

Estrazione di Event Log per Process Mining da Ledger Distribuiti della Piattaforma Algorand



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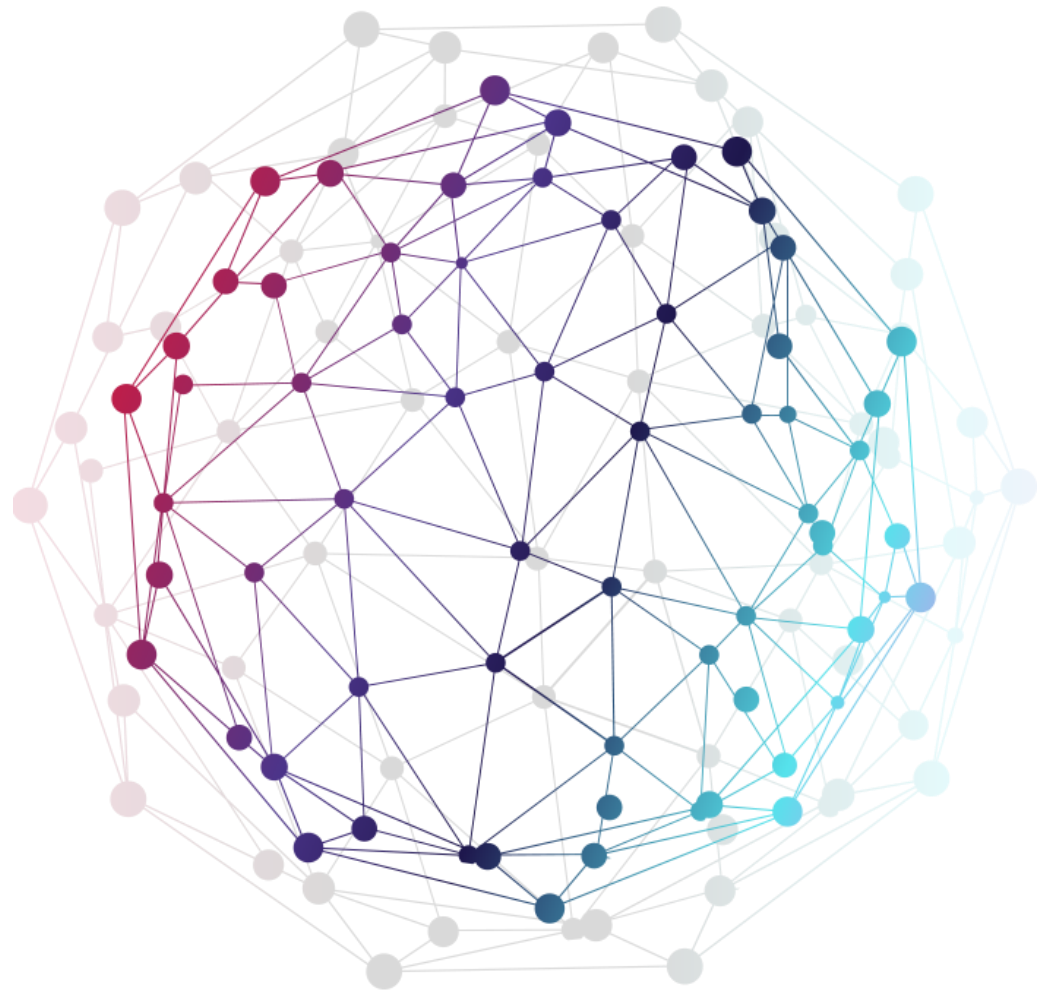
Silverio Manganaro
1817504

