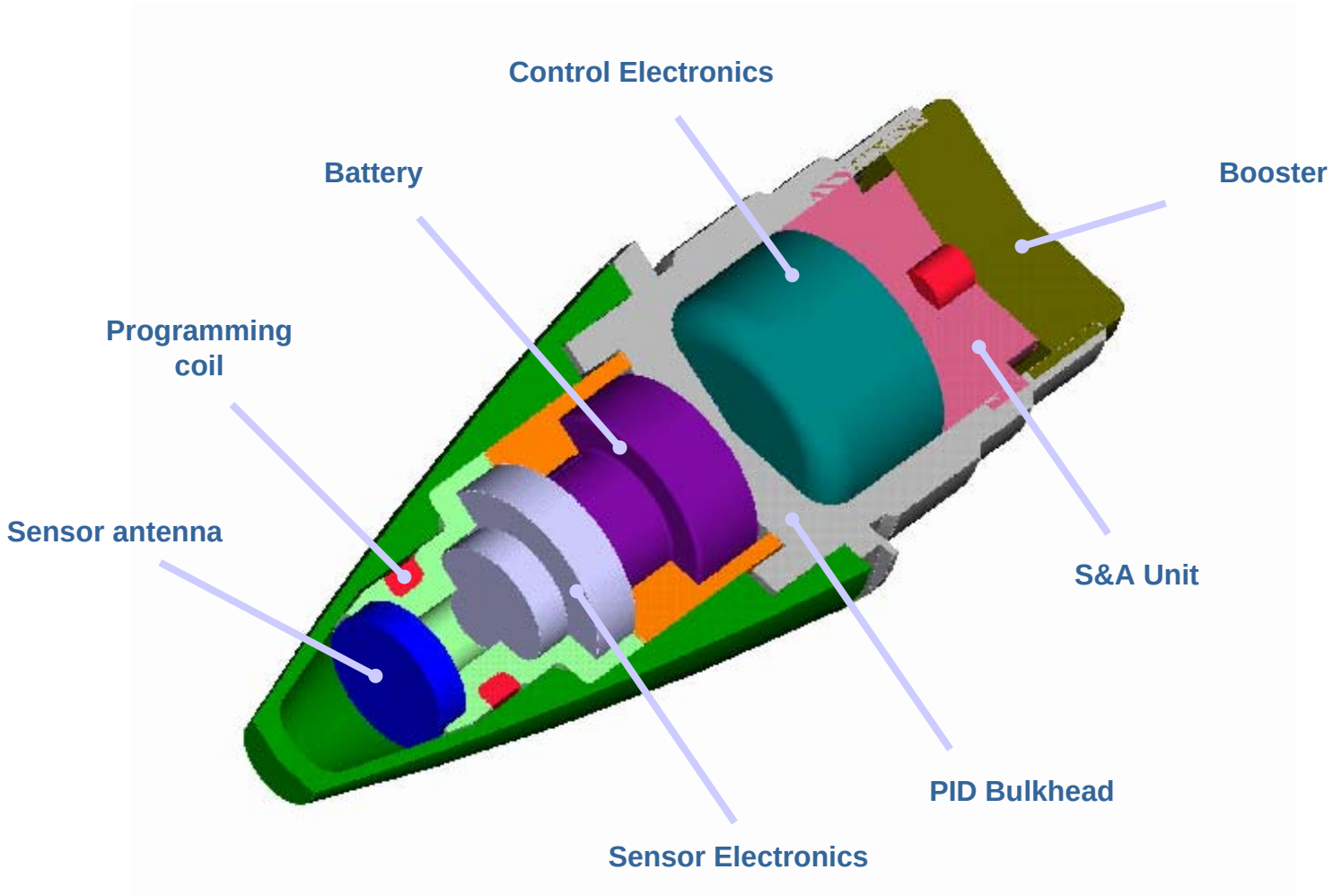
■ **Time Mode**

■ **Post-Impact Delay Mode**

■ **Impact Super-Quick Mode**

- **Inductive setting**
  According to STANAG 4369 / AOP 22:
  ID Code = 01011

- **Mission Parameters**
  - Operating Modes
  - HOBs
  - Post-Impact Delay
  - Inhibition Time
  - Flight Time
  - ...



