



**Recent Developments in  
Small Arms and Light Weapons  
Manufacturing, Technology, and Design:  
Opportunities and Challenges**

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**Informal Consultations towards BMS7  
UN PoA**



# Manufacture & Design: Polymer

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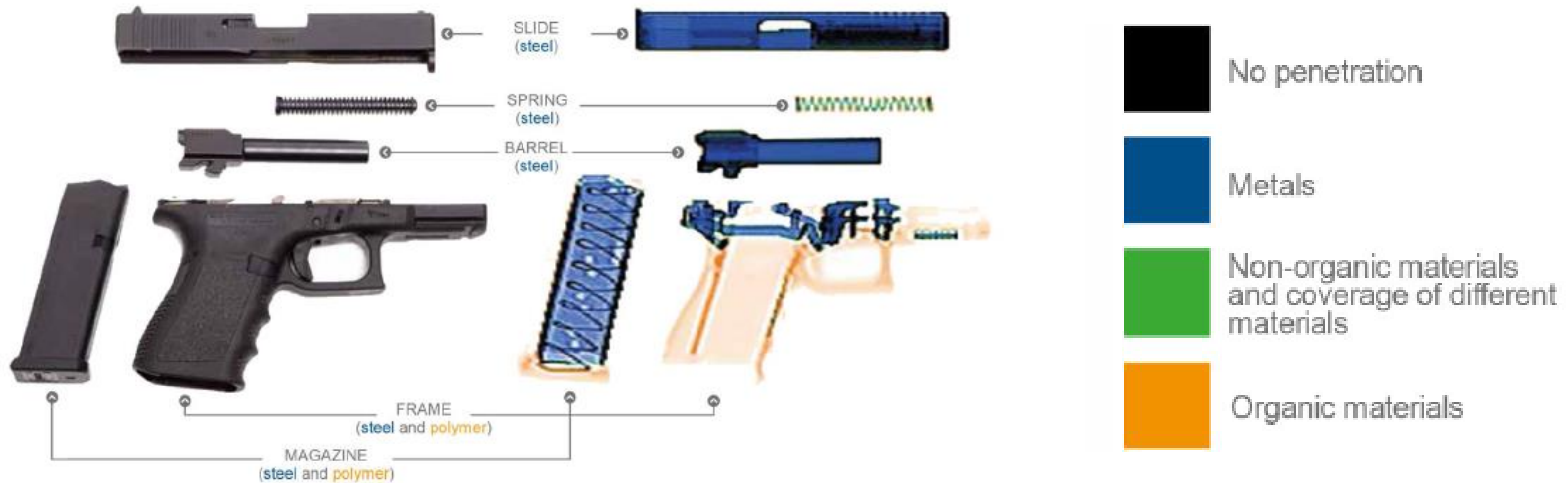
## Main challenges:

1. Difficulty to mark polymer parts durably (ITI para. 7)
2. Recover markings
3. Post-manufacture markings
4. Easier to conceal in parcels/shipments



Image: Small Arms Survey

# Manufacture & Design: Polymer



# Manufacture & Design: Polymer-markings

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## Opportunities:

1. Depth and placement of markings
2. Use of visible markings & hidden markings, metal plates
3. Development of recovery techniques
4. Increase identification capacity

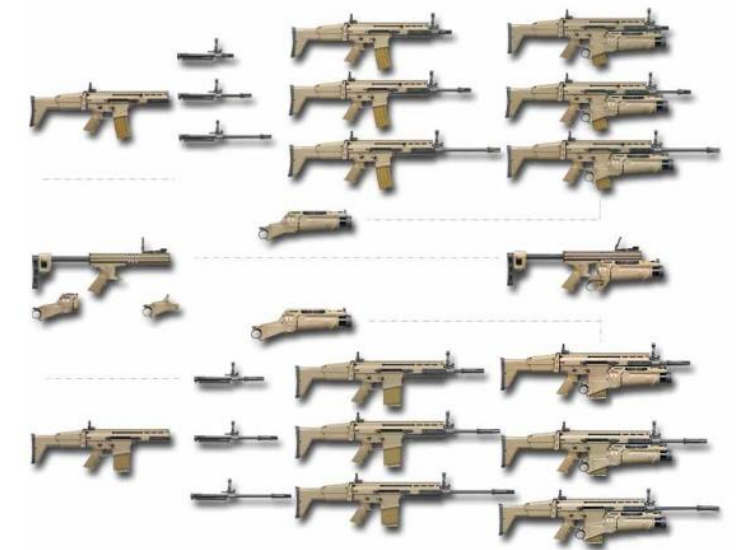


# Manufacture & Design: Modular Weapons

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## Main challenges:

1. Tracking throughout lifecycle- changes in configuration
2. Conflicting serial numbers in tracing requests
3. Defining how to mark modular weapons
4. Easier to conceal in parcels/shipments



# Manufacture & Design: Modular Weapons

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## Opportunities:

1. Marking content (inclusion of calibre, type, duplication)
2. Accounting for possible configurations ( control component, record-keeping)
3. Training on identification and tracing

# Weapons Manufacture & Design: Additive Manufacturing

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## Main challenges:

1. Combination of 3D printed + pressure-bearing factory made parts (CNC milling machines: high risk)
2. Increasing membership, online presence, and platforms
3. Controlling unlicensed production and illicit flows

# Additive Manufacturing & Dark Web

## Sample e-book listing (the first 10 of 35 named parts and components)

This pack is a collection of the newest FOSSCAD CAD files:

Rifles/AK-47\_Stock-Shanrilivan

Rifles/AKM\_75\_Round\_Drum\_Magazine\_Yee\_v0.2-nils

Rifles/AR-10\_Nephilim\_Reinforced\_Lower\_Receiver\_v1.1-WarFairy

Rifles/AR-15\_Bumpfire\_Stock\_v2-Disruptive\_Solutions

Rifles/AR-15\_Carbine\_Handguards-WarFairy

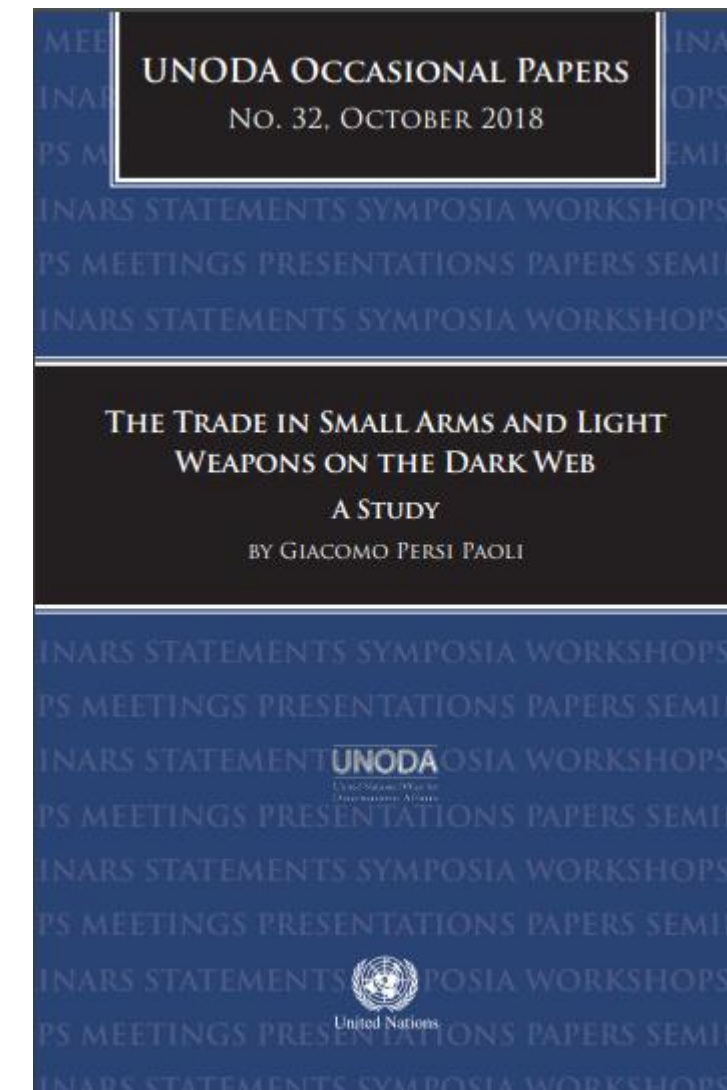
Rifles/AR-15\_CMA\_Stock\_v1.1.1-shadowfall

