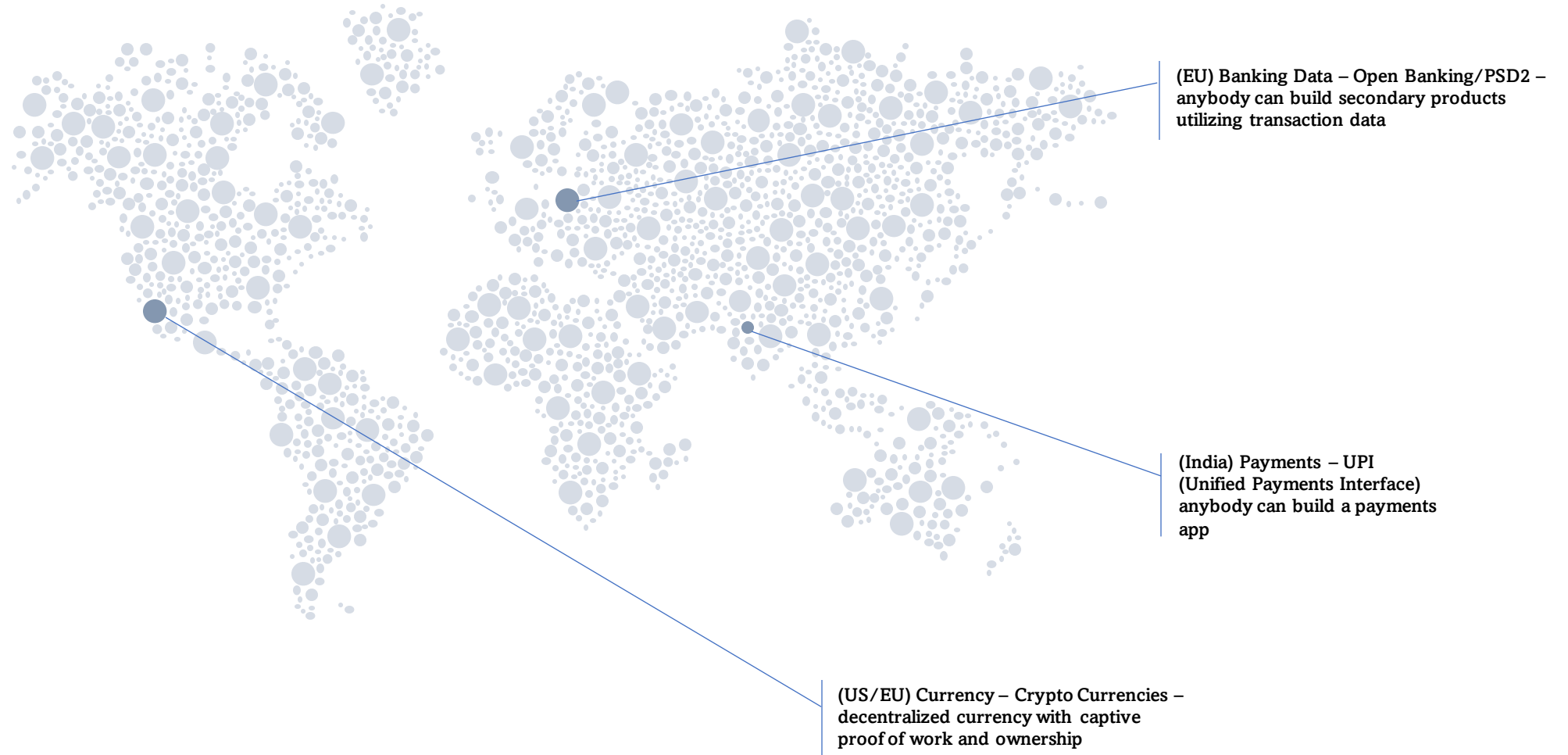




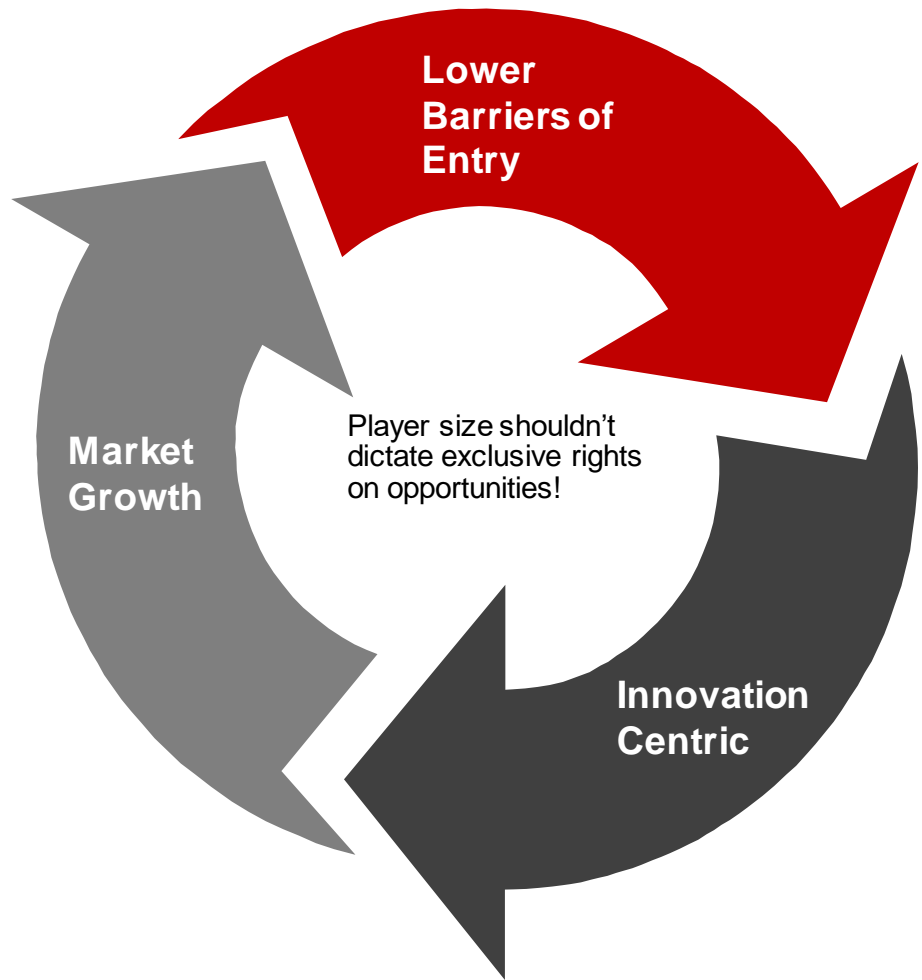
**Artificial Intelligence
Auctions
Open Economy**