Enhanced fuzing performances ...

… to optimize strike lethal effect

- Through the use of state-of-the-art technology, in
  - Microwave proximity sensor design
  - Post-Impact module design

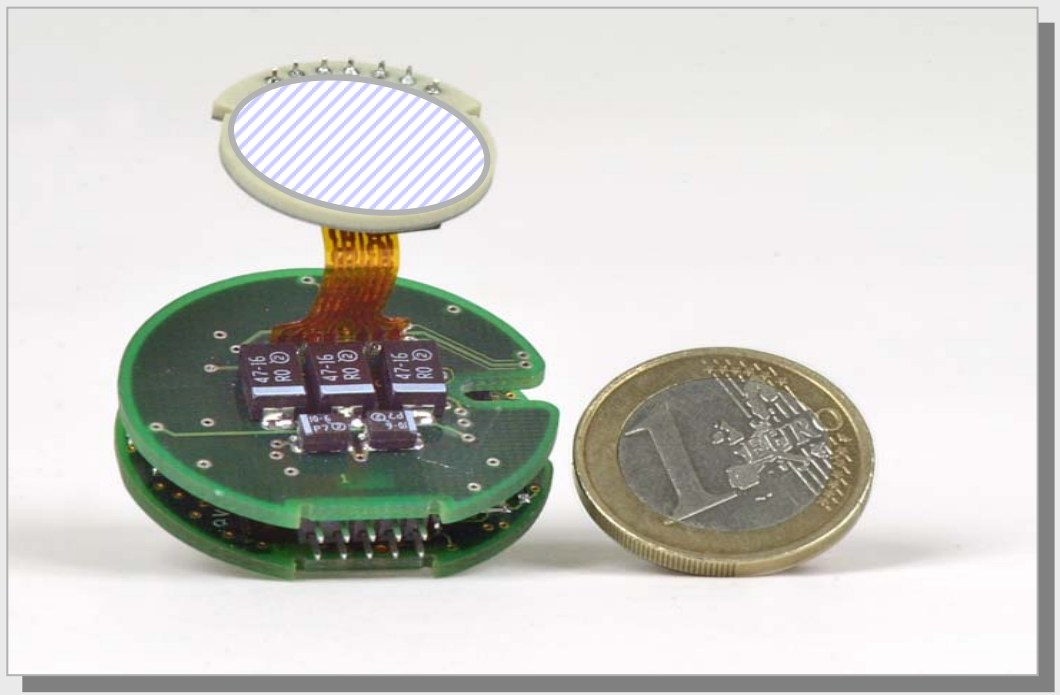
Proximity Sensor

- FM-CW radar sensor
- Full digital signal processing

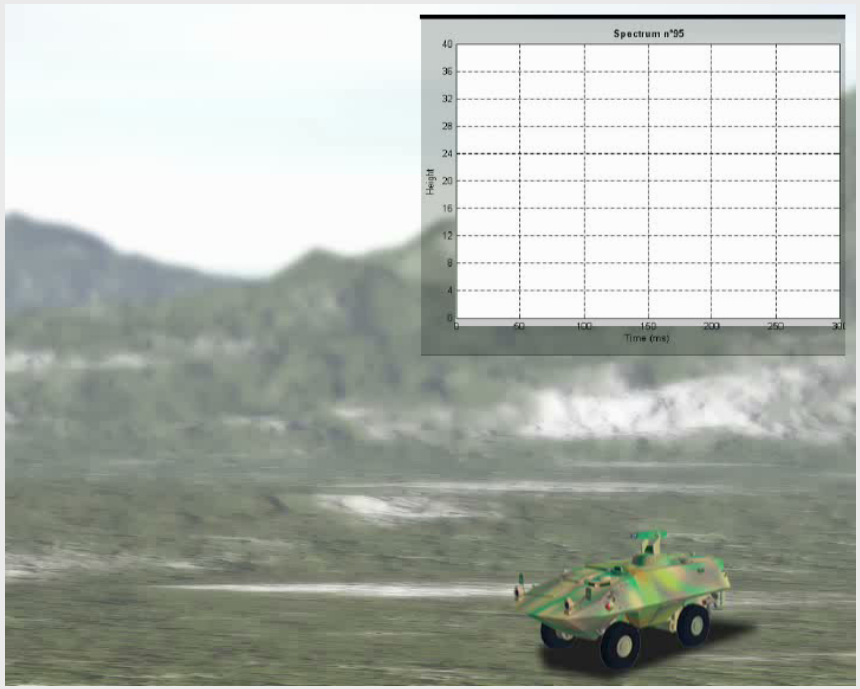
⇨

- HOB accuracy
