Highly Automated Driving (HAD) will be commercially available in a near future, yet human factors issues like the influence of driver state can have a critical impact in the success of this driving paradigm and also in road safety. It is very likely that Driver State Monitoring Systems (DSMS) will play a bigger role than they have played so far. However with this new driving paradigm shift is important to select highlight what is transferable from the previous systems. Due to lack of driving task engagement, driving performance metrics are no longer viable, creating opportunities for other approaches like detecting non-driving task engagement or fatigue countering behaviours. Eye based metrics will remain important.