**Ayush Choure, PhD
CTO@Krowd**

Open Economy – Opportunity Commoditization



Open Economy



Open Economy

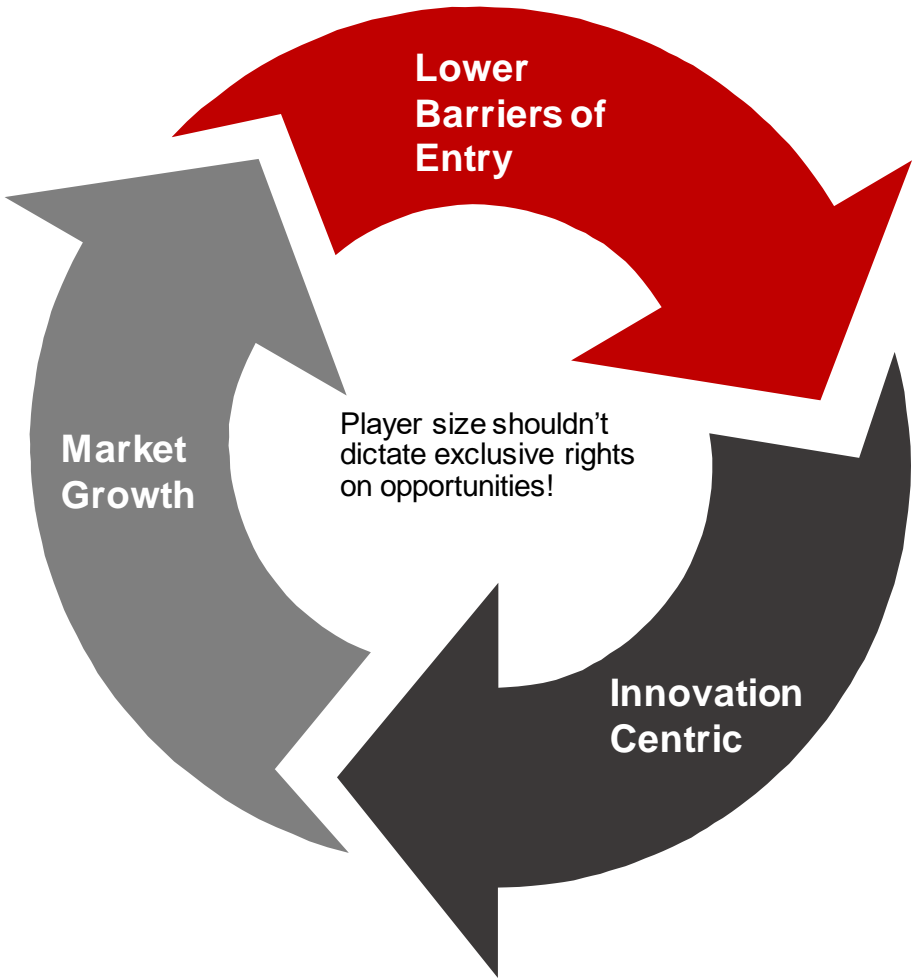
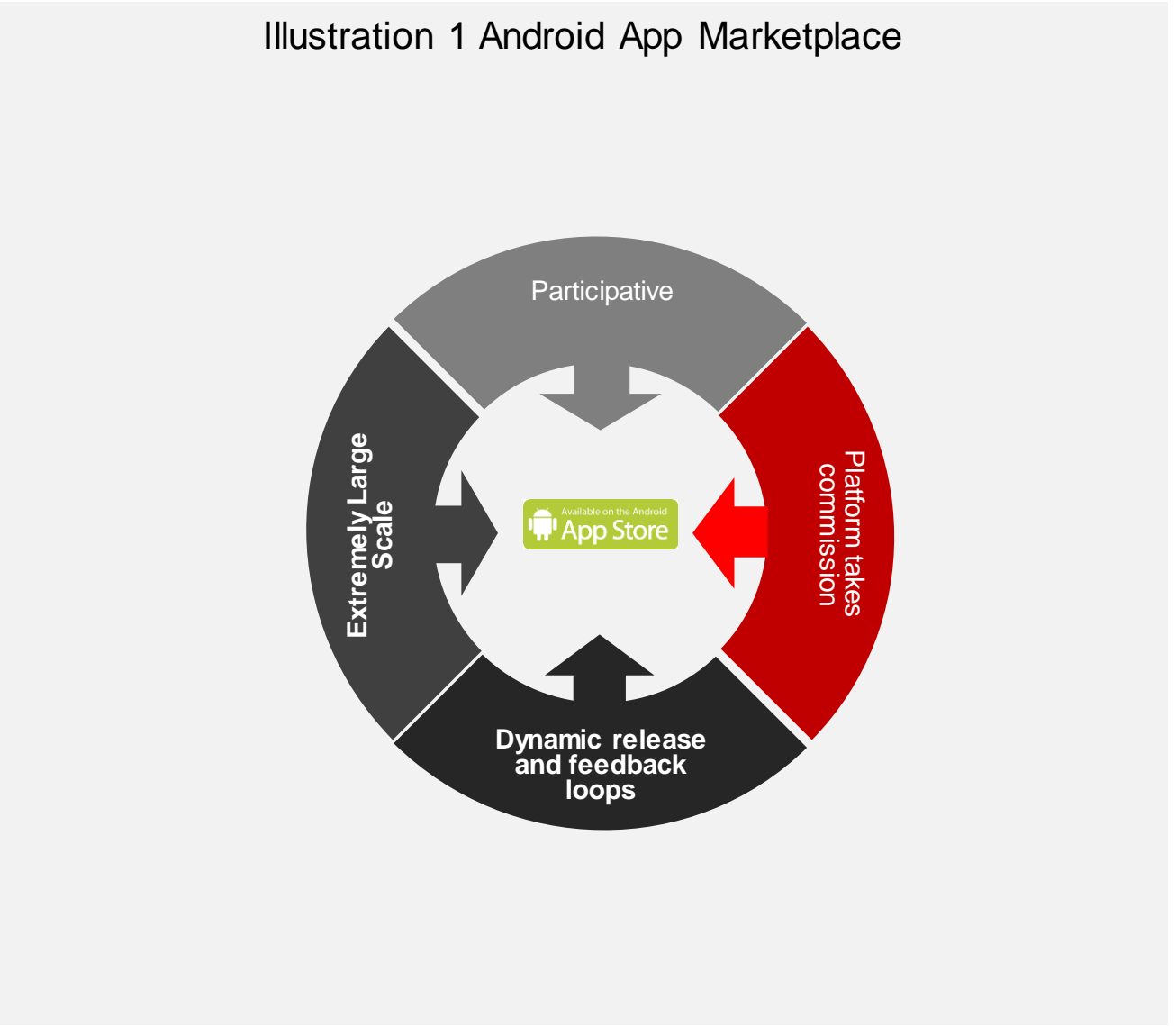


