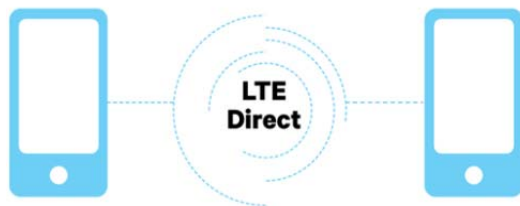




## **Business Opportunities beyond Ultrabroadband:** *Proximity Services and LTE direct*



# Agenda

- ▶ LTE Direct: concept;
- ▶ Service Logic;
- ▶ Use Cases and Scenario
- ▶ Value Proposition: Domestic market;
- ▶ Tetra Vs LTE Direct;
- ▶ LTE Direct vs alternative technologies;
- ▶ Takeaways.

## Concept

**LTE-Direct** known as well as D2D, LTE Radar or ProSe, it's a device-to-device technology enablers to:

- ✓ Discovers the relevant utilities service and people for user's in proximity via licensed LTE spectrum;
- ✓ Discovers thousands of devices within a range of hundreds of meters (0 ~500m);
- ✓ Allows a secure ID/profile and geo-localization transmission.

2 Main areas of application:

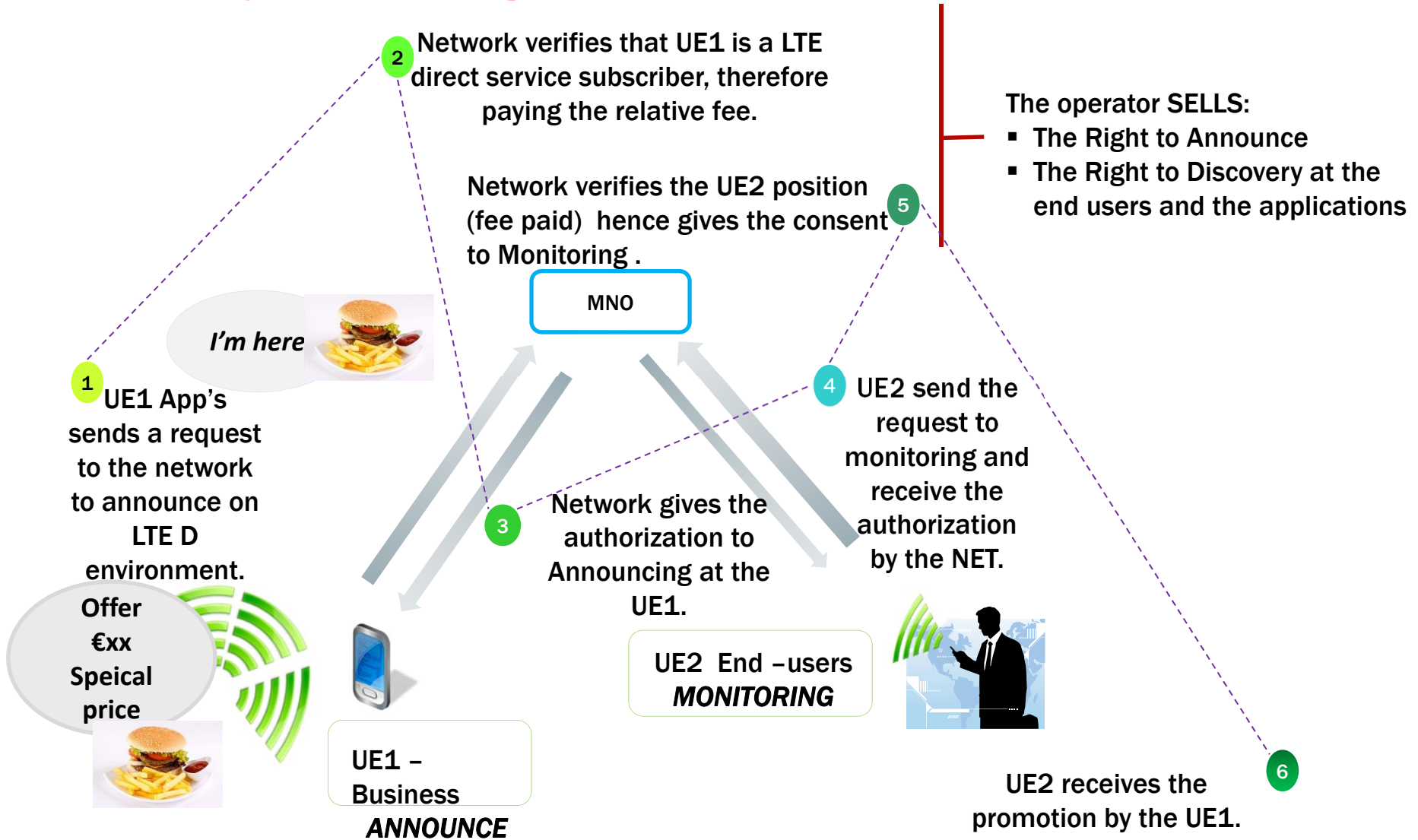
### Proximity

Connection between LTE-D Device's is always managed by the LTE Network.  
Devices must be in E-UTRAN coverage

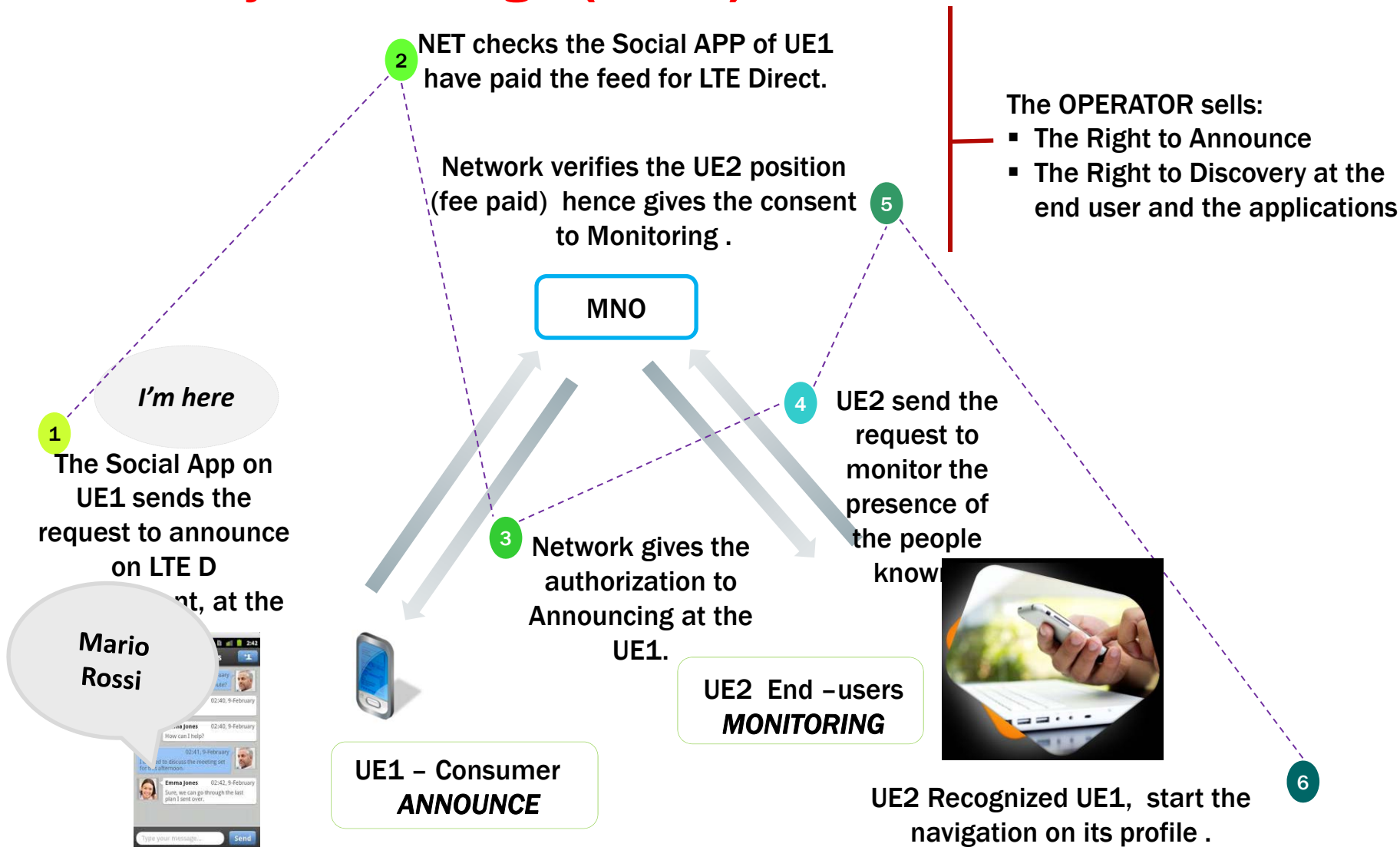
### Public Safety

- Communication between all authorized Users in proximity can be out of coverage: Users can automatically use LTE D when E-UTRAN coverage is not available
- In PS mode the Users can create a "closing group" to direct communicate between them

