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***Electricity regulation seen
through 3 Ds lenses...***

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Três Ds: sim, sim, sim; vem...





Visao geral

- **1/ Introducao:**

From “3 Ds perspective” to “2 Ds key background”

- **2/ Desenvolvimento:**

Decentralization bones + Digitalization flesh + Interactions

- **3/ Conclusoes: a lot of challenges**

Beyond “Utility regulation”

+ “Behind the Meter” activities

+ Innovation <> New Business Models <> New Regulatory Frames



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1/ Introdução: From 3 Ds perspective... to 2 Ds key background



Key Words

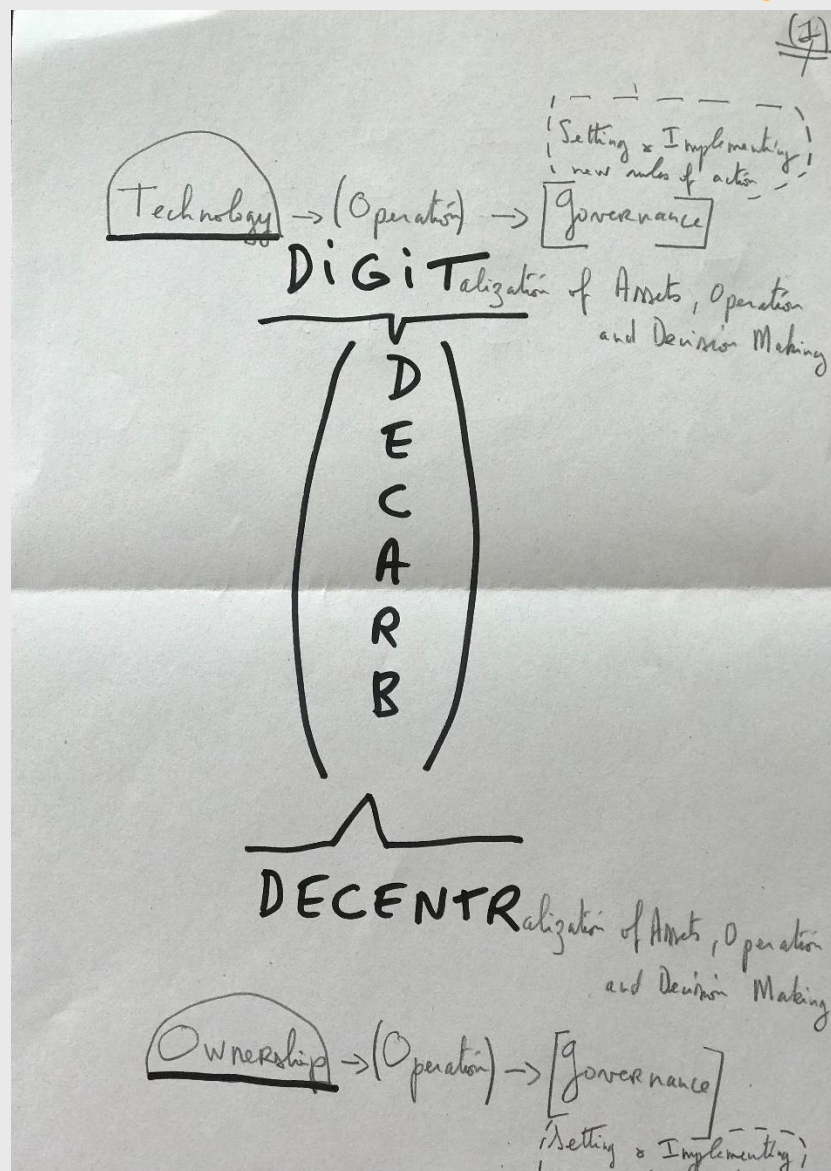
Decarbonization of atmosphere is a goal

Decentralization is changing assets, operation, & decision making

Ownership <:> Operation <:> Governance

Digitalization is changing assets, operation, & decision making:

Technology <:> Operation <:> Governance





Key Words

Decentralization has two focal points

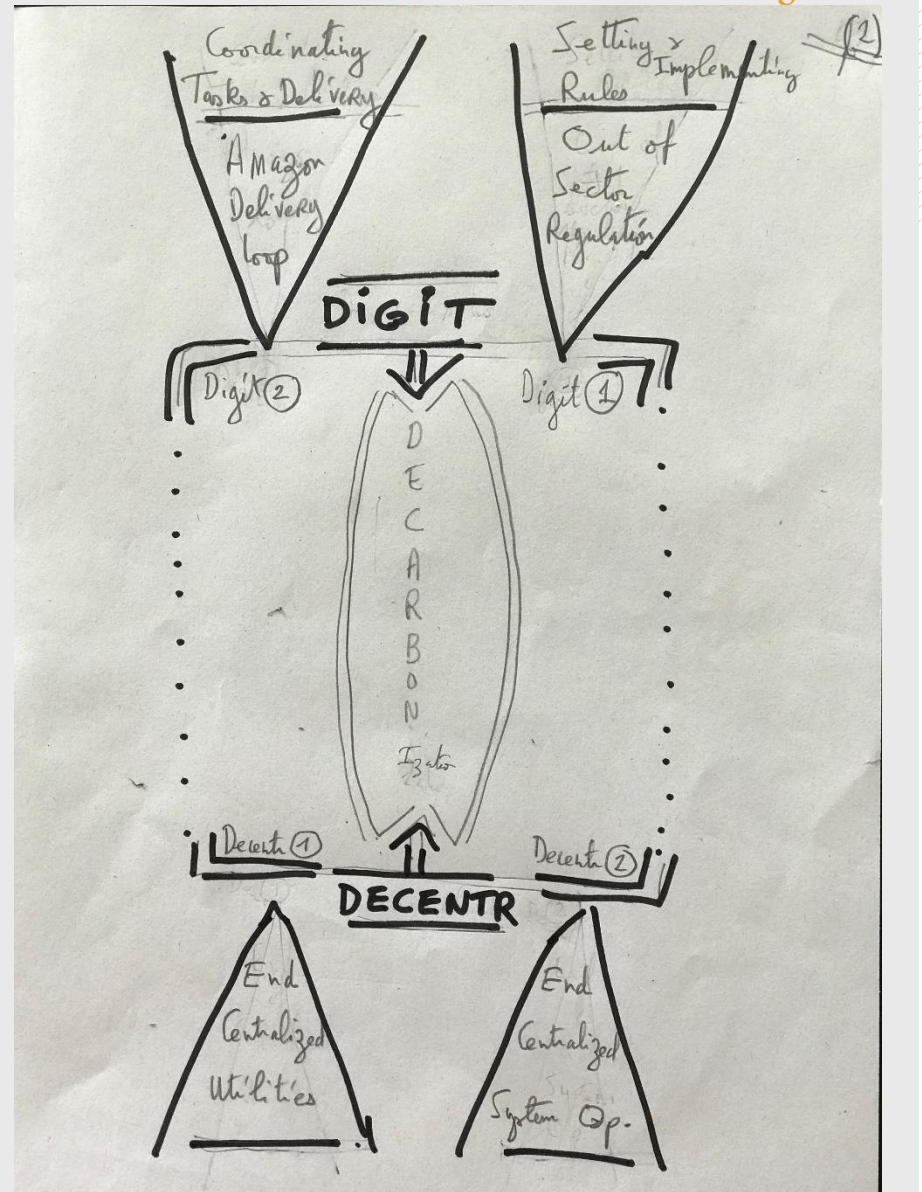
*Ending centralized Utilities

**Ending centralized System Operation

Digitalization has two focal points

*Setting rules outside EI. Sector regulation

**Coordinating digital tasks with EI. Delivery loop (the Amazon "Delivery Loop")





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2/ Desenvolvimento: Decentralization bones + Digitalization flesh + Interactions