Illustration 1 Android App Marketplace



Open Economy

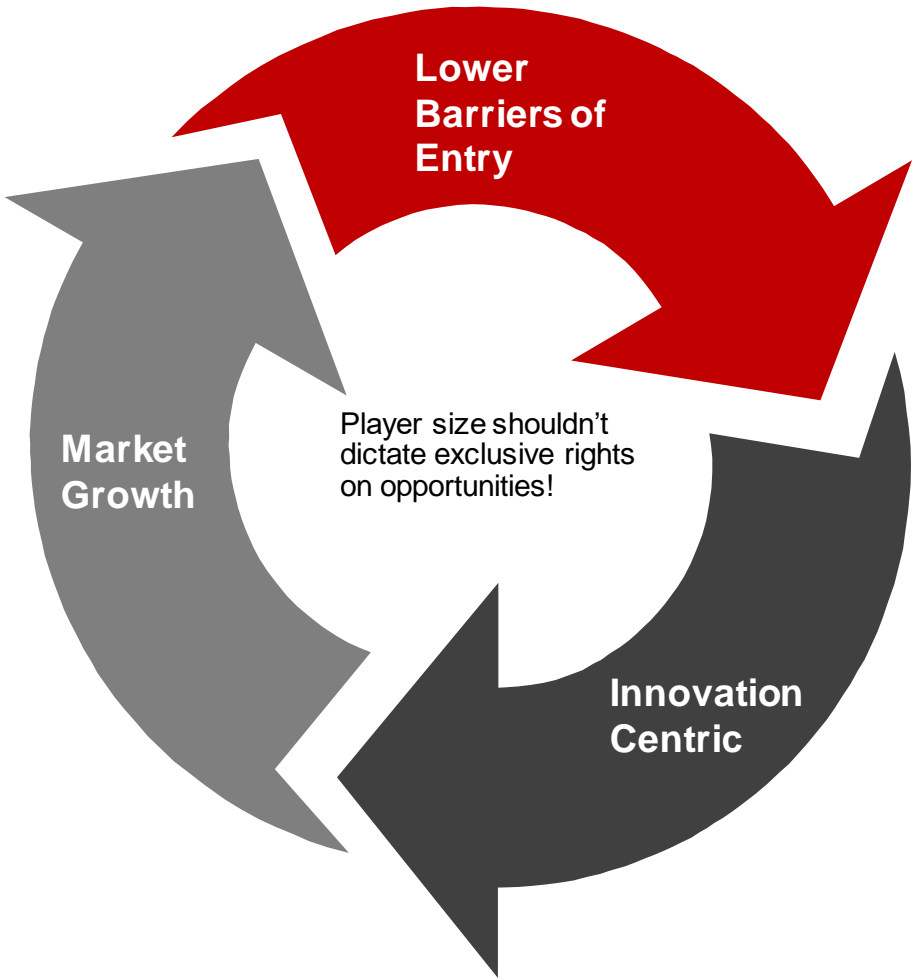


Illustration 2 Card Linked Offers (CLO)