Dipartimento di Informatica

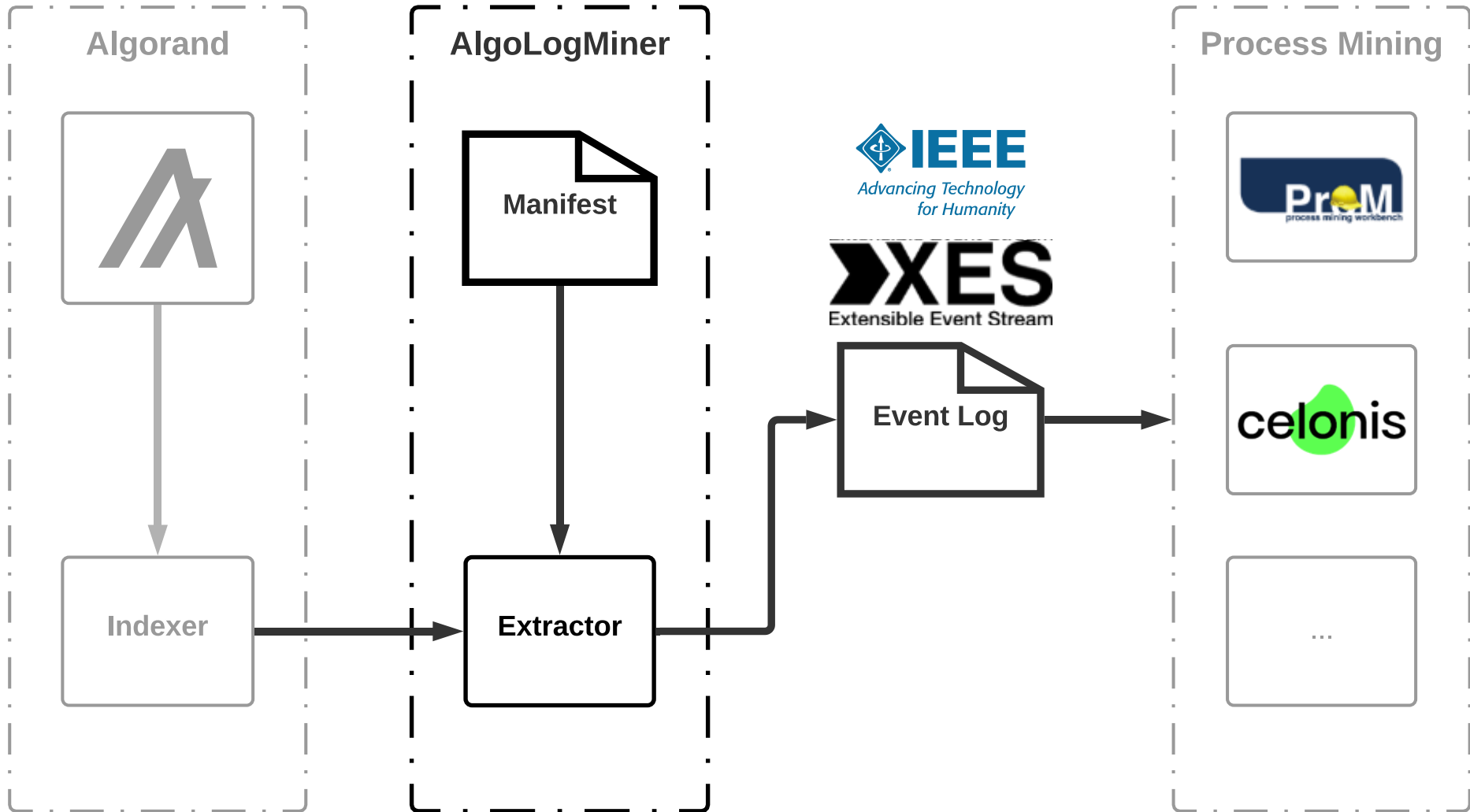
27 Ottobre 2021

Blockchain

