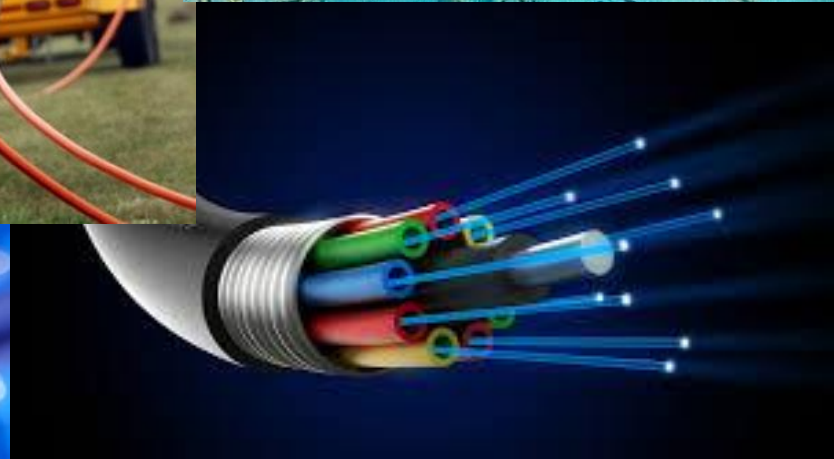
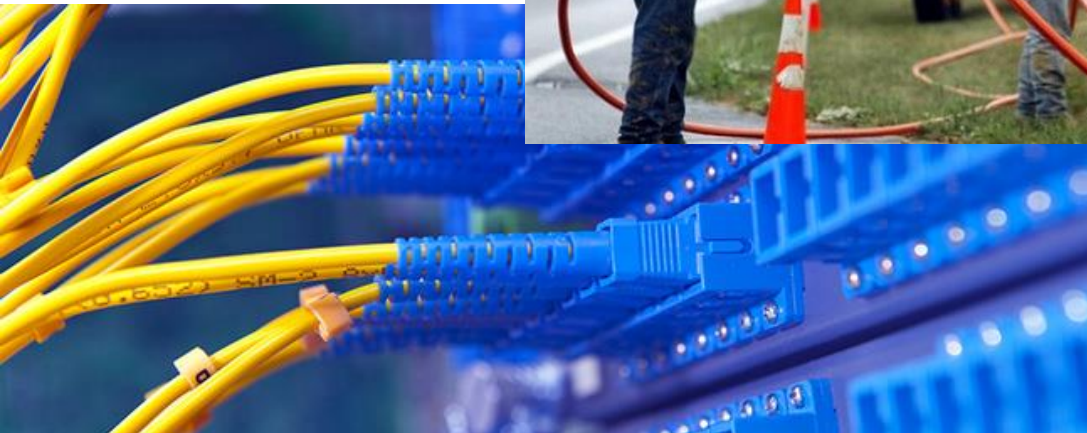




PENDAHULUAN

- Konsep Siskom Optik
- Perkembangan SKSO
- Perbandingan SKSO dengan yang lain

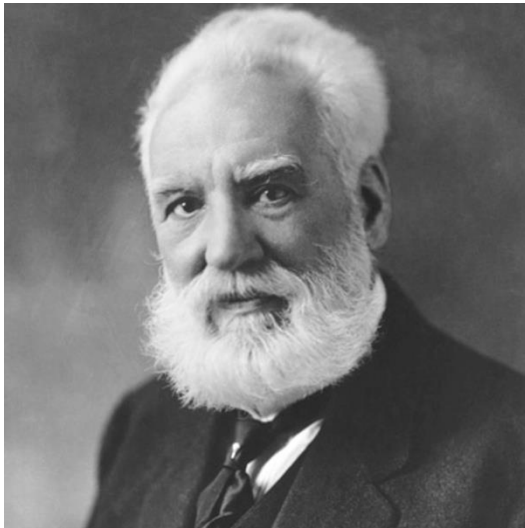




Referensi

- Keiser, Gerd; Optical Fiber Communications, Mc Graw-Hill International
- Photonic, Optical Fiber Communication