Resource intensive offer level negotiations

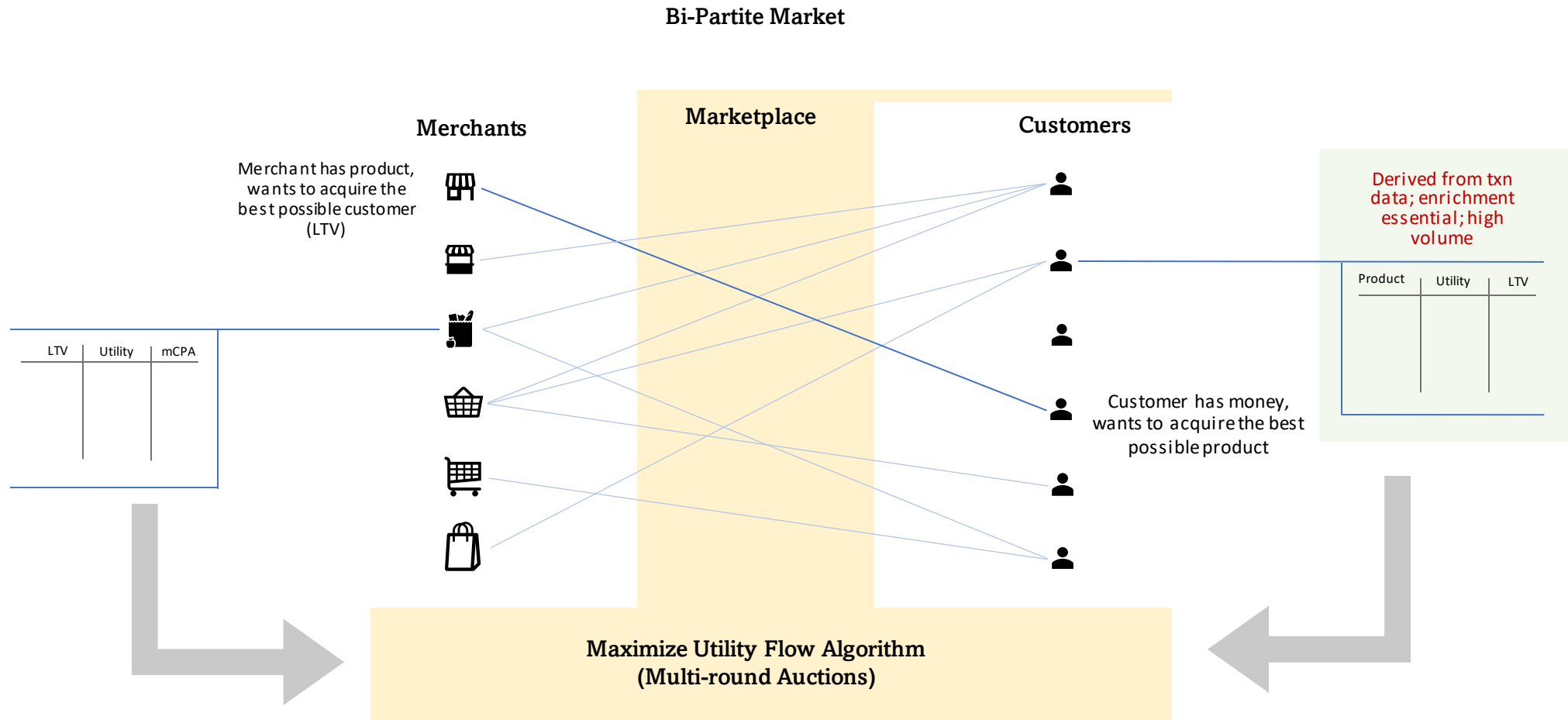


Highly non-participative, non-scalable, innovation unfriendly process

Market Models for Open Economy



Automating negotiations

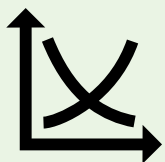


Market Models - limitations



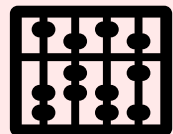
TRUST

Marketplace setup requires trust in intermediary



SCALE

Supply interest needs guaranteed demand, demand interest needs guaranteed supply



