🔷 rNFTs — Recyclable, Layered NFTs

rNFTs (Recyclable NFTs) are next-gen NFT assets that are:

Reusable — like envelopes, not stamps

Layered — like folders, not single files

Smart — resettable, privacy-aware, and programmable

Purposeful — for civic impact, messaging, campaigns, and token drops

rNFTs are interactive objects that evolve, reset, and represent real-world interactions — not just static images.

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✳️ Core Features

| Feature | Description |
| --- | --- |
| ♻️ Recyclability | NFT can be reset or returned to sender (e.g., like forwarding a message or reusing a ticket) |
| 🧱 Layered Metadata | Metadata is modular: stacked, hidden, conditionally visible (per wallet or time) |
| 👁️ Privacy Layers | Some layers are visible only to owner or receiver, not public onchain |
| ⏳ Time Logic | Layers or functions unlock/fade over time or by geolocation |
| 📬 Messaging Logic | NFT doubles as a message, with visual and textual content |
| 🎯 Trigger Actions | NFT can execute logic: mint another NFT, open a reward, trigger PoP verification, etc. |

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🧠 1. Layered Metadata Structure

rNFTs are not one image or one metadata blob. They're structured containers like this:

```
{
  "id": "rNFT_01234",
  "base_image": "cover.jpg",
```

```
  "layers": [
   {
     "title": "Sender Message",
     "visible_to": "receiver_wallet",
     "type": "text",
     "content": "You are invited to join the Urban SDG Mission."
   },
   {
     "title": "Location Proof",
     "visible_to": "everyone",
     "type": "geo",
     "coordinates": "52.5200,13.4050"
   },
   {
     "title": "Reward Token",
     "visible_to": "receiver_wallet",
     "type": "token",
     "contract": "0xReward..."
   },
   {
     "title": "Reset Button",
     "trigger": "send_back",
     "action": "wipe_metadata + set new sender"
   }
  ]
}
```
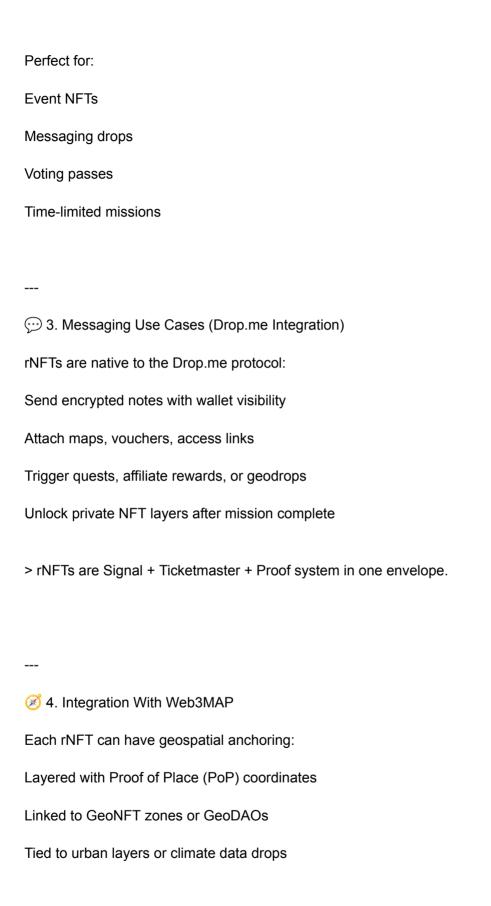
> Each rNFT is like a mini-app, smart envelope, and layered file in one.

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🔄 2. Recyclability Logic

Mode   Behavior

Reset   Owner sends NFT back to smart contract → resets metadata → becomes reusable
Re-send        Owner forwards rNFT → new layer added → old data locked
Burn & Mint    Burn rNFT → auto-trigger mint of new NFT with new logic or layer
Time Decay     rNFT layers can expire, get grayed out, or change meaning after time/location shifts

Perfect for:

Event NFTs

Messaging drops

Voting passes

Time-limited missions

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💬 3. Messaging Use Cases (Drop.me Integration)

rNFTs are native to the Drop.me protocol:

Send encrypted notes with wallet visibility

Attach maps, vouchers, access links

Trigger quests, affiliate rewards, or geodrops

Unlock private NFT layers after mission complete

> rNFTs are Signal + Ticketmaster + Proof system in one envelope.

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🧭 4. Integration With Web3MAP

Each rNFT can have geospatial anchoring:

Layered with Proof of Place (PoP) coordinates

Linked to GeoNFT zones or GeoDAOs

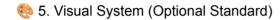Tied to urban layers or climate data drops

Color-coded with SDG markers

This allows:

Location-based reward drops

NFT behavior that changes depending on place

Spatial governance (e.g., one rNFT per city)

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🎨 5. Visual System (Optional Standard)

You can optionally visualize the 4 corners of each rNFT:

Corner Content Type

| | |
|---|---|
| Top Left | Blockchain Use Case (e.g. token, DAO, claim) |
| Top Right | Geodata Anchor (region, lat/lon, place name) |
| Bottom Left | AI/Metadata Function (mission logic, score, unlock) |
| Bottom Right | SDG Reference (color-coded dot or badge) |

> Visual cue for what each rNFT contains — standardized across the ecosystem.

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💰 6. Revenue Use Cases

| Use Case | Revenue Source |
|---|---|
| rNFT minting | Pay to mint layered NFT via Drop.me or portal |
| Affiliate rNFTs | Referrers get % of follow-on actions |
| Sponsored rNFTs | Cities/brands pay to send tokenized actions |
| rNFT-based rewards | POSI tokens or discounts for completing missions |
| rNFT vault wrappers | Stake rNFTs → gain mission yield or priority voting |

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🔒 7. Privacy Features

Use ZK-based layer encryption (only wallet can decrypt certain data)

Geo-hidden metadata (only viewable if Proof of Place is valid)

Auto-delete or time-unlock logic (like Snapchat for NFTs)


> A communication layer with contextual intelligence.


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♻️ 8. Environmental + SDG Logic

You can:

Bind an rNFT to a specific SDG

Require real-world action to unlock it (e.g., recycling event, donation proof, photo check)

Trigger POSI (Proof of Sustainable Impact) tokens based on verified completion


> Creates an ecosystem where NFT = Action, not just hype.


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🔗 9. On-Chain Mechanics

Built on ERC-721 or ERC-1155 with extension contracts for:

Reset logic

Metadata layering

Unlock conditions

Stake/burn/mint


Compatible with L2s (Polygon, Base, Arbitrum)

Metadata can live on:

IPFS

Arweave

zkStorage (optional)

Encrypted JSON for private layers


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🌍 10. Summary: Why rNFTs Matter

Stakeholder     Value

| Stakeholder | Value |
|---|---|
| Users | Smart NFT with reset, message, unlock functions |
| Artists | Layer-based storytelling and evolution |
| Startups | rNFTs for missions, ticketing, affiliate drops |
| Institutions | Track engagement, rewards, location-based NFTs |
| Developers | New NFT primitive to build logic-rich apps |
| Web3MAP System | Base NFT logic for Drop.me, PoP, POSI, and GeoNFTs |