Rifles/AR-15\_FOSSCAD\_Israel\_75rd\_Drum\_Magazine-nils

Rifles/AR-15\_Hanuman\_Bullpup\_v1.0-WarFairy

Rifles/AR-15\_Minimalist\_Stock-WarFairy

Rifles/AR-15\_Orion\_PDW\_Stock-WarFairy





# Weapons Manufacture & Design: Additive Manufacturing

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## Opportunities:

Accounting of additive manufacturing controls at several stages: Legal frameworks, manufacturing, transfer, marking, record-keeping, tracing

# New Technology Applications

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## Automatic information and data collection

- **QR/data matrix or bar codes in crates:** each weapon crate has a code that could be easily readable.
- **Distributed ledger technologies**
- **RFID tags**

# New Technology Applications

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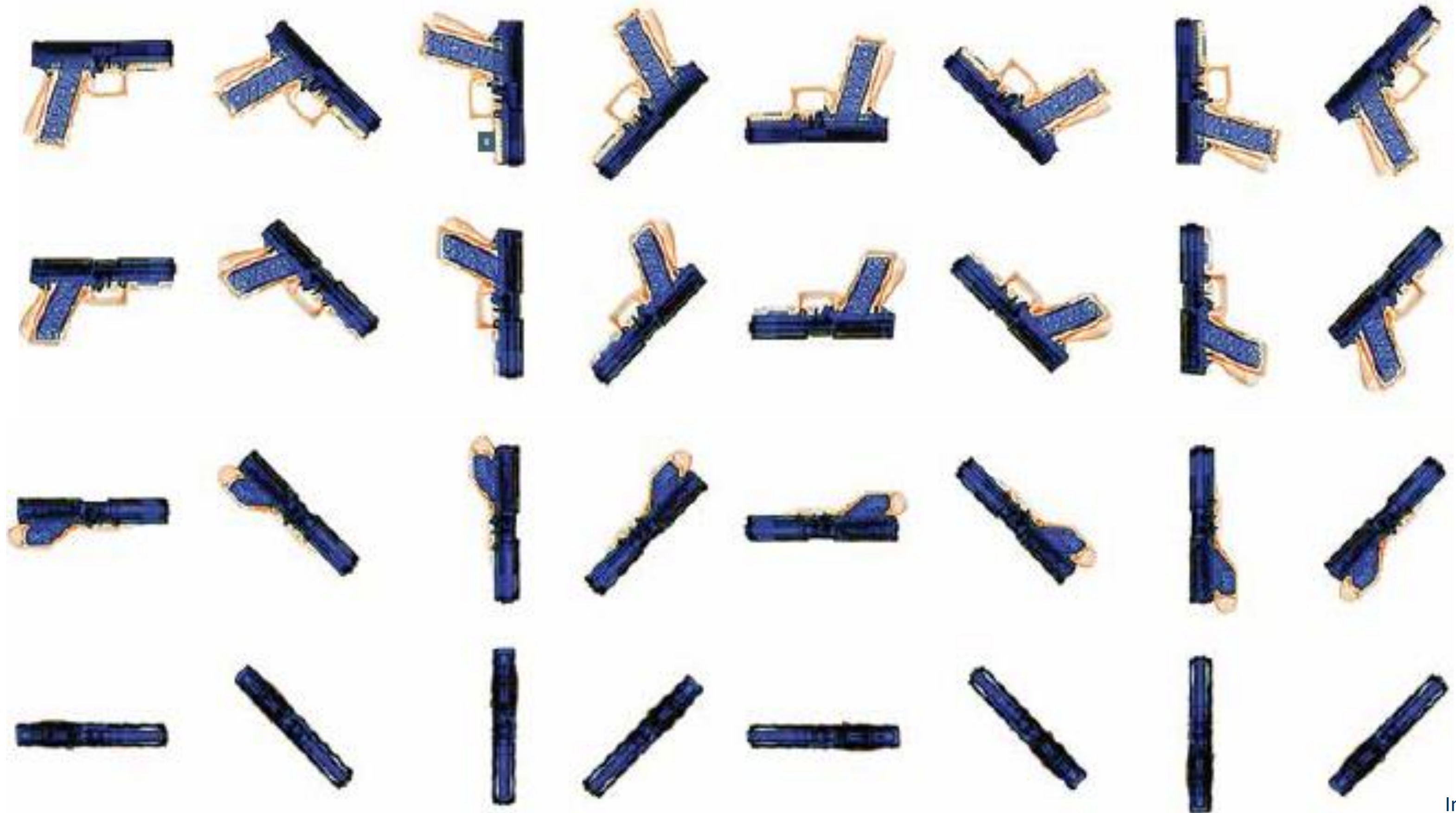
**X-ray identification trainings:** responding to challenges