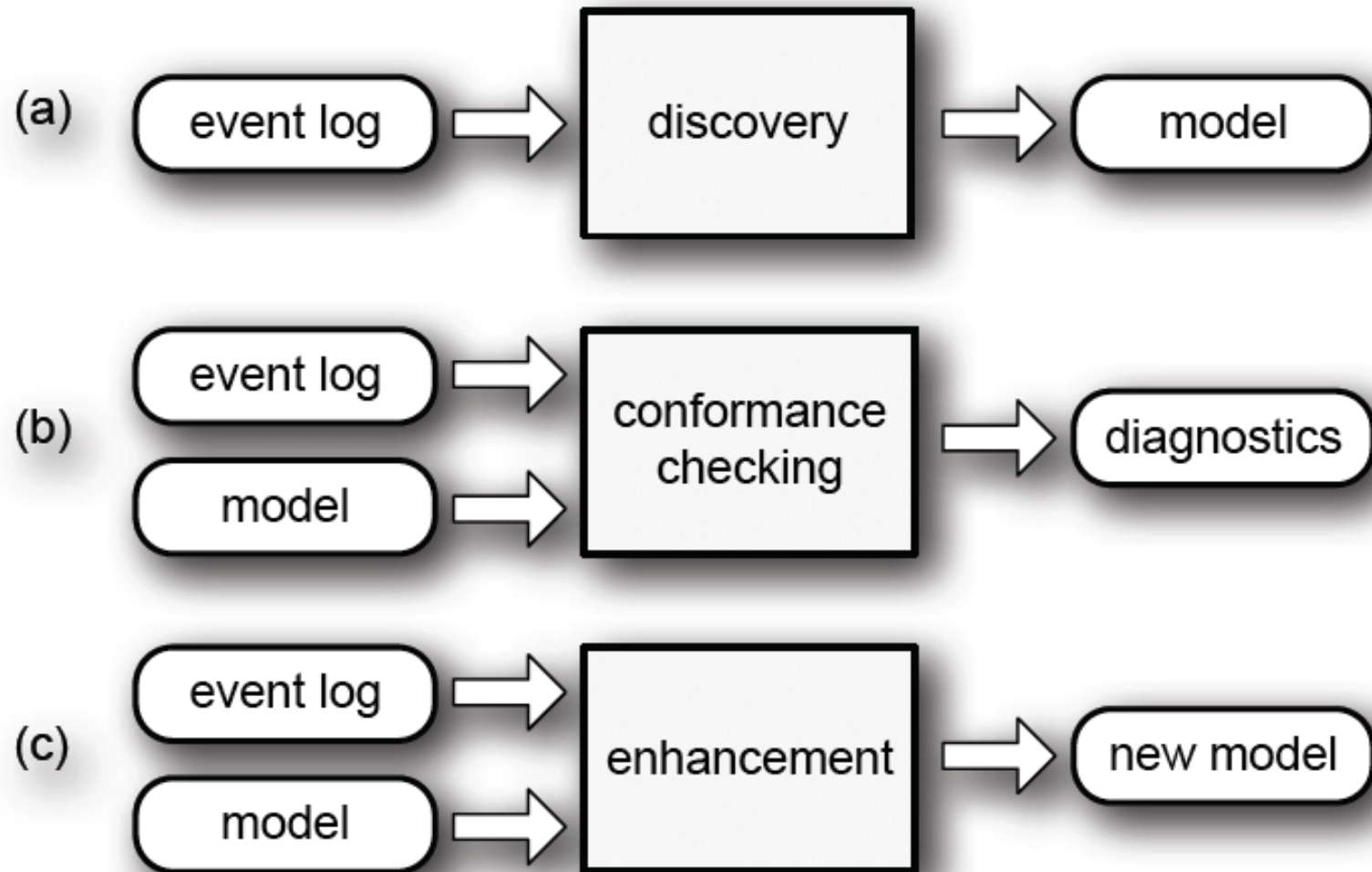
- Decentralizzazione
- Trasparenza
- Sicurezza
- Immutabilità