# Proximity: Service logic (Local Adv)



# Proximity: Service logic (Social)



# Public Safety: Service logic

Direct communication One-to-Many



1



2



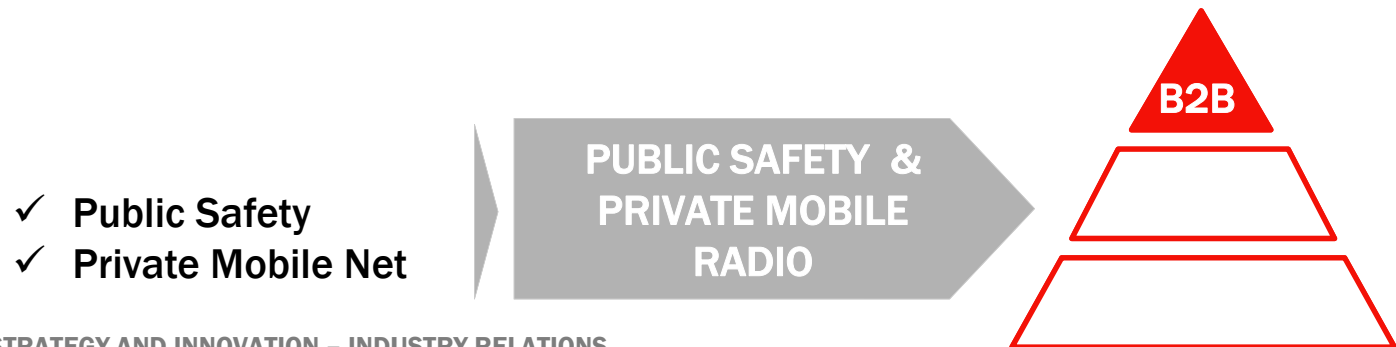
3



4



# Use Cases and Scenarios





# B2C – Utility, Social, Entertainment: VALUE PROPOSITION

## CONCEPT



## REASON WHY

It provides a big opportunity across a large range of applications and services in a proximity environment

## KEY BENEFITS

- **Customer:** enhances user experience by providing privacy sensitive and battery efficient discovery services
- **MNO:** increase ARPU providing a Premium Service





# B2C – Utility, Social, Entertainment: BUSINESS MODEL

## MNO

## Consumer Customer

**Sales**  
*Services of Utility, Social & Entertainment to its customer base*

**Pays**  
*Monthly Fee for LTE-D Services*  
**Download**  
*App to utilize service and social network*  
**Gives**  
*Consent to receive advertising messages*





# B2B2C – Local Advertising: BUSINESS MODEL

## MNO

## Sales House

Trades with a Sales House several applications identities to announce on the LTE Direct channel

Resells to the advertising's stakeholder the application identities LTE Direct by providing the opportunities to develop Apps for local advertising