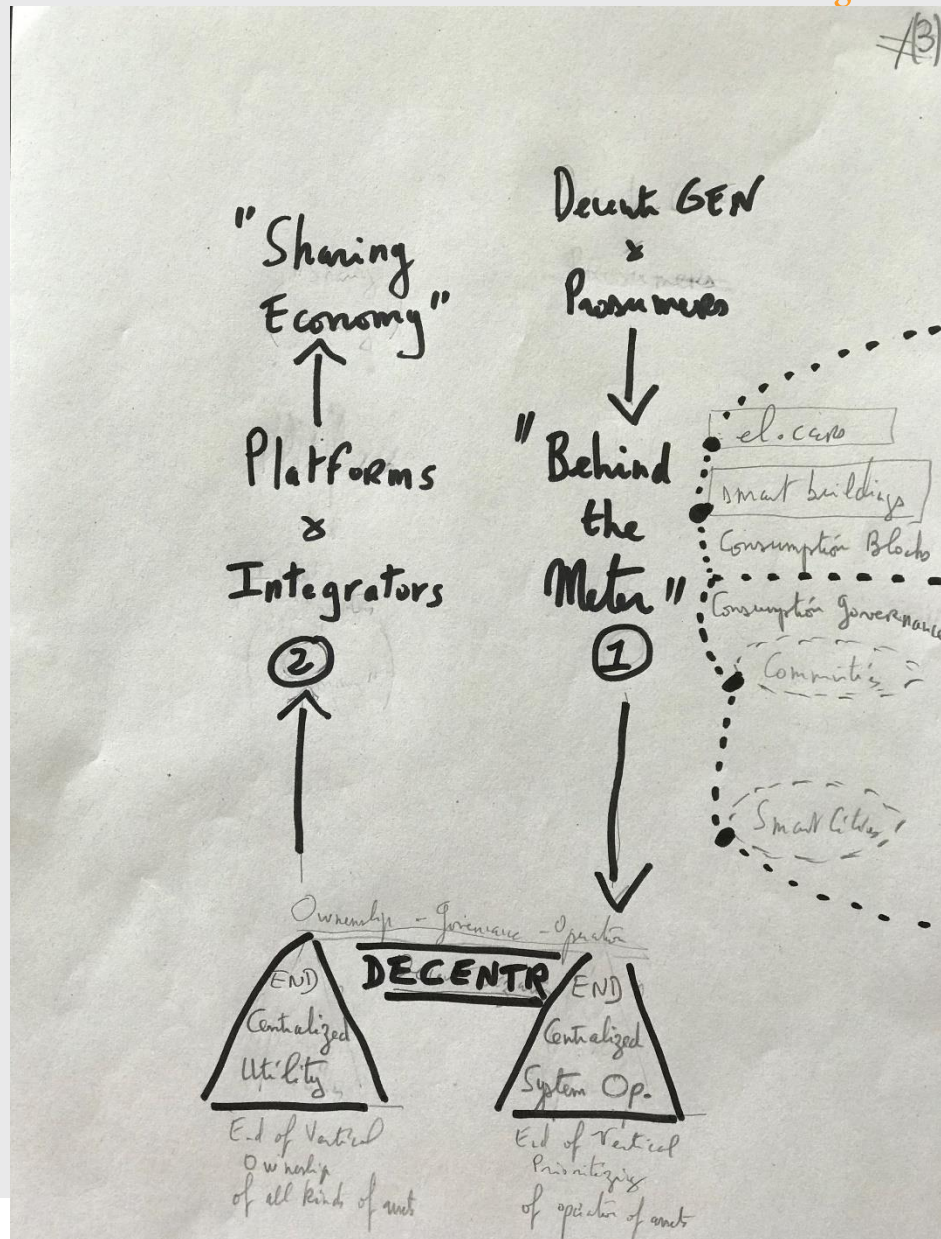


Key Words

Decentralization has two streams of changes

1* **Distributed Generation** expands to distributed Prosumers (PV or Wind PPAs), Prosumagers (Storage), & more "Behind the Meter" (el. Cars; smart buildings)

2* **Platforms & Integrators** offer new ways of coordinating the decentralized, Up to "Sharing Economy" Platforms