In Sintesi

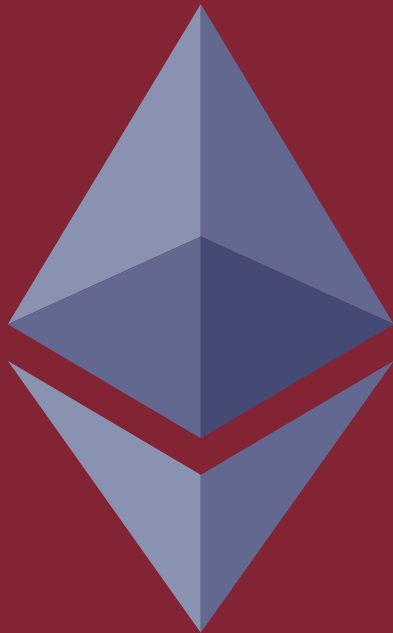


Process Mining



Fonte: <https://www.tf-pm.org/resources/manifesto>

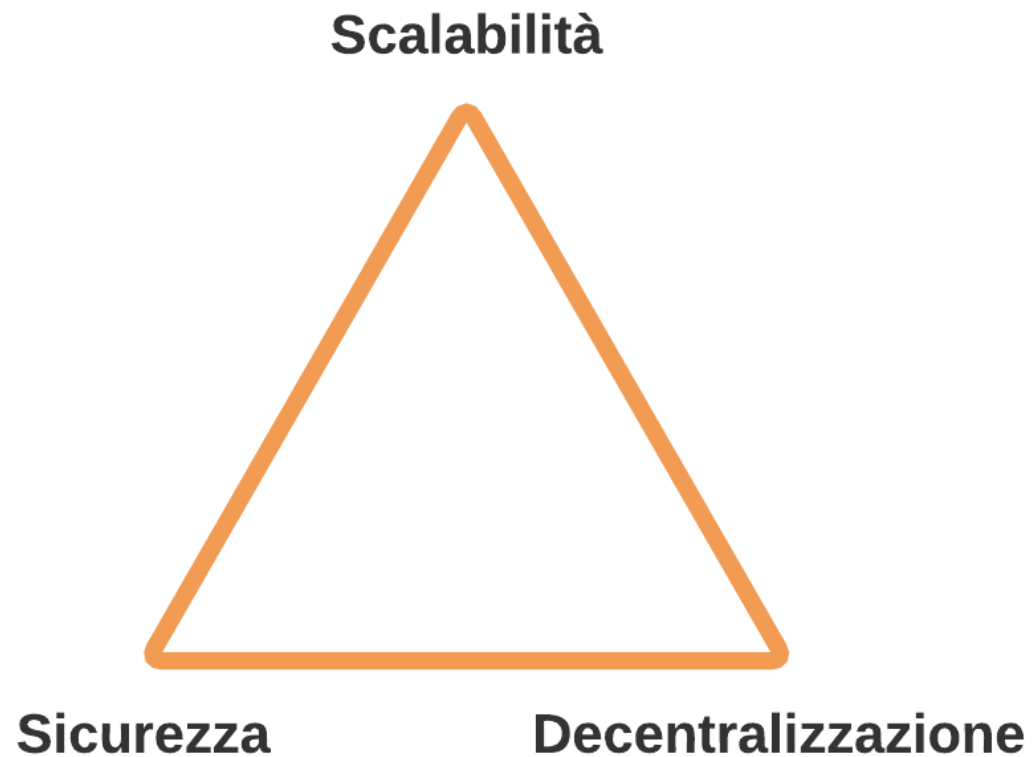
Altri Studi



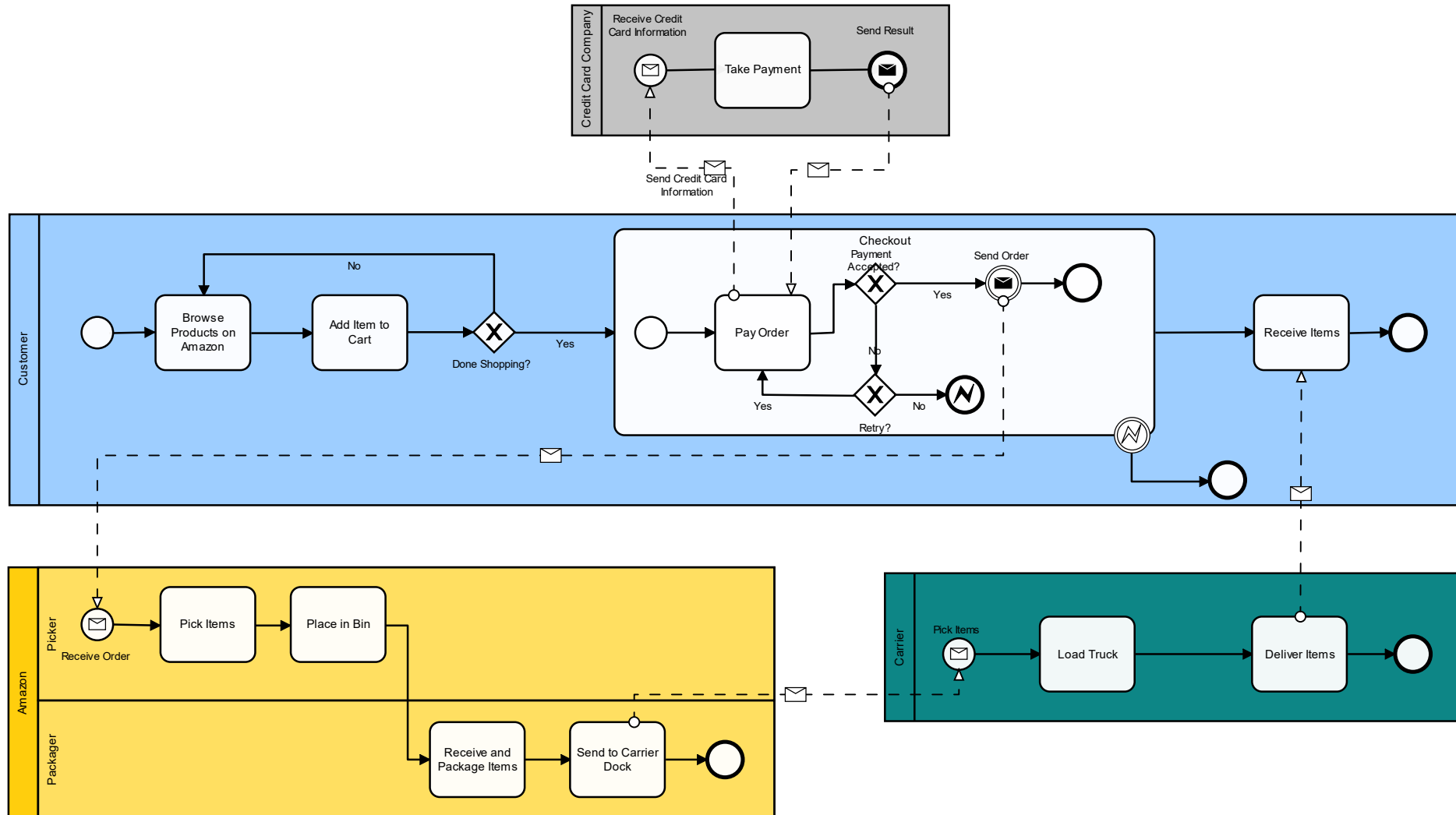
- [Di Ciccio 2018]
Blockchain-Based Traceability of Inter-organisational Business Processes
- [Mühlberger 2019]
Extracting Event Logs for Process Mining from Data Stored on the Blockchain
- [Klinkmüller 2019]
Mining Blockchain Processes: Extracting Process Mining Data from Blockchain Applications
- [Klinkmüller 2020]
Efficient Logging for Blockchain Applications