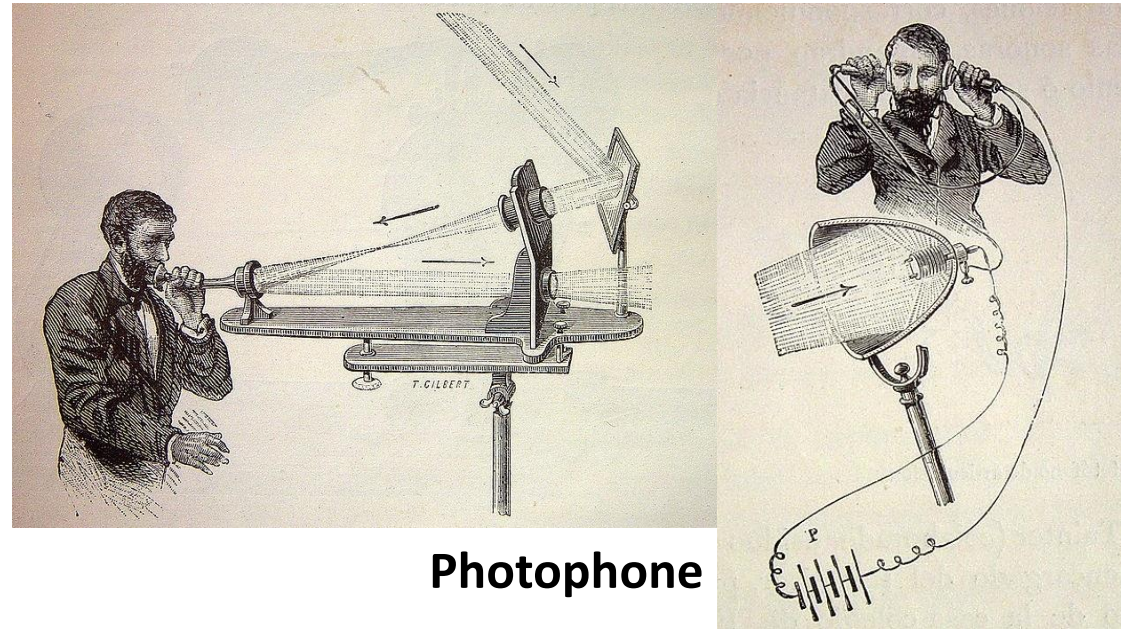
Konsep Siskom Optik



1880

**Alexander
Graham Bell**

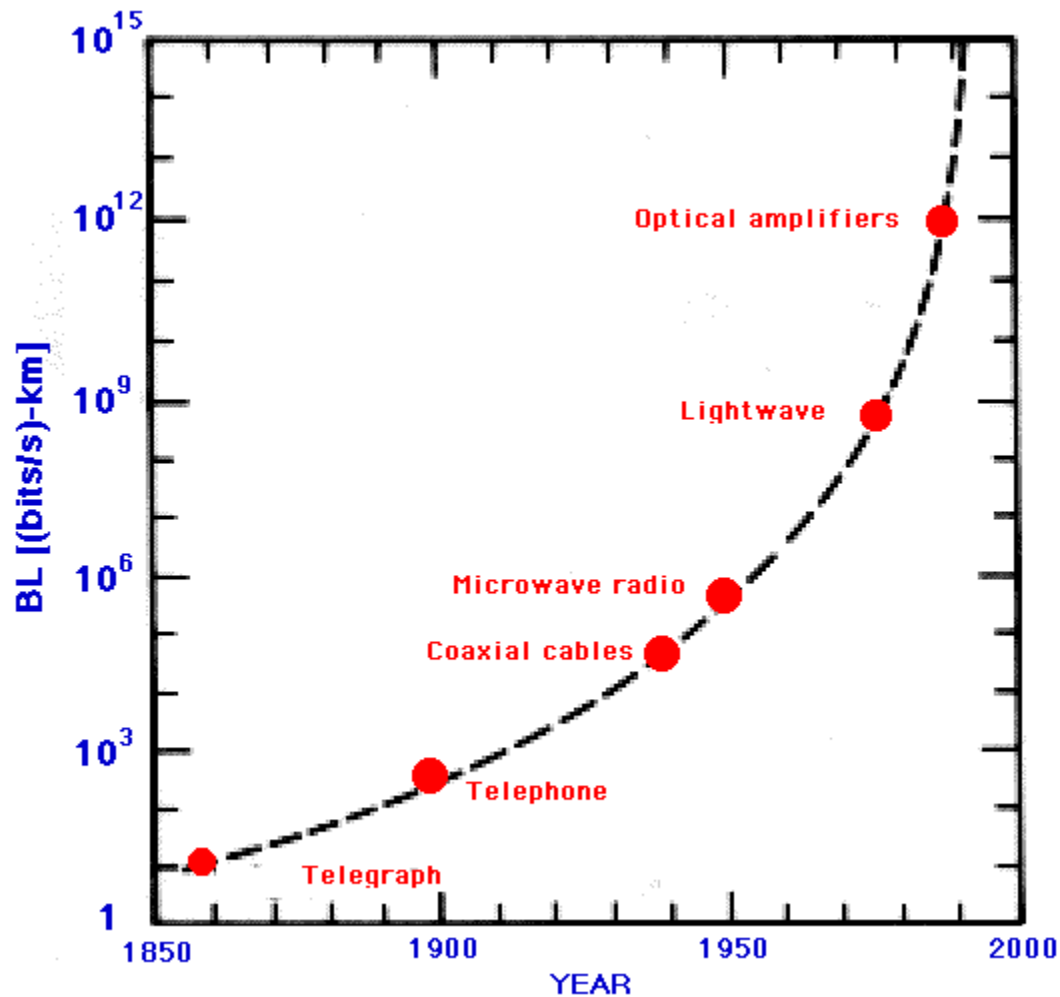
Alexander Graham Bell in 1880 reported the transmission of speech over 200 meter by modulating sunlight with a reflecting diaphragm ("photophone")