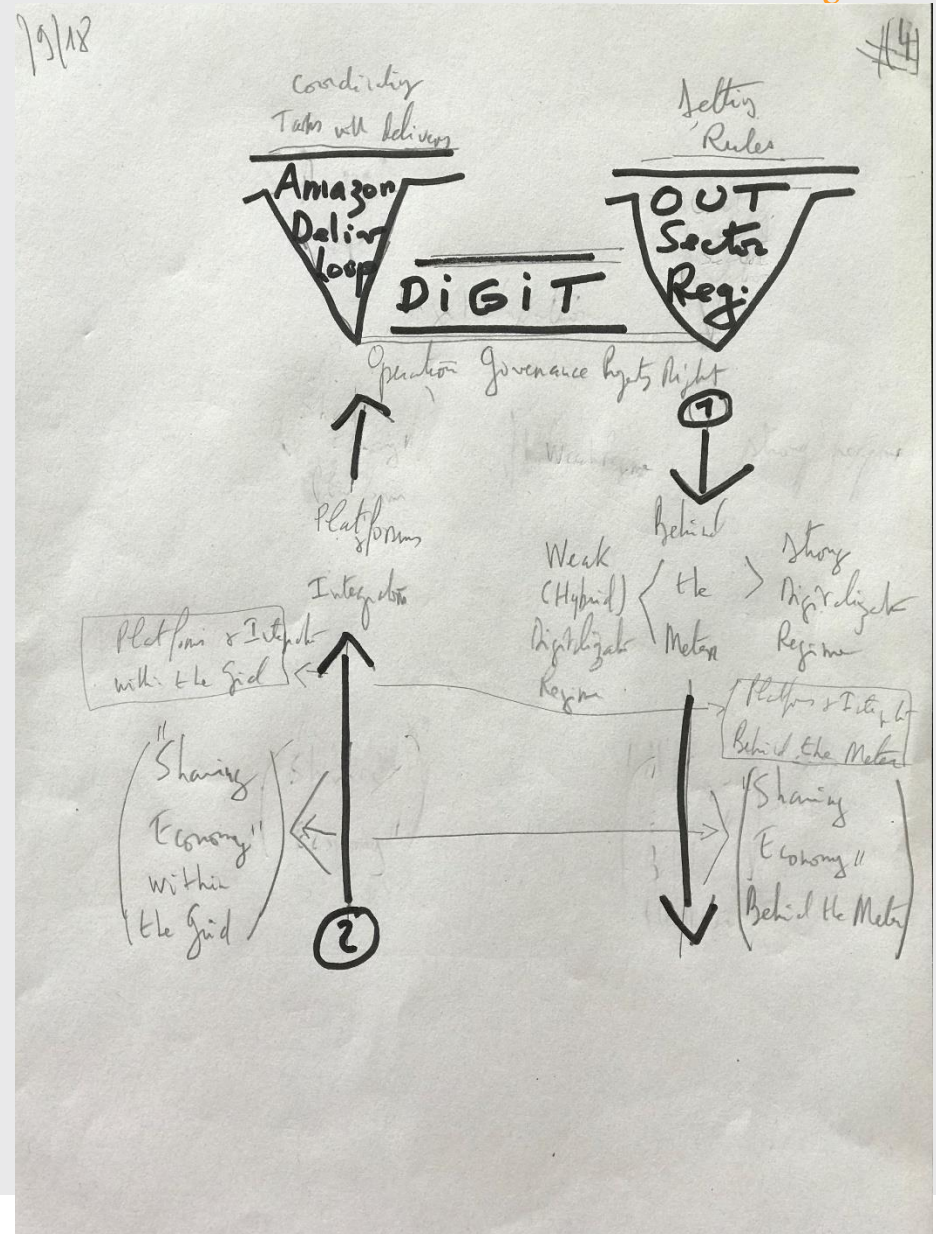
Key Words

Digitalization has similar two streams of changes

***Out of Sector** gathering the "Behind the Meter" to manage it as smart assets

**Platforms & Integrators offer new ways of coordinating the decentralized, Up to Blockchain networks.

Up to "**Amazon Delivery Loop**" constraint





Key Words

Decentralization & Digitalization

strongly interact

Because they have two similar streams of changes