Trilemma

Difficoltà nello sviluppo di una blockchain senza sacrificare nessuna delle sue caratteristiche fondamentali.



Esempio di Processo



Fonte: <https://www.businessprocessincubator.com/content/amazon-fulfillment/>

Algorand



Costi ridotti

Rapidità

Basso consumo di
energia

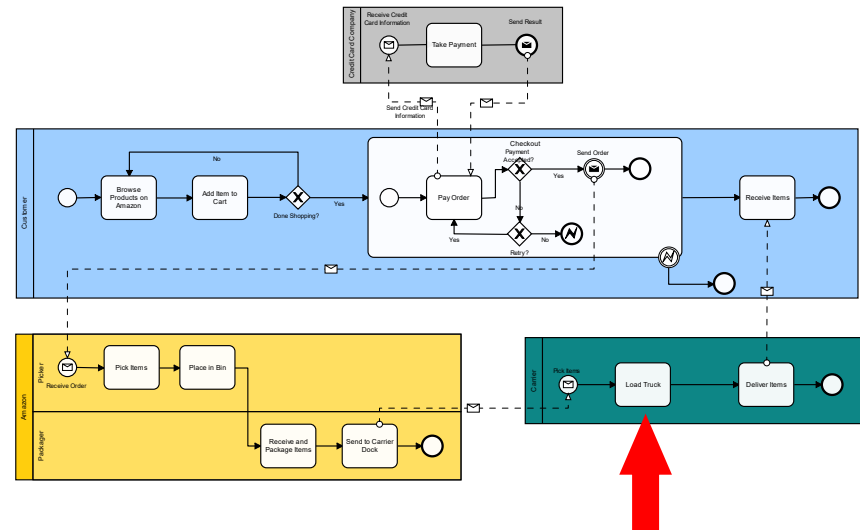
Sicurezza

Vera decentralizzazione

Frammenti di Manifest

```
{
  "concept:name" : { "selector" : { "switch" : "eventNames", "value" : "8", "key" : "note.event-name", "type" : "string", "nullable" : false },
    "time:timestamp" : { "parameter" : { "key" : "round-time", "type" : "date", "nullable" : false },
      "actor" : { "parameter" : { "key" : "note.actor", "type" : "string", "nullable" : false },
        "n-items" : { "parameter" : { "key" : "note.n-items", "type" : "int", "nullable" : false }
      }
    }
  }
}
```

```
"eventNames" : {
  "0" : "Browse Products on Amazon",
  "1" : "Add Item to Cart",
  "2" : "Pay Order",
  "3" : "Take Payment",
  "4" : "Pick Items",
  "5" : "Place in Bin",
  "6" : "Receive and Package Items",
  "7" : "Send to Carrier Dock",
  "8" : "Load Truck",
  "9" : "Deliver Items",
  "10" : "Receive Items"
}
```