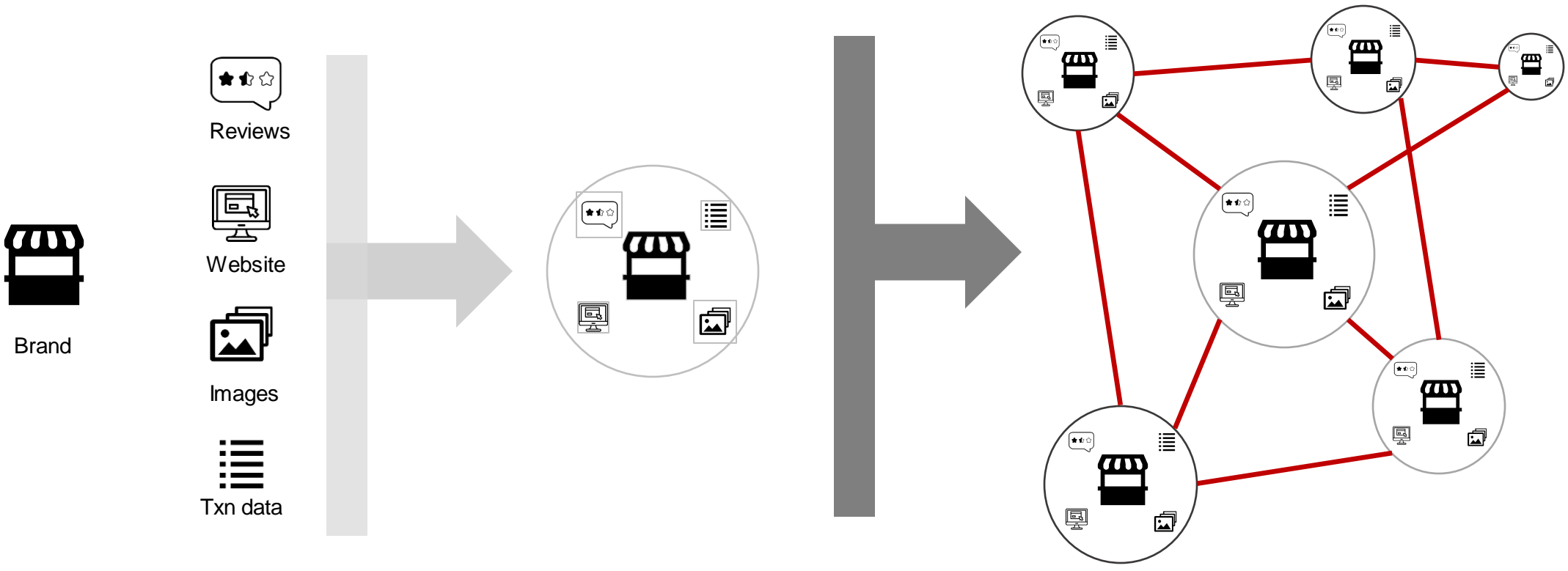
UTILITIES

Demand aggregator needs to know user's brand level utility functions; merchants should understand acquisition budgets

1. Transaction data is low quality, contextually speaking
2. Enrichment needed to make the data work, customer side 3p data is poor in compliance
3. Very high volume/density predictions needed for ALL user-brand pairs

UNIVERSAL UTILITY INDEX?