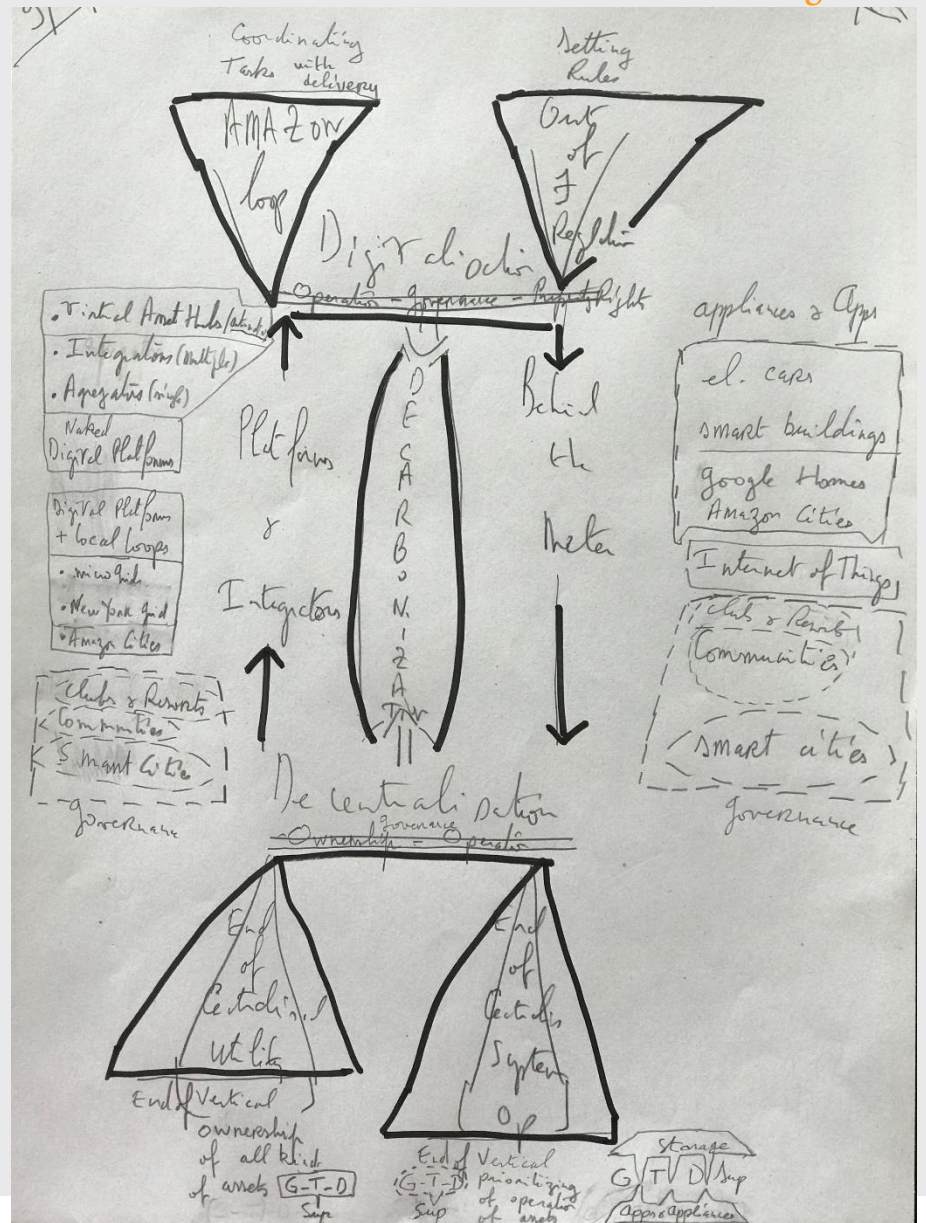
*The **“Behind the Meter”** target of smart assets

Platforms & Integrators facing the **“El. Amazon Loop” delivery constraint

They touch upon tasks, assets, operation, apps, integrators, platforms >

> **Up to Governance:**

- Communities of Peers
- Clubs of Partners
- Smart Local Authorities





3/ Conclusoes: a lot of challenges

Beyond “Utility regulation”