- Counter-measure resistance

Fuze Embedded
High-G Recorder



Radar Sensor



Post-Impact Delay

- Reinforced fuze body
- Settable electronic delay

⇨

- Penetration survivability
- Optimum firing delay

Fuze and projectile nose
after impact

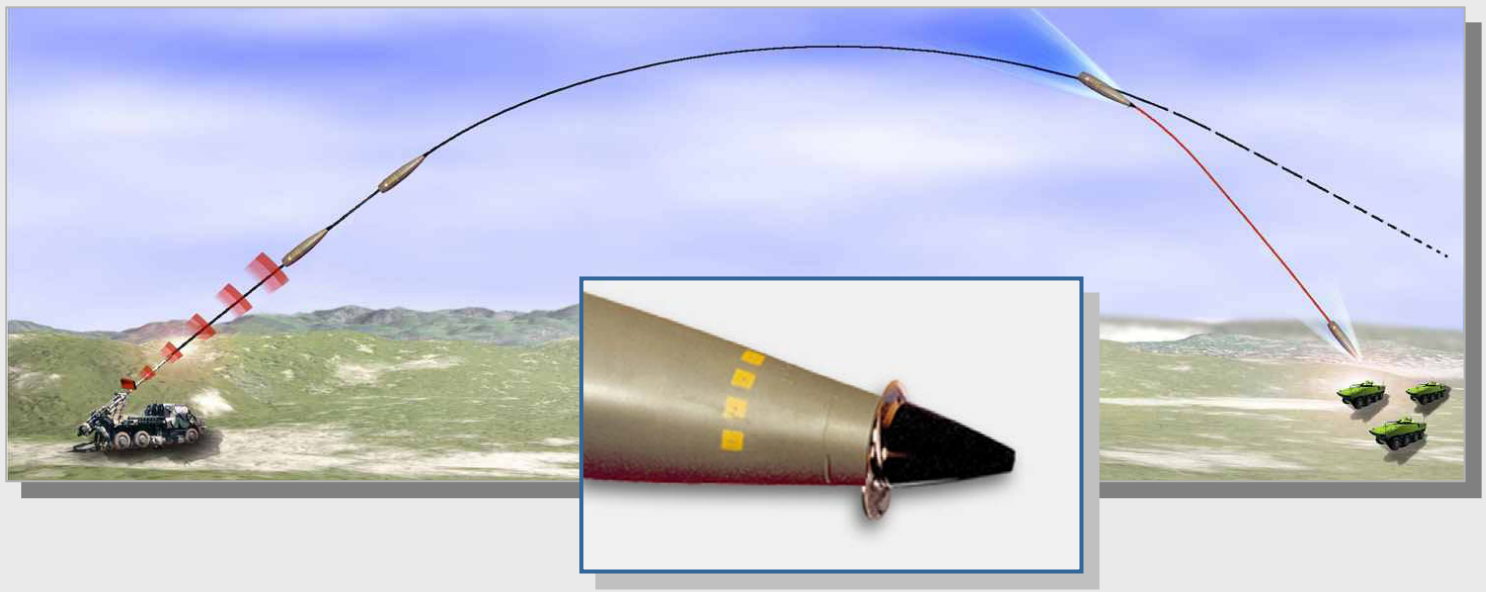
- **Fully programmable electronics and Digital signal processing**

