Reliability, single point of failures, fundamental design problems

I would like to point out that many of the current technologies and operational practices are flawed. They are a mine field of single point of failures and there is a fundamental lack of understanding how reliable systems are built with redundancy and failure tolerance.

None of those protocols behind the charging station will help you if the connection from the charging station is not working. If payment processor connection is broken, the session will fail. If the operator's back-end system does not work, the session will fail. The mindset needs to be changed in this respect.

Complexity is a problem, at all levels, complex protocols are a can of worms as more complexity adds possibility to errors and interoperability problems. car-station protocol complexity means that it is not enough to test current cars, but all the old ones as well.

Car lifetimes are long, 20 years+. Simplicity is important as consumers expect that this is true for EVs just like it is true for ICE cafs. if the older vehicles fail due to new change (2012 Nissan Leaf is no more tested with new chargers, with obvious result of many new DC QC not working with them, as an example).

Charging station hardware is lesser problem as evolution will eventually kill manufacturers which have bad track record, and it can be addressed by multiple stations at single site and/or AC charging backs.

This is the reason why we are seeing 20+% failure rates is that in most cases, the system is a house of cards, which collapses if one of the parts fails. A minimum should be that a single point anywhere must not prevent charging. For example, payment processor failure, backoffice connection failure or anything like that must not cause charging failure. None of those things are fault of EV driver, so they must not be problem for EV driver - the may be problem for operator of charging infrastructure, but they are able to solve those problems.

97% reliability is not enough. If that is a single station in the route, that will means that tow trucks will have a field day towing stranded EVs for one day per month. There must be at least independent backup, such as AC charger at the site, and similar arrangements, if multiple DC QCs are not provided.

I am from Europe, but we do have very similar experience. Partially that is because technologies of EV charging are developed globally, and most manufacturers are global as well. I have been following following Californian EV scene for more than 5 years. I would like to continue to participate in this area in future as well.