+ “Behind the Meter” activities

+ Innovation –Business Models –Regulatory Frames





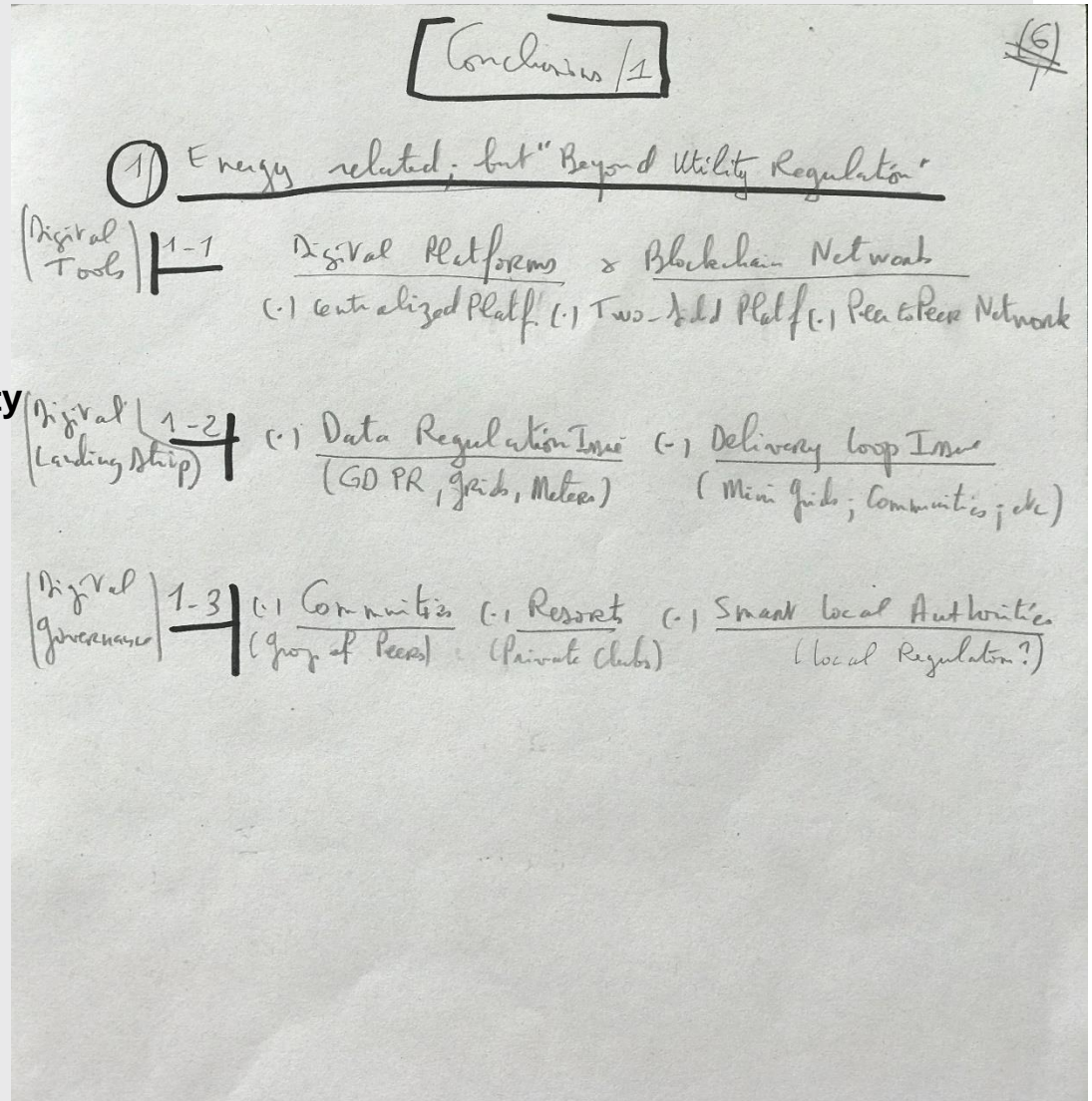
Key Words

Yes Energy Related but: **"Beyond Utility Regulation"**

*Digital Tools employed
(Platforms; Blockchain networks)

**But Digital Landing Strip needed
(Data Regulation; Delivery loop)

*** New Forms of Governance
(Communities, Resorts, Smart L. Auth)



Conclusions / 1

(6)

