	Range	Compatability	Security	Limitations	Benefits	Physical	Cost per object	App required y/n
QR Code	From 1.5ft to 25ft depending on size of QR code	All smartphones	Low	Interferes with print design; Requires internet connection	Widely recognised; Works with tablets too; Can lead to engaging experiences	Visual code can be printed on anything physical e.g. products, marketing material, window stickers	$0.01 for variable print QR codes	No
NFC	4cm	All smartphones; iPhone X and older need an app to activate NFC	High	More consumer education needed; Requires internet connection	Quick access to information; Keeps brand design sophisticated	Anything physical can be made interactive with a hidden NFC chip; Requires a recognisable icon and simple instructions	£0.04-£0.75 volume dependant; Soon to be £0.02 with mass scale	No
App Clip Codes	Uses both NFC and QR. See above	Initial roll-out with iPhone products iOS14+	High	iPhone only for now; Requires internet connection; Only app experiences	Instant preview of App with easy install	App Clip codes placed anywhere, in products, packaging & signs	Same cost as QR and NFC combined	Yes
Bluetooth Beacons	Up to 30m	All smartphones	Medium	Can impact battery life; Range can vary; Needs location tracking opted in	Powers Covid Track & Trace Apps; Nearby notifications for target marketing	Battery operated beacon device notifies relevant phones nearby	$15 each; Plus battery replacement	Yes
GPS	World-wide	All smartphones	N/A	Relies on satellites and location tracking; Can impact battery life	Needs App open to track location with user confirmation	N/A	N/A chip in mobile phone	Yes
WiFi	Up to 100m	All smartphones	Medium	Requires a strong Wifi Hotspot; Needs marketing opt-in	Use existing hotspots to track visitors	WiFi Router (mains powered)	N/A	No
UWB	Up to 100m	iPhone 11+ and some new Android phones	High	Works line of sight only; New phones only	Secure and precise; User control over connections	Will need consumer icons/ messaging on interaction	$30 and likely to reduce over time.	Yes. May change in future