posed by polymers, modularity, and additive manufacturing

1. Rotation
2. Superposition & complexity of the package
3. Focus on modularity & parts and components

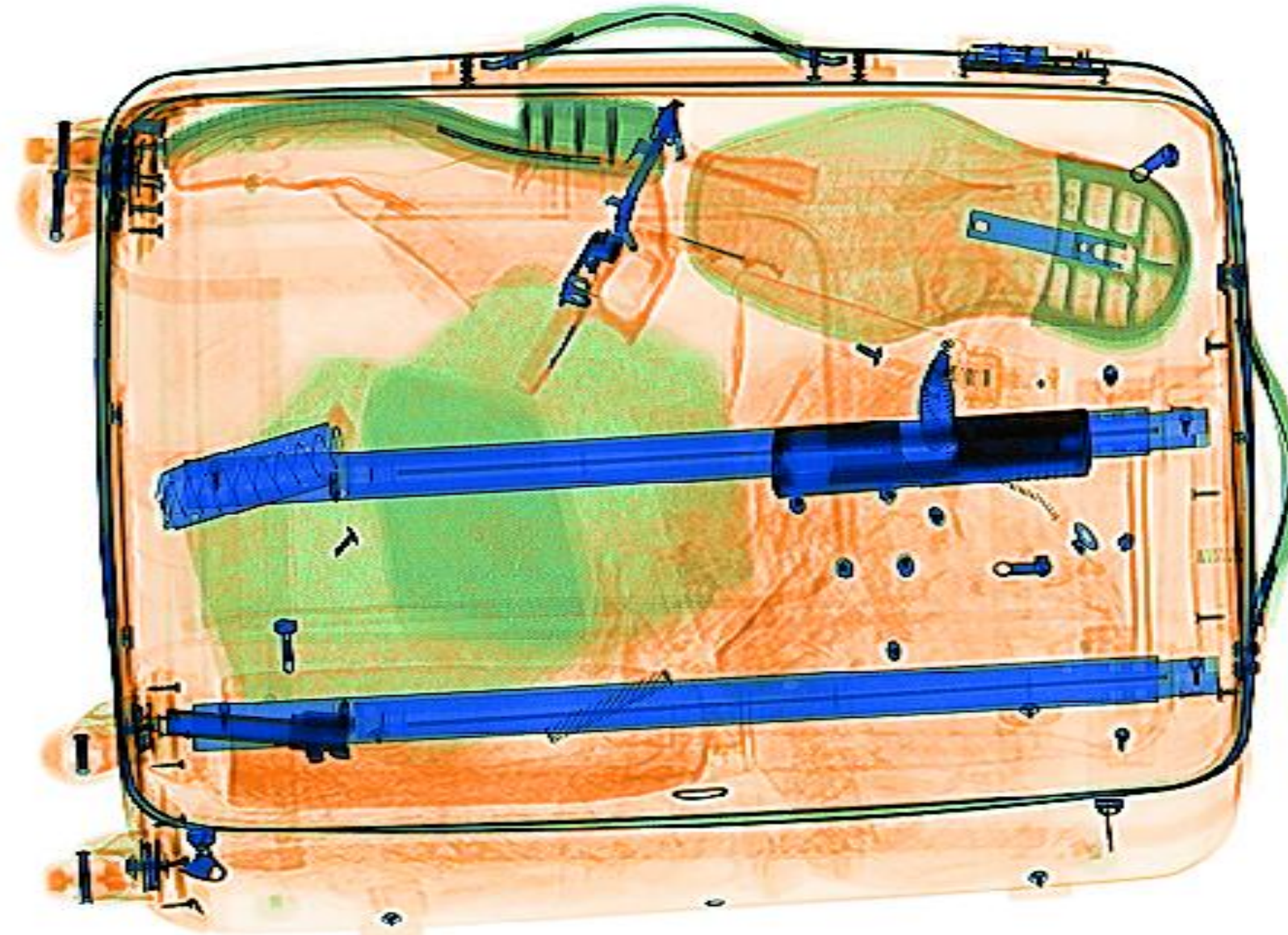
# Rotation

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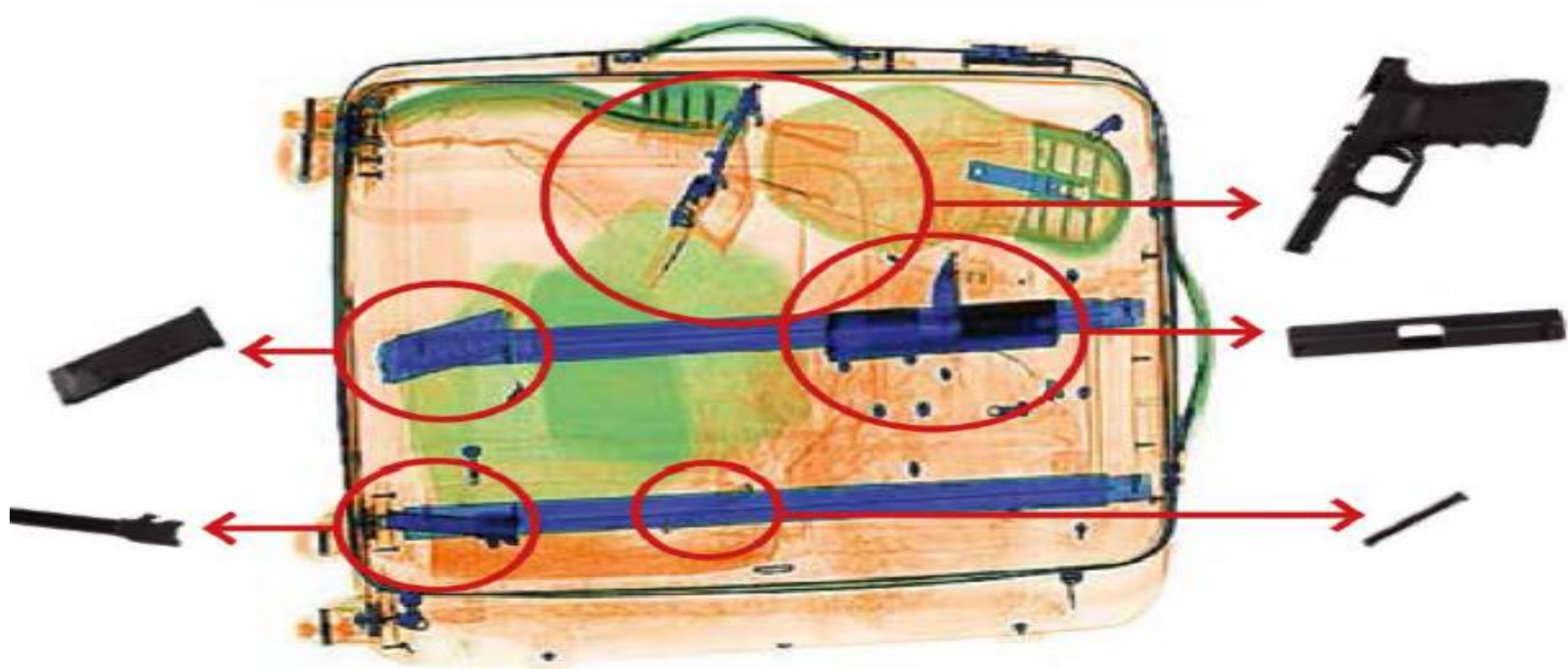
# Superposition & Complexity of the Package