AI for Utility function – merchant intelligence



Native Brand data


Unified composite representation

Inter-brand relationships

Representation Learning

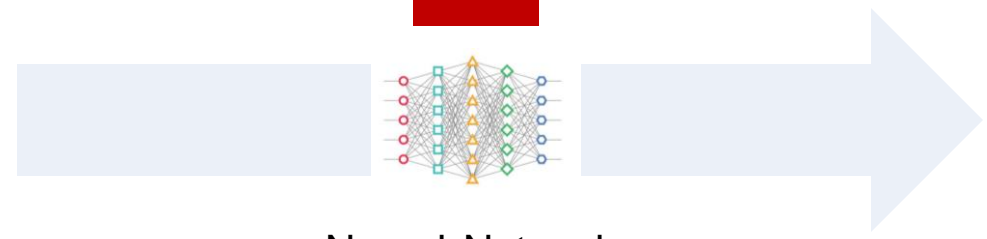
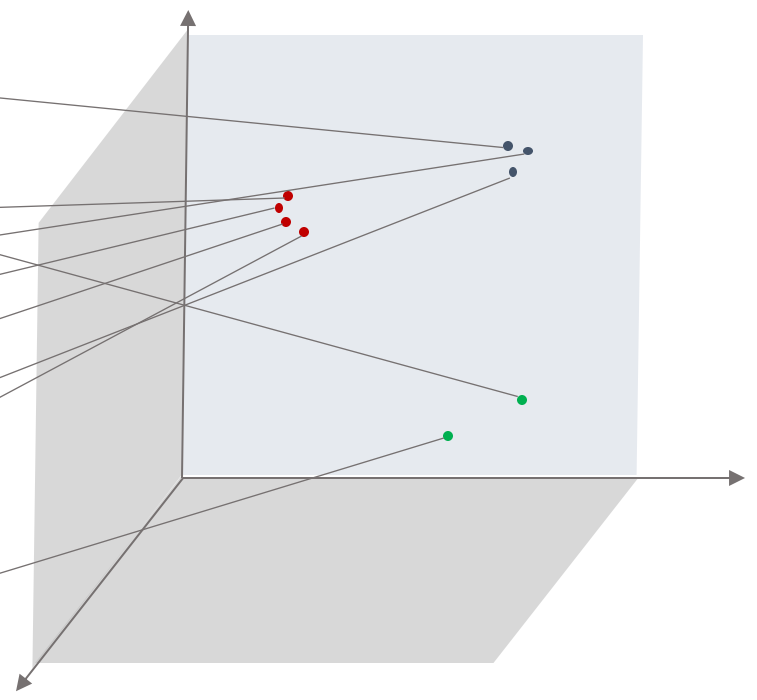


Objects




- 
- 
- 
- HOUSE
- 
- 
- 
- 
- DOG

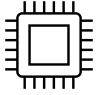


REPRESENTATION GENERATOR

Vector representations



Neural Network

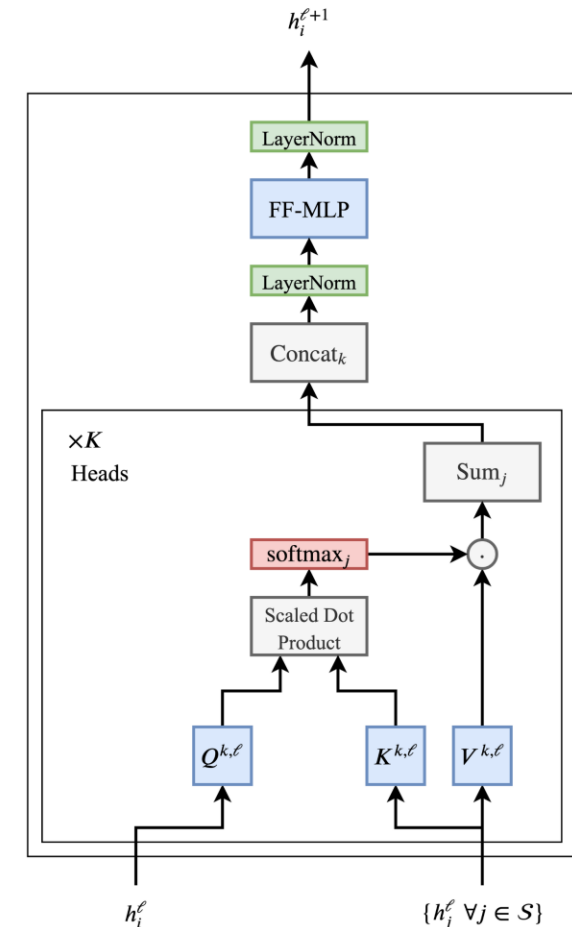
-  Human Consumable
-  Multi Modal
-  Entity Local

-  Machine Consumable
-  Uni-Modal
-  Entity Network

Breakthroughs in AI: Representation Learning



- Transformer framework for representation learning
 - Text: Large scale Natural Language Processing
 - Networks: Large scale Graph embedding
 - Images: Large scale Image embedding
- Help us make quantitative sense of brand/product side information and user engagement/utility distribution
- Married with transaction data, results in high quality+coverage utility functions