⇨ Provide the user with unmatched operational flexibility

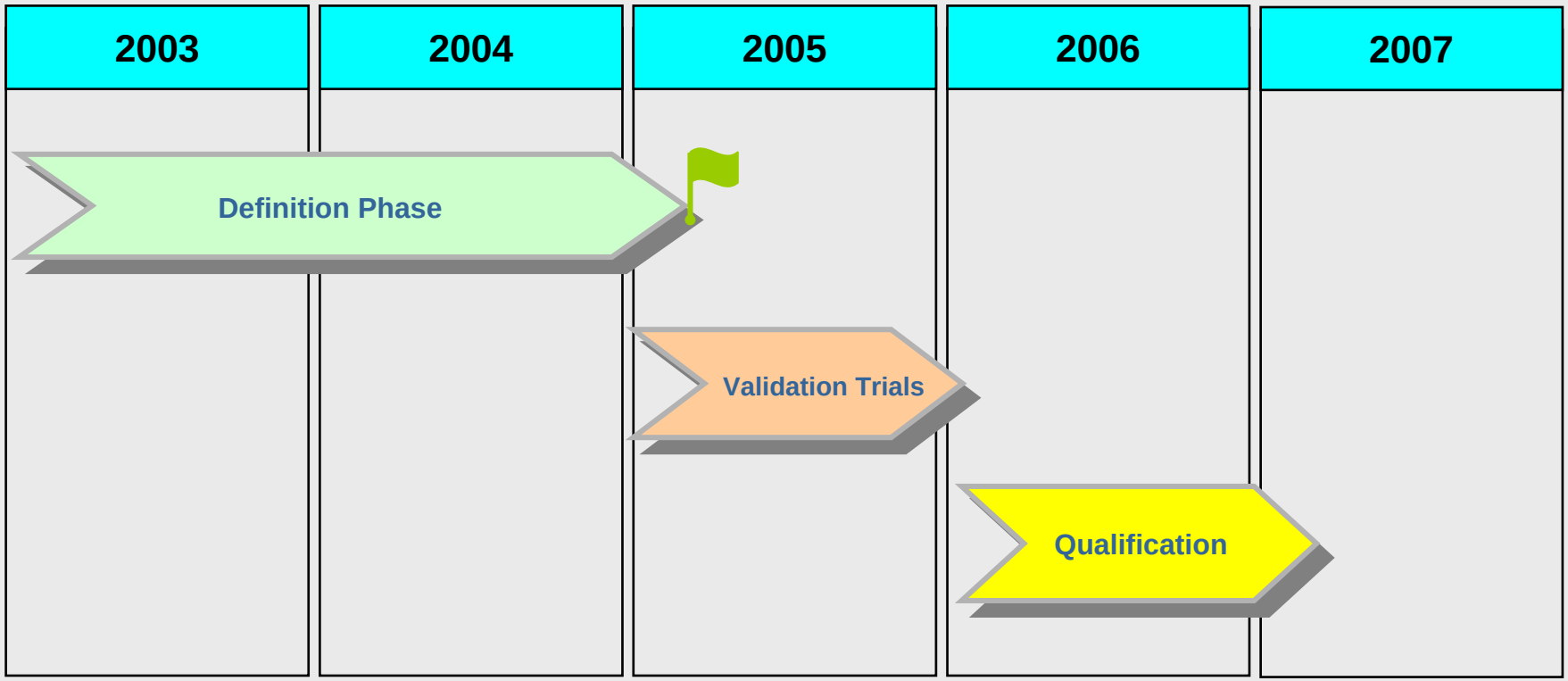
- The user always get the right fuze configuration to achieve the best effect on target
- The set of selectable parameters can be customised to fit specific user's requirement
  - Height of burst (Proximity mode)
    - number of pre-set HOB, HOB value
  - Delay time (PID mode)
  - Inhibition time (Proximity mode)
  - Flight time (Time mode)

A modern design to provide growth potential to the fuze:

- Adaptation to the threat and to new operational requirements
- Basis for future smart fuze design
  - (e.g SPACIDO Course Correction Fuze)



Program Status



FRAPPE : New Generation Multi-Function Fuze

- The use of state-of-the-art technologies for
  - Better Operational Flexibility
  - Better Artillery Strike Efficiency

FRAPPE - Multi-Function Fuze

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