

In consultation with the Dutch cable sector, TNO has developed a computational method and attendant software, UTOPIC, that allows cable companies to more accurately determine the transmission capacity of their network. This improves operations, thereby helping a company avoid unnecessary investments in expanding the capacity of the network.

In recent years, cable companies have been continually upgrading their networks to be able to offer customers new services. But the methods for calculating the transmission capacity of a network date from the time of analogue TV and radio, when signal transmission was entirely electrical. Since then, of course, the supply of services on offer has grown tremendously to include internet access, digital television and digital telephony. Moreover, in many networks, electrical transmission has been largely replaced by optical transmission.

#### New paradigm

Capacity is scarce, so we need a new method for obtaining a more accurate reading of available capacity in relation to the distribution of services, one that will last into the future. As Bram van den Ende of TNO Information and Communication Technology explains, 'The basis for this was already laid out in the nineties, when the cable companies sector association VECAI asked us to start thinking about these issues. The engineers had to create space for extra services and thus needed a reliable instrument for planning their network at the transmission level: how many digital channels can we add for internet, without compromising the quality of TV and radio?'

To calculate this, the experts at TNO searched for, and found, an entirely new paradigm. They then investigated whether this could be used for cable networks, which involved developing software and taking measurements. All of these efforts resulted in the establishment of a new method, with the attendant tool. Van den Ende's colleague, William de Waard adds, 'UTOPIC is now so advanced that it is being used for the operations of several companies that were closely involved in the original project. If

Photo: Meyer Boesem/Hollandse



## INTERNATIONAL INTEREST IN UTOPIC

# TNO methodology gets the most out of cable networks

it turns out that you don't have to invest in expanding your network because there is still some stretch in it, that can save you a great deal of money.'

#### New vision

Job Wehrmeijer, director of Technology and Standardisation at VECAI has this to say: 'Cable companies are supplying more and more high-quality services over a single network. So it is very important that they know exactly what their capacity limit is. The calculation method and software developed by TNO allow them to determine this. This calculation method is groundbreaking. And with UTOPIC, a cable company can optimise its network, which increases the usable capacity and allows them to postpone investments.'

The new TNO methodology has naturally attracted the interest of foreign companies. TNO experts were invited to CENELEC (a European standards institute) and there has been contact with the ECCA (European Cable Communications Association), in which all of the major European cable companies and associations like VECAI are members. 'If we can also convince the cable companies beyond our borders of how useful UTOPIC is, then that could result in a whole new vision in Europe of the digitisation of cable at the transmission level,' De Waard points out.

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