# B2B2C – CRM, Loyalty, Couponing: BUSINESS MODEL

**MNO**

**Large Enterprise**

Pre installed App on LTE-D Device Ready

Pay fee for each app installed

- ✓ CRM
- ✓ Loyalty
- ✓ Couponing

2 mins  
B. Weiss Event

**Bookshop**



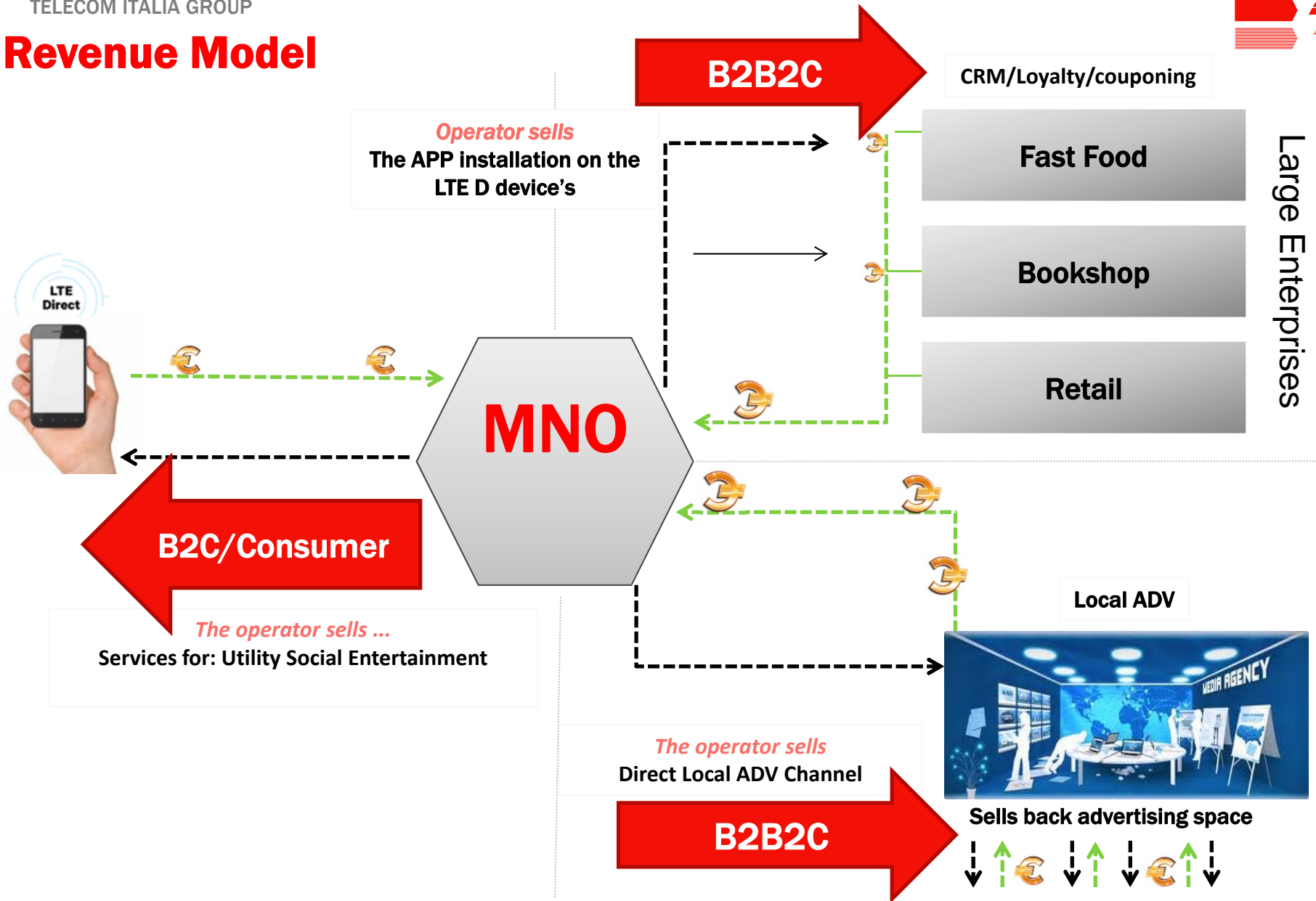
**Food**

At 50m  
2 points for 1€  
expended

**Retail**

1 Lips Gift  
each 10€  
expended

# Revenue Model



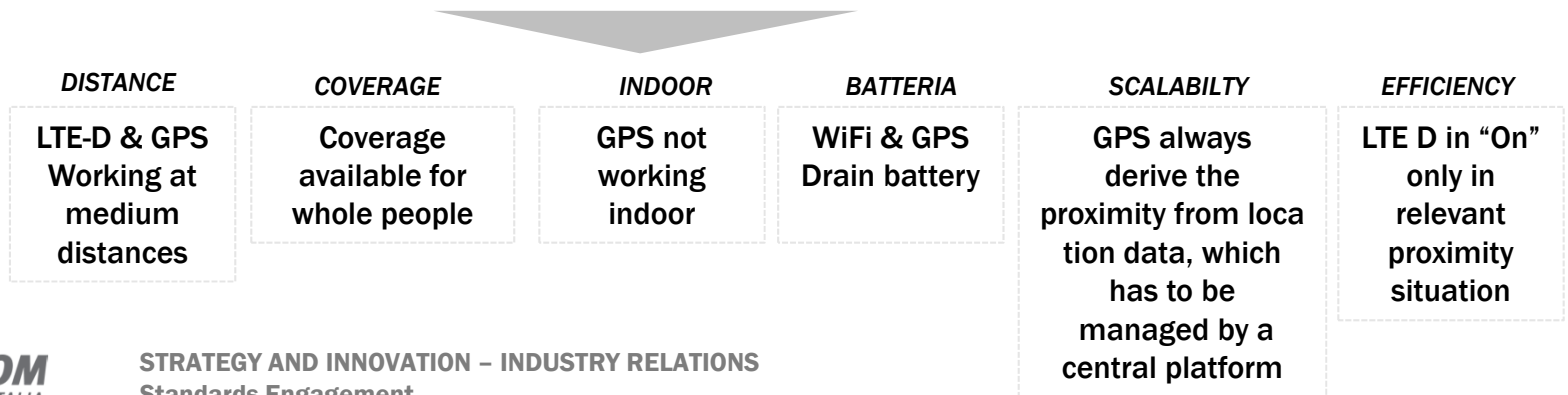


## TETRA vs LTE Direct

	TETRA	LTE-Direct
FEATURE	<ul style="list-style-type: none"> <li>➤ Device-to-device</li> <li>➤ Relay</li> <li>➤ Push to Talk</li> <li>➤ Group Communication</li> </ul>	<ul style="list-style-type: none"> <li>➤ Proximity based Service (with a Groups &amp; Relay for public safety)</li> <li>➤ Push to Talk (OMA)</li> <li>➤ Group Communication Enabler</li> </ul>
PERFORMANCES	<ul style="list-style-type: none"> <li>➤ Broadcast data: max 538kbps</li> <li>➤ Call Setup &lt;300 ms</li> </ul>	<ul style="list-style-type: none"> <li>➤ Broadcast data: <ul style="list-style-type: none"> <li>▪ DL: max 100 Mbps</li> <li>▪ UL: max 75 Mbps</li> </ul> </li> <li>➤ Call Setup tra 5.5. - 7 secondi</li> </ul>