Representation Learning Example



All restaurants in London, Dubai and Sydney

"Malaysian" cluster – Malaysian cuisine rest from Syd/Lon

"Pho" cluster – Vietnamese cuisine rest from Syd/Lon

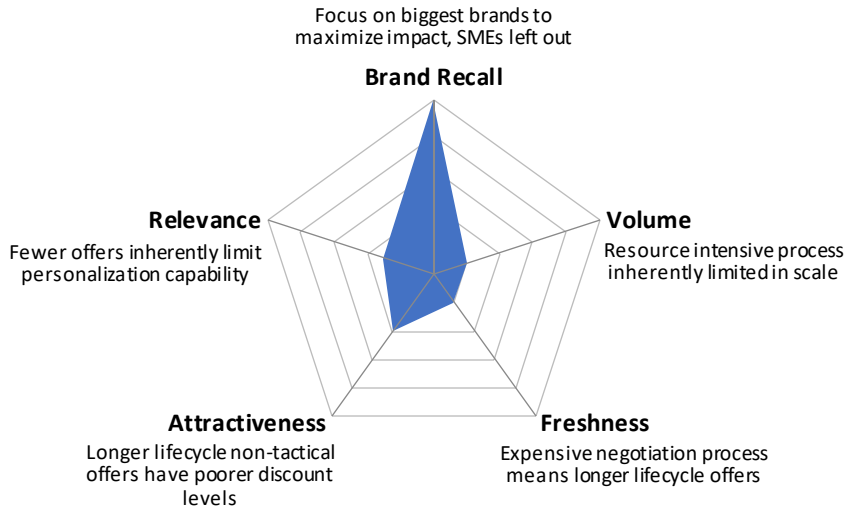
"KFC" cluster – KFC from Syd/Lon/DB, Red Rooster from Syd, Texas Chicken from DB, Chicken Cottage from Lon

[Short Range Relationship]

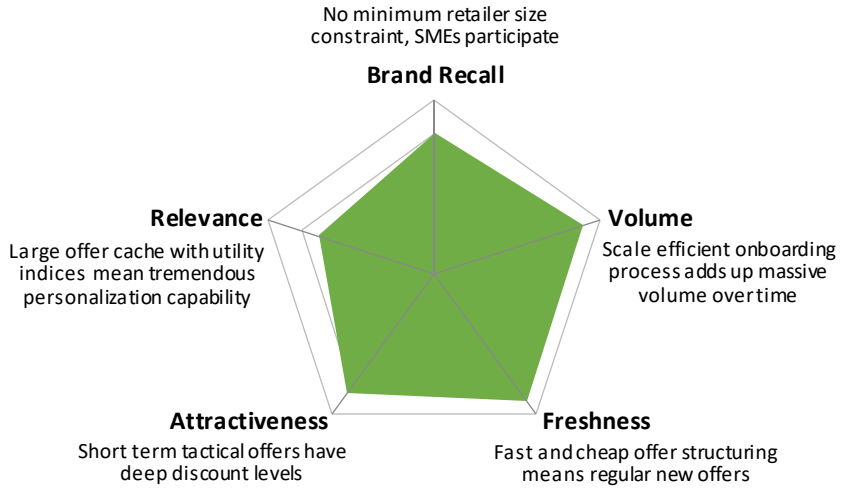
Bakery Sandwiches Burger Pizza

[Medium-Long Range Relationship]

Universal Utility Index – revisiting CLO



Traditional offer level negotiation model



Automated marketplace negotiation model

Closing Remarks



- Closed-door control-based products have limited lifecycle
- Well regulated open marketplace products are the future
- AI has crossed the critical milestones needed to make this reality

Krowd – an Offer Bidding Marketplace



- Built a universal utility index over the last 5 years
- Retailers “bid” for cardholders via self determined commission and discount levels
 - Every acquisition/reactivation results in commission
 - No minimum retailer size for participation
 - No individual negotiations, executed at scale
 - every retailer in London can participate in the process at once without talking to anybody
- Issuers stop worrying about offer sourcing in a pull model
- Acquirers can help their clients grow
 - can support local businesses more effectively
- Compliance controls easier to manage
- Users get exciting personalized offer access
- **Visit krowdit.com!**



info@krowdit.com

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