High-Capacity Transmission Using High-Density Multicore Fiber

There have been intense research activities on SDM technologies including SDM fibers, MC-, MM-amplifiers, DEMUXs/DEMUXs with record-breaking transmission demonstrations up to 2 Pbit/s. 100 (20 dB) SDM gain, i.e. 10 Pbit/s per fiber will be a short-term goal in order for the new fibers to be considered for installation in the future systems although the far long term demand should be transporting 1 Ebit/s per fiber over 1000 km meaning Zbit/s-km. Cost effective network capability such as ADM and XC should also be investigated based on the new SDM schemes. In the 10-20 years time frame, we need to be prepared for providing more than 10 Tbit/s up to 1 Pbit/s per user. Integration is certainly what makes SDM viable to achieve reduction in cost per bit, energy per bit, and space per bit.