Photophone

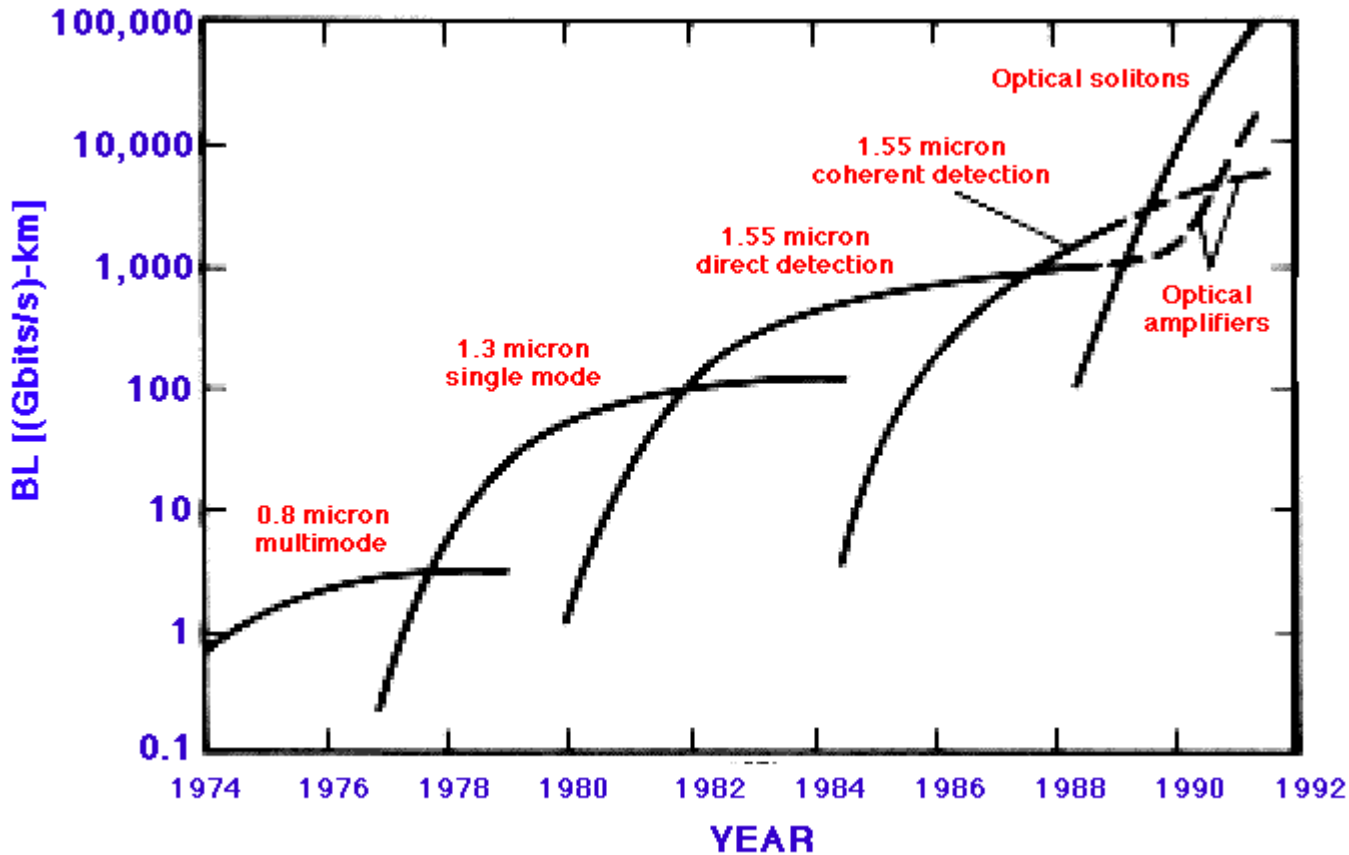
To avoid the degradation of optical signals in the atmosphere, [Kao](#) and Hockman in England (and simultaneously Wirt in France) in 1966 suggested the use of dielectric wave guides or optical fibers.