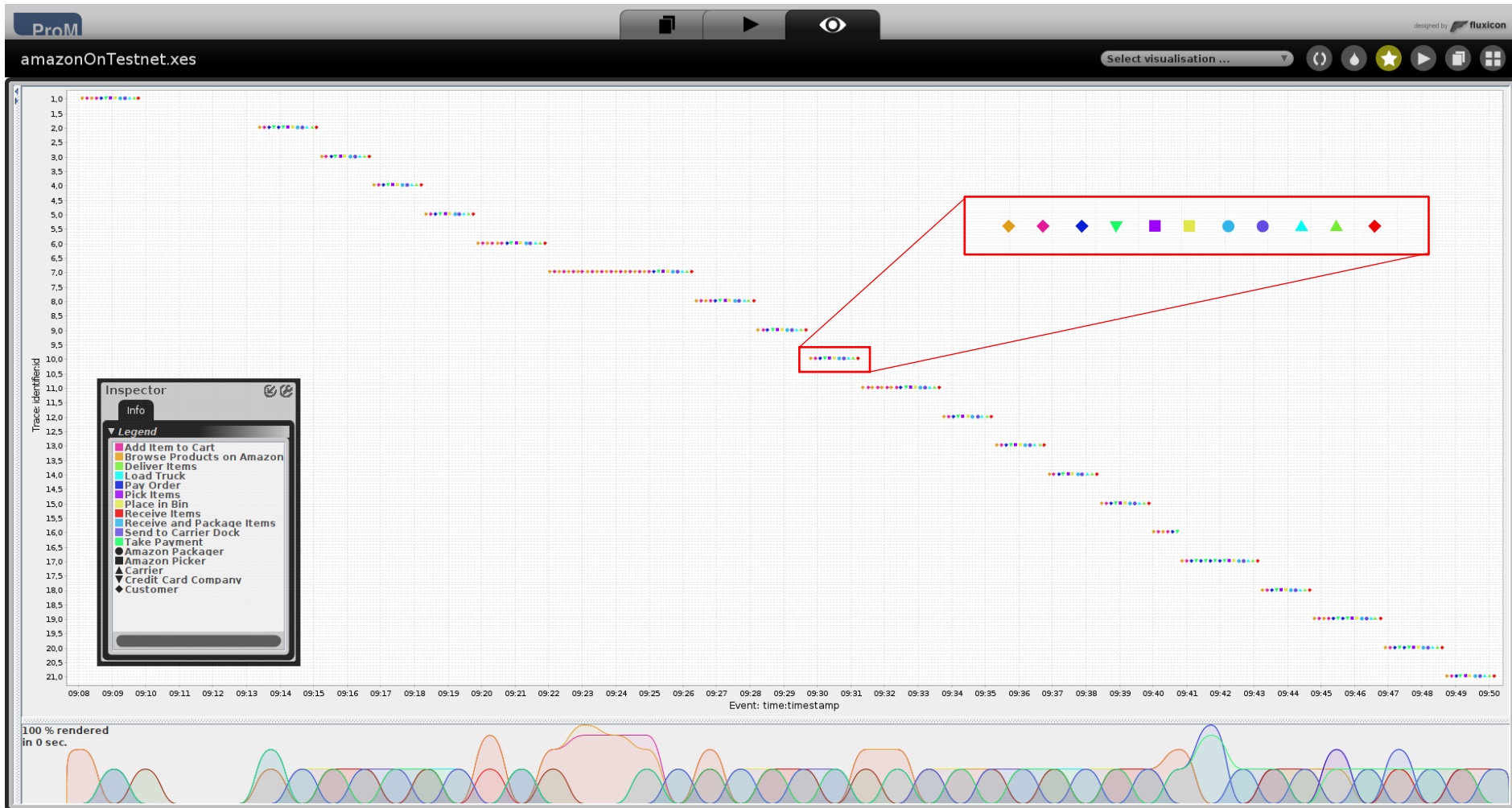


Risultato

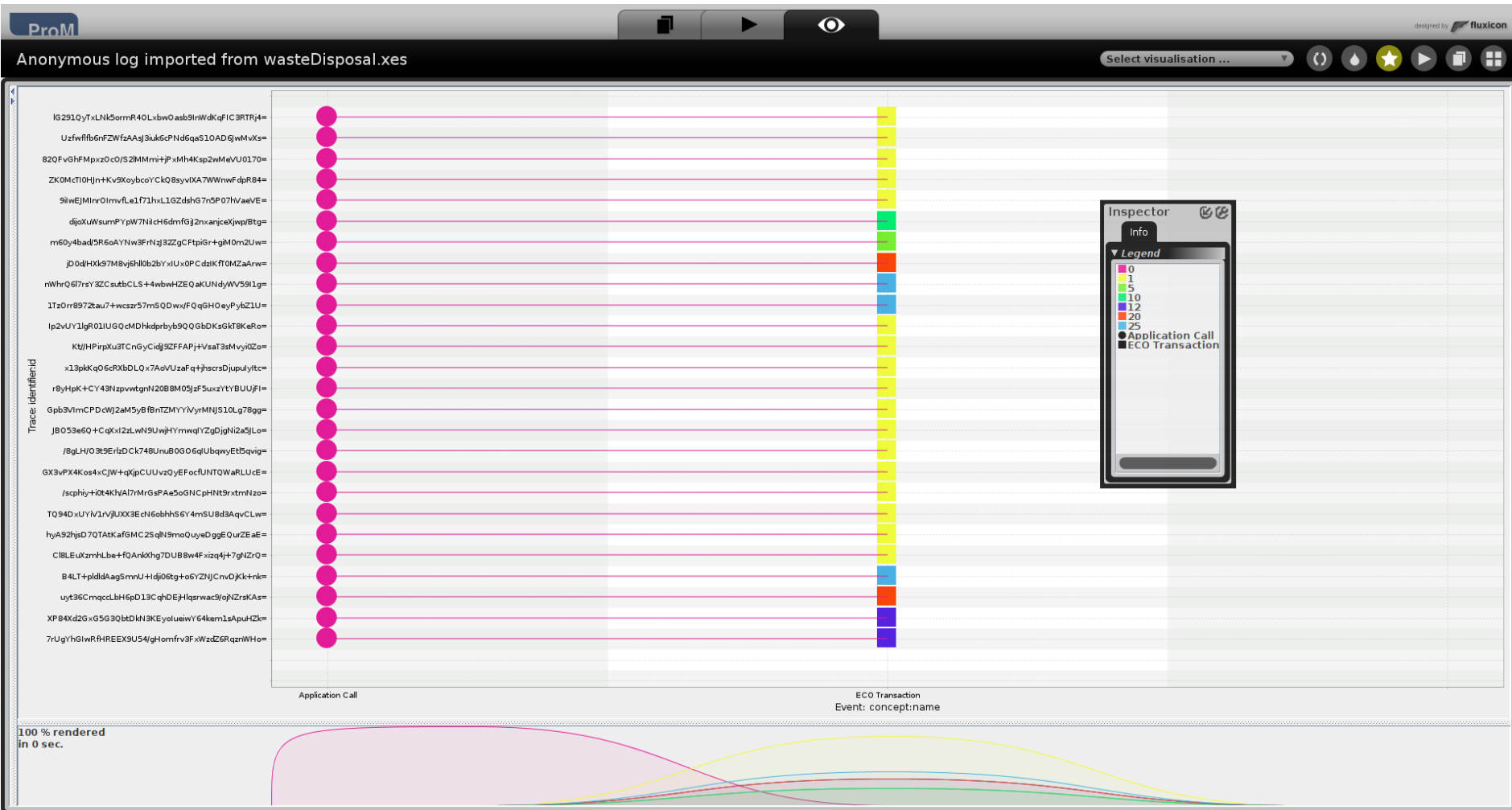
```
<event>  
  <string key="concept:name" value="Load Truck"/>  
  <date key="time:timestamp" value="2021-10-04T07:09:33.000Z"/>  
  <string key="actor" value="Carrier"/>  
  <int key="n-items" value="2"/>  
</event>
```