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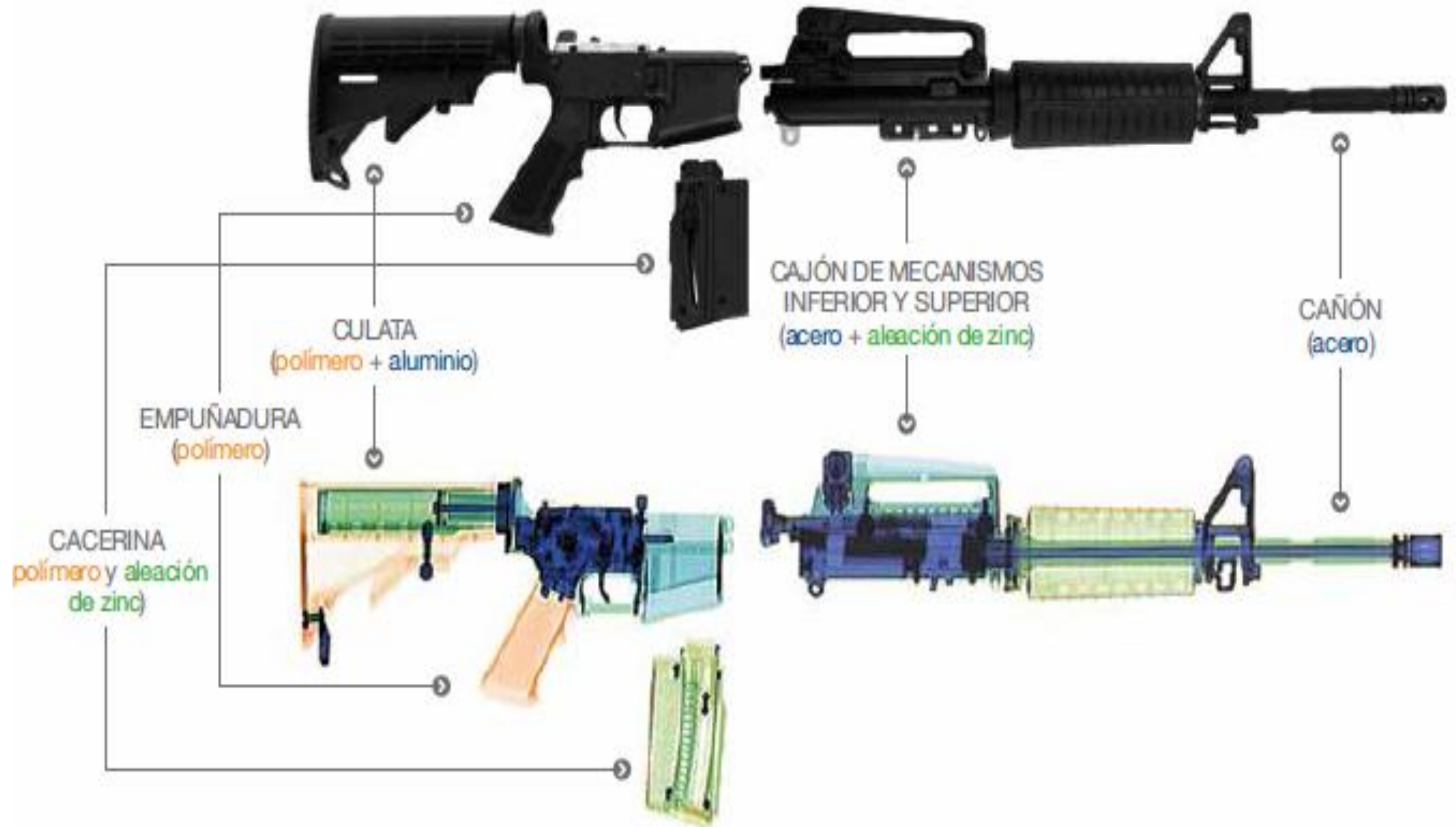


# Superposition & Complexity of the Package

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# Focus on modularity & parts and components



# Recommendations

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1. Establish a technical group to inform on developments related to technological challenges and opportunities
2. Enhance dialogue with industry
3. Explore marking standards for modular weapons
4. Examine the issue of additive manufacturing in detail
5. Examine technical methods to recover obliterated markings
6. Promote targeted capacity-building and training on accurate identification of weapons







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