Perkembangan Siskom Optik



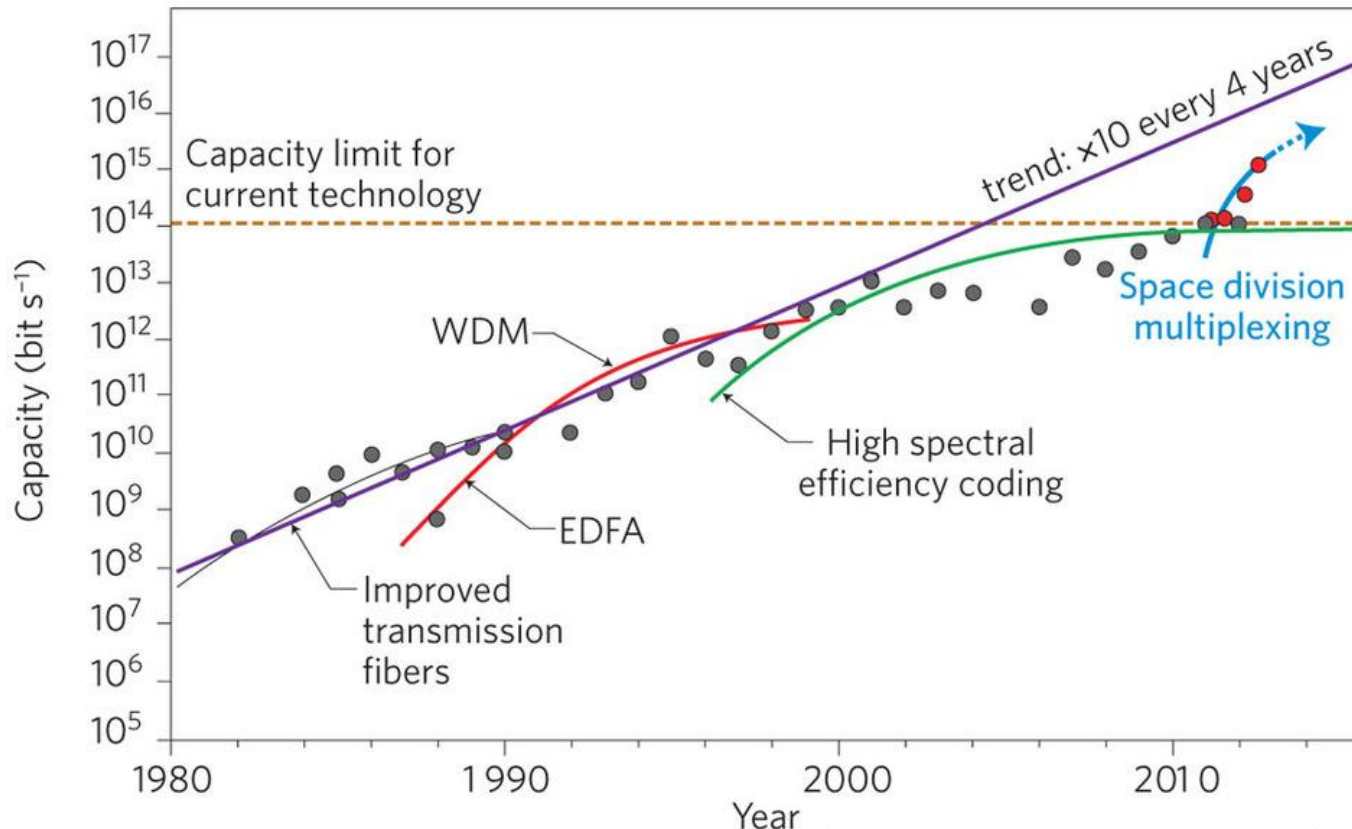
The emergence of a new technology is marked by a filled circle – after Govind P. Agrawal.