① Energy related; but "Beyond Utility Regulation"

(Digital Tools) | 1-1

Digital Platforms & Blockchain Networks
(-) Centralized Platf. (-) Two-sided Platf. (-) Peer-to-Peer Network

(Digital Landing Strip) | 1-2

(-) Data Regulation Issue (GD PR, grids, Meters) (-) Delivery loop Issue (Mini grids; Communities; etc)

(Digital Governance) | 1-3

(-) Communities (Group of Peers) (-) Resorts (Private Clubs) (-) Smart local Authorities (Local Regulation?)



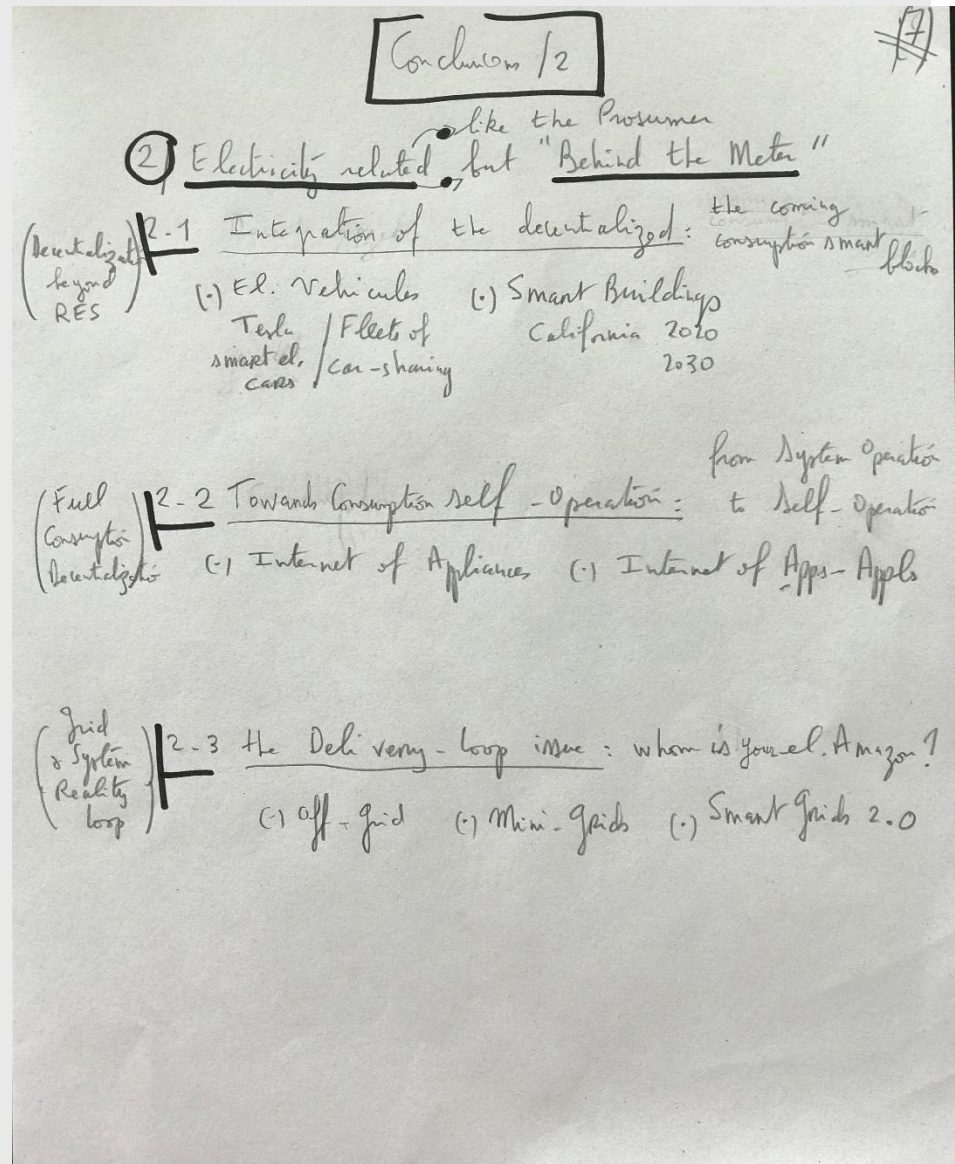
Key Words

Yes Electricity Related but: **“Behind The Meter”**

1* Decentralized assets to integrate beyond RES & Storage (El. Vehicles; Smart Buildings)

