At the dawn of the new decade, the long-awaited reinvention of the display technology is gradually being introduced to the mass market. Touch enabled flexible devices, such as smartphones, rollable displays and interactive whiteboards are only few of the examples that came to fruition recently, paving the way for a plethora of new concepts and applications. However, this design diversity is introducing significant challenges in the manufacturing of critical components, such as the capacitive touch sensor. Abstract shapes need to be efficiently implemented at a low cost and with minimum alterations to the equipment involved.

Additive and subtractive manufacturing (A&SM) is currently reinventing the way we fabricate our electronic devices. Solution-based materials deposition and laser processing by, for example: ablation, modification, sintering or material transfer are rather complementary techniques as they are implemented on very similar machine platforms. In addition, they are compatible with high-speed sheet to sheet or roll-to-roll processing, if necessary, in controlled environments (cleanroom, low H2O, low O2). By combining these processes, new concepts can be realised in a less wasteful and, more cost-effective way than ever before. By employing the benefits of A&SM, M-Solv recently developed a series of patented approaches covering the complete manufacturing cycle of arbitrary sized and shaped flexible touch sensors.

In this talk, two of the recently developed technologies called “One Step Metallisation” (OSM) and “One Step Jumpers (OSJ), will be discussed. Case studies from both small prototypes to full scale production lines will be presented.