Review of "Hype Cycle for Internet of Things, 2021"

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I. Summary

The Internet of Things (IoT) technology *Machine Customers* is a class of machines able to interact directly in the exchange of goods and services. This is an *emerging* capability, since it exists at present in a limited capacity. The authors provide the current example of inventory monitoring, and auto-replenishment for auto shops. With wide spread adoption of *Machine Customers* market providers will need to overhaul their marketing approach to attract machines rather than human customers. This authors hypothesis this could lead to analytically measurable product improvements, since a machine customer would be immune to traditional human marketing techniques.

The IoT technology *Autonomous Vehicles* are commercial and passenger vehicles able to operate themselves without traditional human intervention. They interact with the physical world using a wide variety of mounted sensors, things like RADAR, LIDAR, cameras, and GPS receivers. Combined with AI the data collected from these sensors can be processed to produce a decision output similar to how a human would respond. With the added benefit of limiting the errors or poor judgment human drivers often exhibit. The *Autonomous Vehicle* faces two major challenges in development. The first being the complexity of the driving problem and the massive amount of data generated by the sensors to capture the problem. The second being adopter trust and regulations that will inevitably be imposed given the visibility of the technology.

II. Praise

With regards to *Machine Customers* the limiting capability preventing mass adoption is the issue of trust. The Authors do an excellent job of breaking down the trust issue into the two key components. The first being trust between the machine doing the consuming, whether it can trust the provider or not. At present there are gigantic industries devoted solely to informing the customer about producer and product quality. How will machine interact with that information? And how can they know when (and when not) to trust a review? The second trust component is can the human trust a machine enough to delegate purchasing to it. In the examples provided by the report the *Machine Customer* is generally operating within a closed ecosystem, that is the customer is purchasing from the same company that created the machine, i.e. the self-replenishing toolbox example. In that closed scenario trust of the provider can be ignored since the machine doesn't have a choice in providers. The author's make clear that before mass adoption that problem will need to be addressed. Hence the *emerging* rating, not limited by technology but by trust and regulation.

For *Autonomous Vehicles* the authors recommend a solution to the aforementioned trust issue by first targeting industries that reduce the complexity of the problem. The authors give the example of the minor industry, in which commercial vehicles operator in generally closed environments of fixed periodic paths. Demonstrating success in one of these commercial industries would improve attitude towards adoption for passenger use.

III. Criticism

A criticism of the *Machine Customer* technology overview is that the report focus is on solving the upcoming issue of trust before mass adoption. I believe the report misses a very obvious example of mass adoption of a *Machine Customer* in route finding map tools. We (as humans) almost exclusively have delegating route finding to machines, and since routes are not a single solution problem and can be impacted by traffic required adjustments, we are already comfortable with the idea of letting the *Machine Customer* make decisions with regard to our time for us. The hesitancy in adoption is in regards to delegating financial maters to the *Machine Customer.* The report does a poor job of distinguishing between the two.

The *Autonomous Vehicles* report treats the problem of autonomous vehicles as each vehicle being the root of an IoT network and the various sensor and processing is self contained within the vehicle itself. This model better recreates how human drivers solves the task, but I believe a better model would be to include a larger local network of many cars all leveraging each others sensor data. This of course will drastically increase data, and force cooperation between vehicle makers but given that report classifies the technology as emerging there is still time to alter the direction of development to support those changes.

IV. References

[1] B. Lheureux D. Kutnick, R. Williams, A. Velosa, and M. Reynolds, "Hype Cycle for Internet of Things 2021" 2021 *Gartner.com, G00747575*