SECURITY	<ul style="list-style-type: none"> <li>➤ Mutually authentication over-the-air</li> <li>➤ Encrypted (over-the-air, Employee-to-Employee)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Authentication &amp; Key Agreement (AKA, in USIM e AuC)</li> <li>➤ Encrypted over-the-air (Integrity e Confidentiality)</li> <li>➤ ID protection of the user &amp; device</li> <li>➤ Legal Tap</li> </ul>
COVERAGE	<ul style="list-style-type: none"> <li>➤ Needs a dedicated access Radio infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>➤ Any LTE Radio infrastructure could be ultize</li> </ul>
SPECTRUM	<ul style="list-style-type: none"> <li>➤ Dedicated (400 MHz, 900 MHz, etc)</li> </ul>	<ul style="list-style-type: none"> <li>➤ It's possible to utilize a licensed band (2.6/2.1GHz,1900/1800/900/800/700 MHz etc )</li> </ul>
INTEROPERABILITY	<ul style="list-style-type: none"> <li>➤ Equipment and MS interoperable and compatible</li> </ul>	<ul style="list-style-type: none"> <li>➤ Interface open standard</li> <li>➤ Backward compatible</li> </ul>

# LTE D vs alternative technologies

	DISTANCE	COVERAGE % pop	INDOOR	BATTERY	SCALABILITY'	EFFICIENCY
<b>LTE D</b>	0~500m	> 80% - 2016	Yes	Low	High	100%
<b>WiFi</b>	50m	100%	Yes	Medium	High	At customer discretion
<b>NFC</b>	1mm	100%	Yes	Low	High	100%
<b>GPS</b>	50m~infinity	100%	No	Higher	Low	At customer discretion