Perkembangan Siskom Optik



Different curves show the increase in the bit rate-distance product for five generations of fiber-optic communication systems - after Govind P. Agrawal.

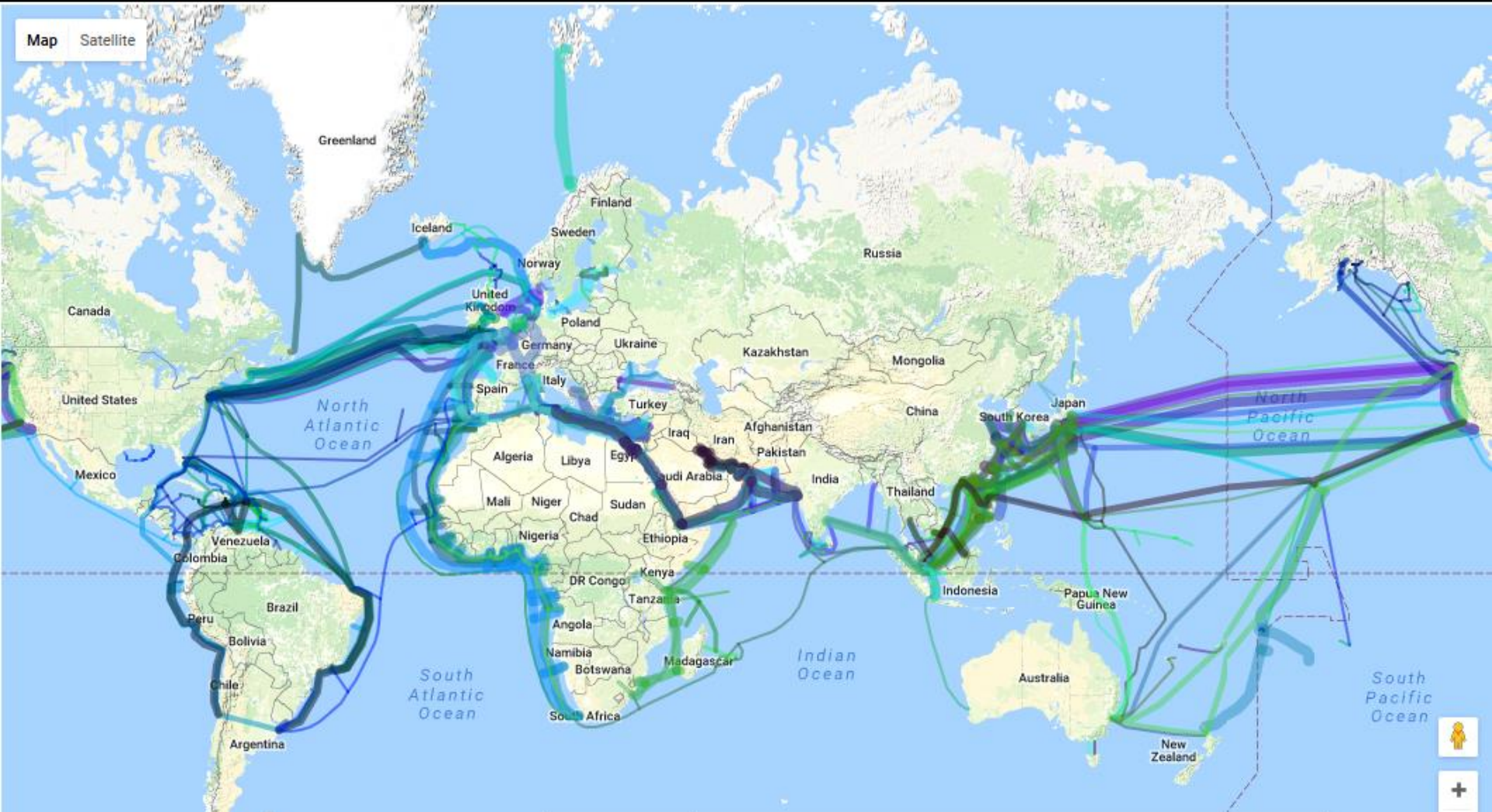
Perkembangan Siskom Optik



Published online
29 April 2013

The data points represent the highest capacity transmission numbers (all transmission distances considered) reported at the postdeadline sessions of the annual Optical Fiber Communications Conference over the period 1982 to the present. The transmission capacity of a single fibre increases by a factor of approximately 10 every four years. Key previous technological breakthroughs include the development of low-loss SMFs, the EDFA, WDM and high-spectral-efficiency coding through DSP-enabled coherent transmission. The data points for SDM also include results from the postdeadline session of the annual European Conference on Optical Communications in 2011 and 2012. SDM seems poised to provide the next big jump in transmission capacity.