Visualizzazione in ProM



Smaltimento Rifiuti





PlanetWatch

Your planet needs you

Rete globale di sensori che misurano la qualità dell'aria

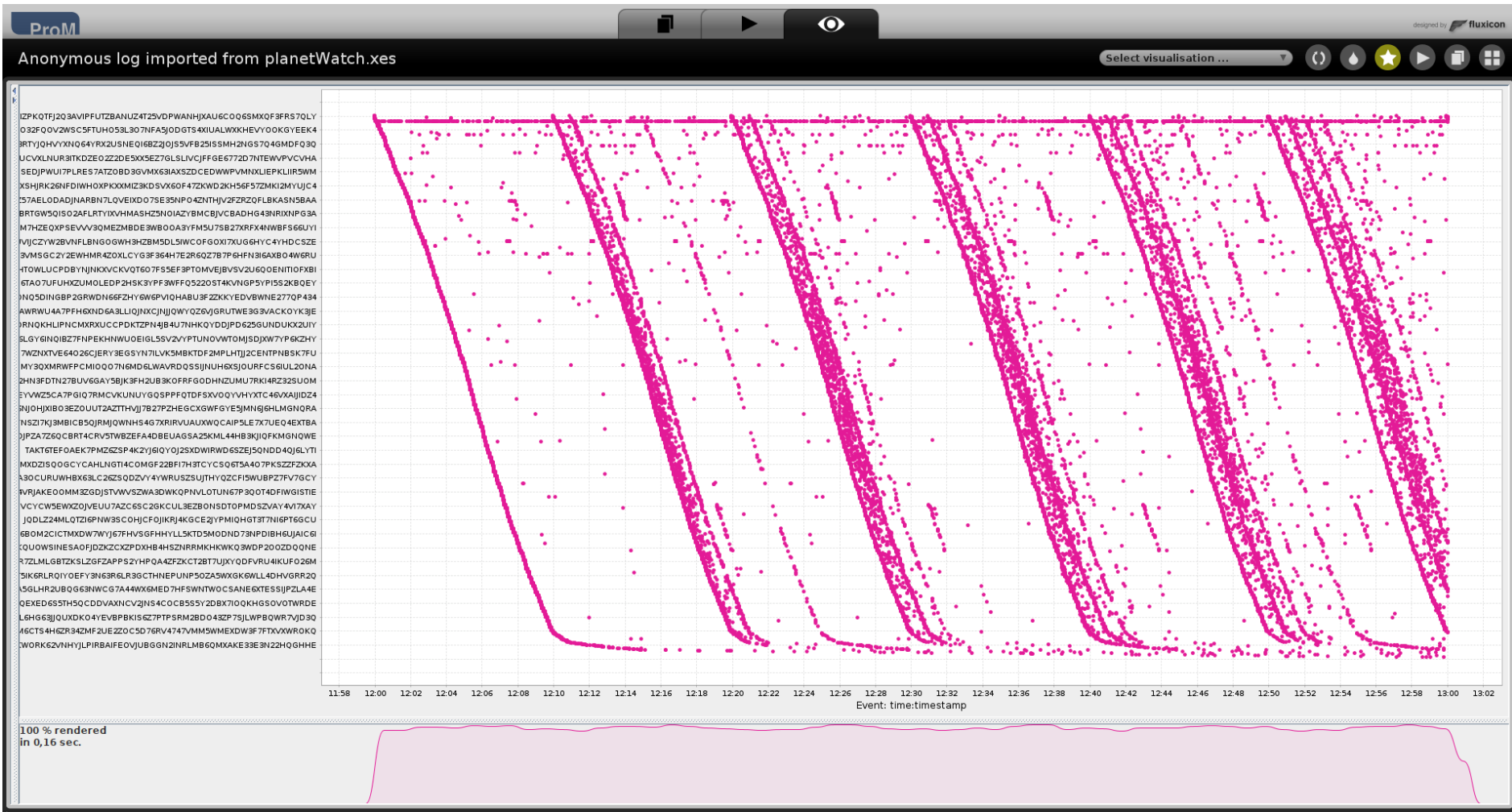
Dati pubblici salvati sulla blockchain Algorand

Gestione locale dei sensori

Ricompense in PLANET ai partecipanti

Grande quantità di eventi

PlanetWatch



Sviluppi Futuri



Interfaccia grafica

Generazione manifest
assistita

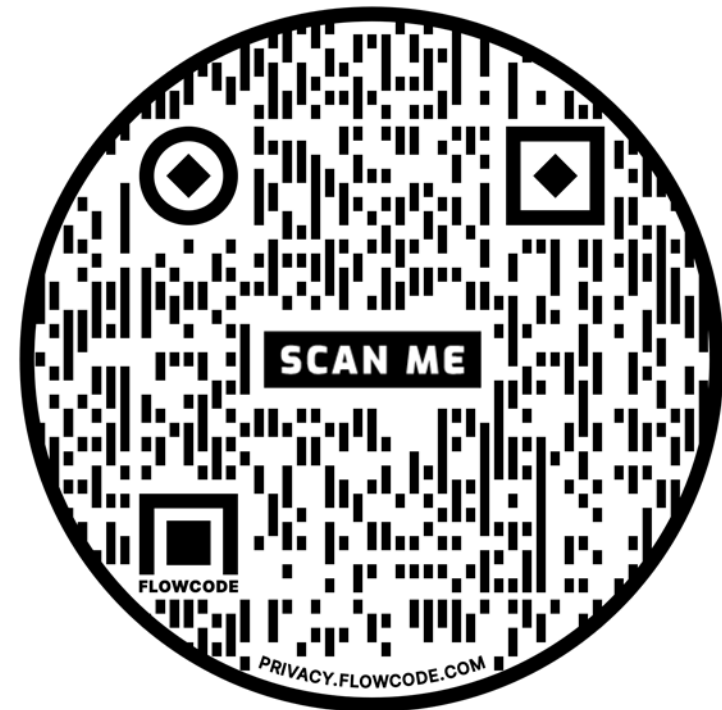
Miglioramento del
meccanismo di estrazione dati

Ottimizzazione

Integrazione con altri
software di estrazione dati

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<https://github.com/Silverio-Man/AlgoLogMiner>