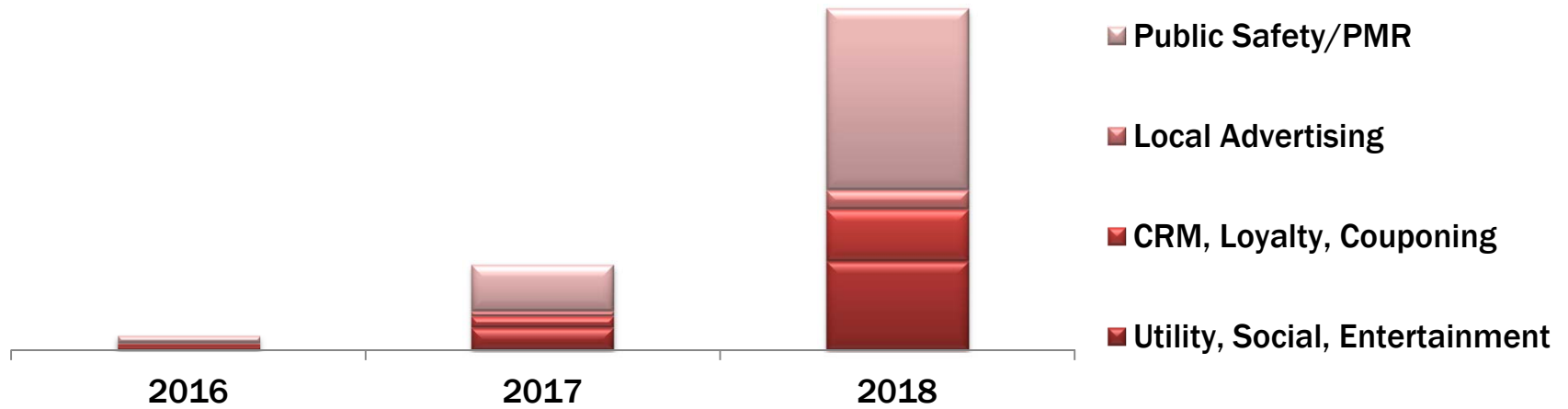
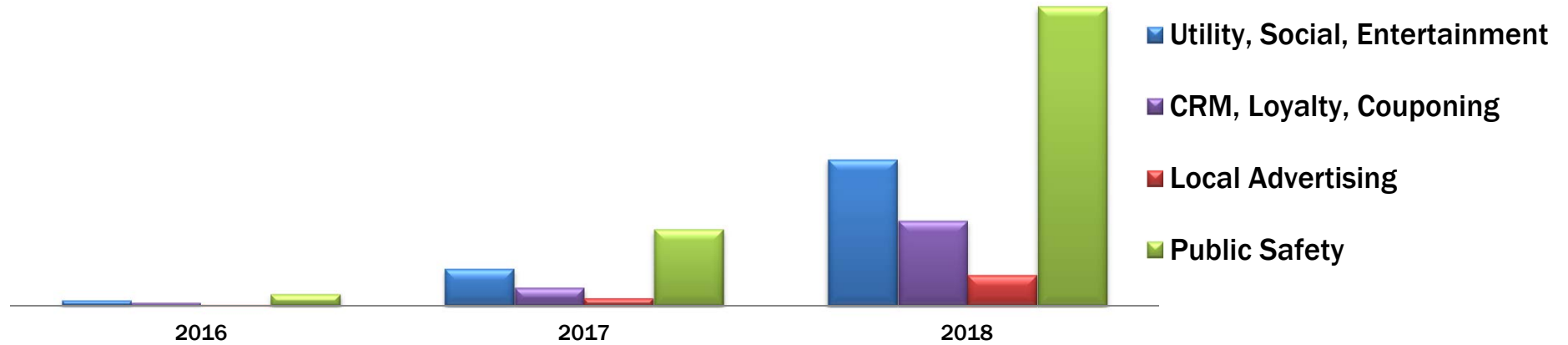
# Mapping technologies into services

		LTE Direct	WiFi Direct	GPS	NFC
Utility	Trasportation	😊	😊	😞	😞
	Security	😊	😊	😞	😞
SOCIAL & ENTERTAINMENT	Dating	😊	😞	😊	😊
	Events	😊	😞	😊	😊
MOBILE MARKETING	Local ADV	😊	😞	😞	😞
	CRM Loyalty Couponig	😊	😞	😞	😞