Submarine Optical Fiber Cables

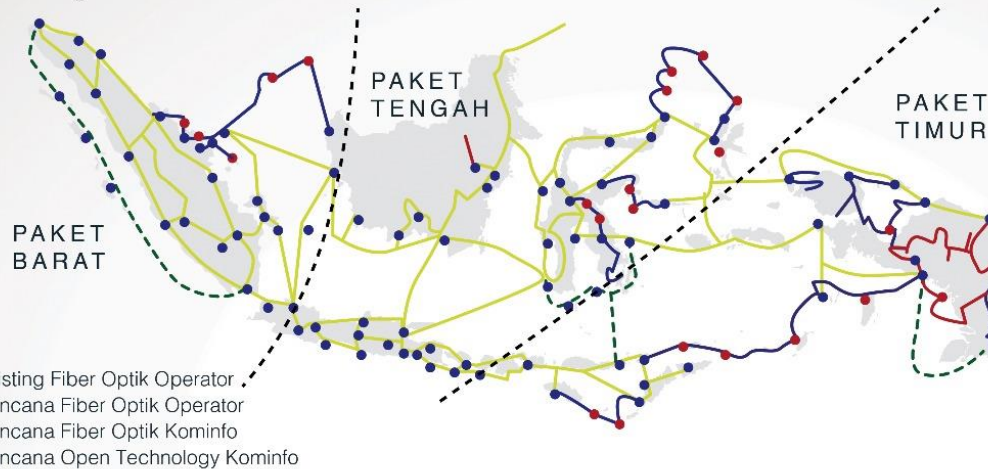


Updated 2016

Source: <http://www.cablemap.info/>

Palapa Ring Menyatukan Indonesia

#PalapaRing



"Bangsa unggul adalah Bangsa yang mengerti kehendaknya zaman".

Soekarno

Perkembangan Teknologi Informasi adalah keniscayaan. Indonesia harus hadir sebagai pemain industri masa depan ini. Palapa Ring, salah satu pilar perwujudan "Kedaulatan Negara" dan "Ketahanan Nasional" dalam bidang TIK.

Dalam menuju Indonesia Berdikari Teknologi, kita butuh infrastruktur telekomunikasi yang berkapasitas besar dan terpadu. Tidak semata untuk kenyamanan berkomunikasi, tapi pengembangan potensi ekonomi.