2* All consumption could self-operate (Internet of Things; Internet of self-Op)

3* New Delivery Loops (Off-grids; mini grids; smart grids 2.0)





Key Words

Yes Energy & Electricity related but: **interactions**

“Innovation” <:> “Regulation”

* Sand Box

(How to scale it up outside?)

** Smart++ Grids

(New York Big Bang...

or California Step by Step?)

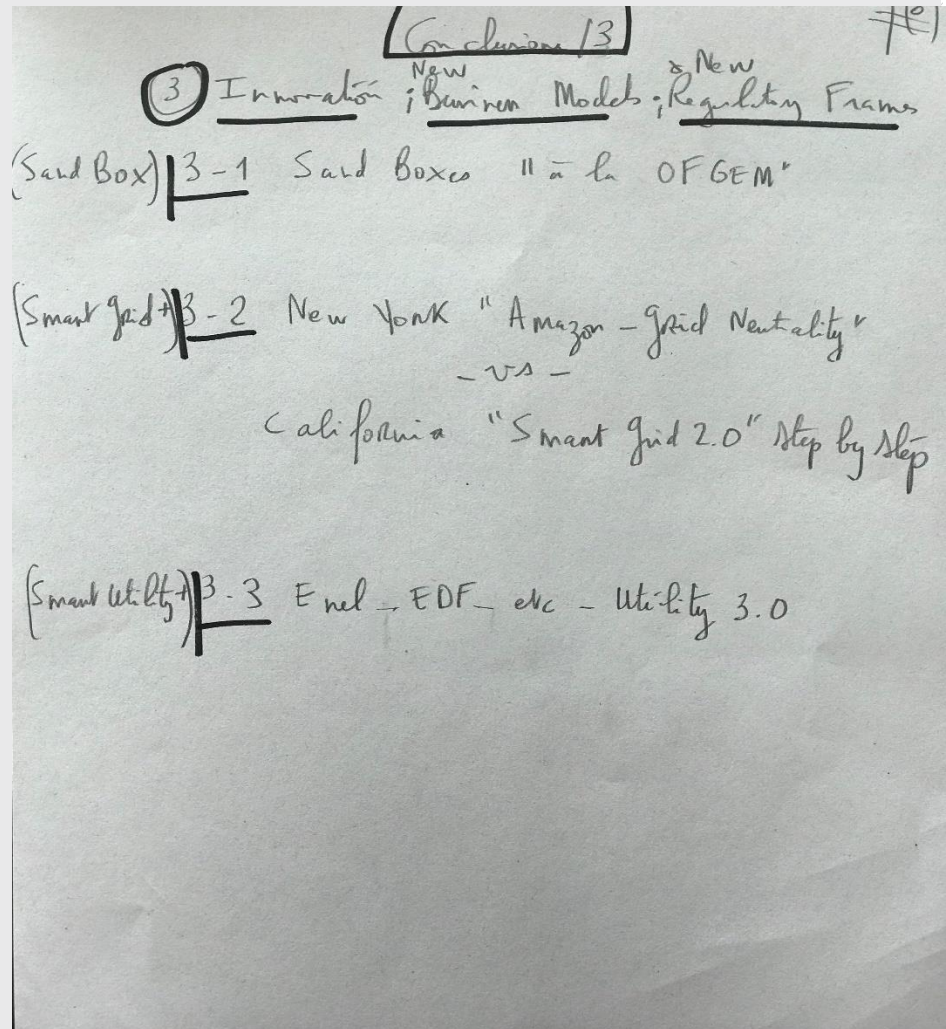
*** Smart++ Utilities

(EDF?

Enel?

Eon?

... Or still to come?)





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Mais?

#Em 2020?# Em 2022?





Muito obrigado!

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