**... LTE Direct is the only technology enables all services**

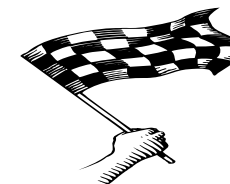
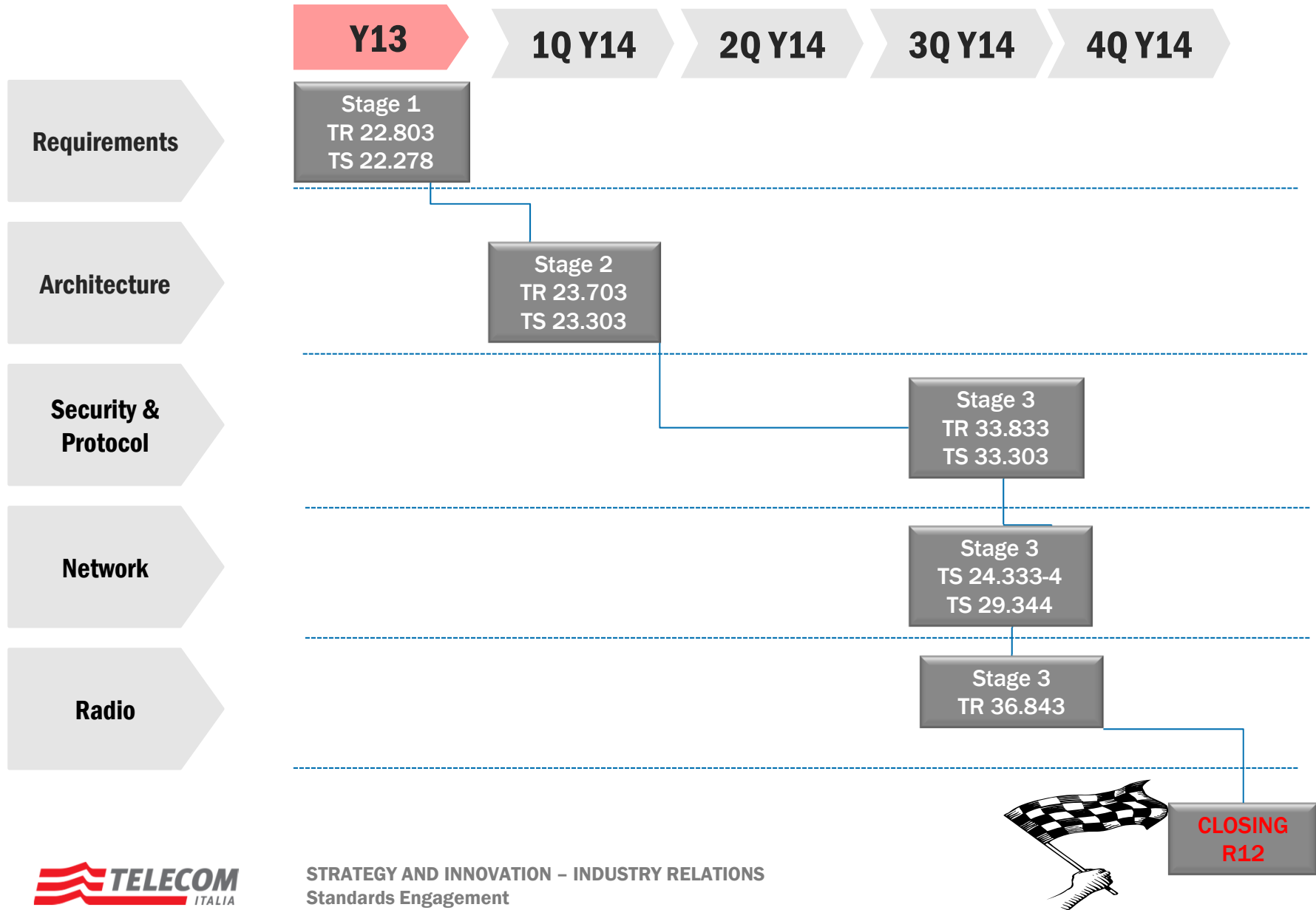
# Opportunity sizing

REVENUES DISTRIBUTION FOR A TELCO





# Standardization Roadmap



## Takeaways

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- **LTE Direct /D2D is the technology that fits the best to the requirements of proximity and public safety services**
  - **Adopting the best value proposition and the most suitable business model for each class of new services will guarantee the best return to all the players in the value chain: MNOs, technology vendors, application developers;**
  - **The interoperability between MNO's and the referred agreements is necessary, in order to rapidly achieve an acceptable addressable customer base;**
  - **A wide LTE coverage is a key success factor in order to realize a prompt growth and expansion of the services**
-