400 lebih kurang saat ini sudah dijangkau jaringan serat optic.
kabupaten/ kota

Target 2018

457 dibangun oleh operator,
kabupaten/ kota

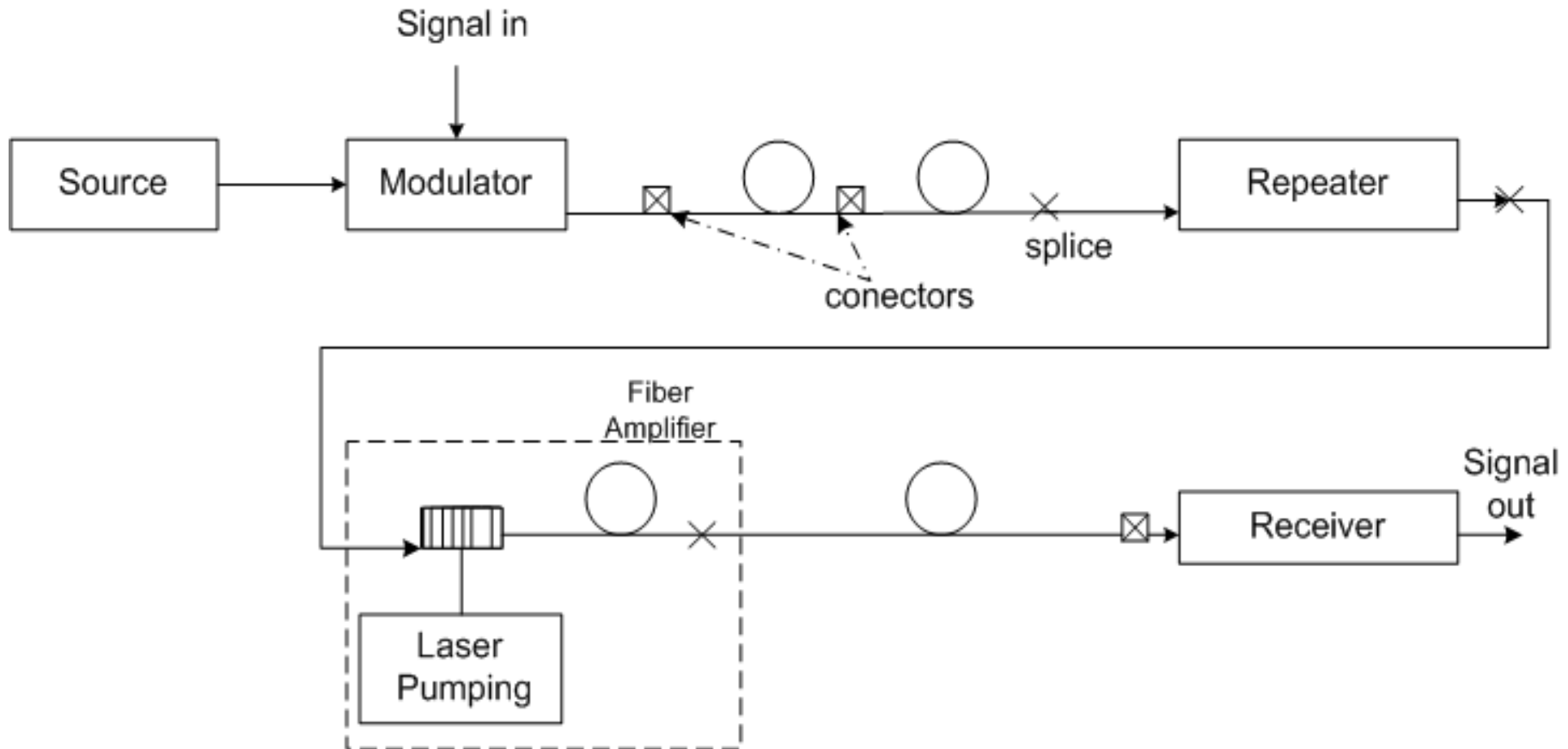
57 tidak layak finansial dibangun oleh pemerintah.
kabupaten/ kota

Target 2019

seluruh kabupaten/ kota terhubung jaringan serat optik.



DIAGRAM BLOK SISKOM OPTIK





KOMPONEN SISKOM OPTIK

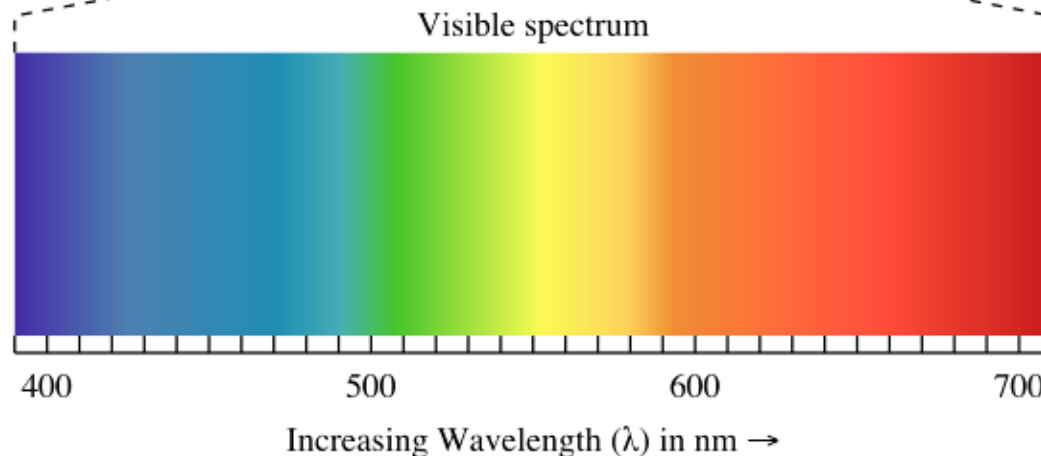
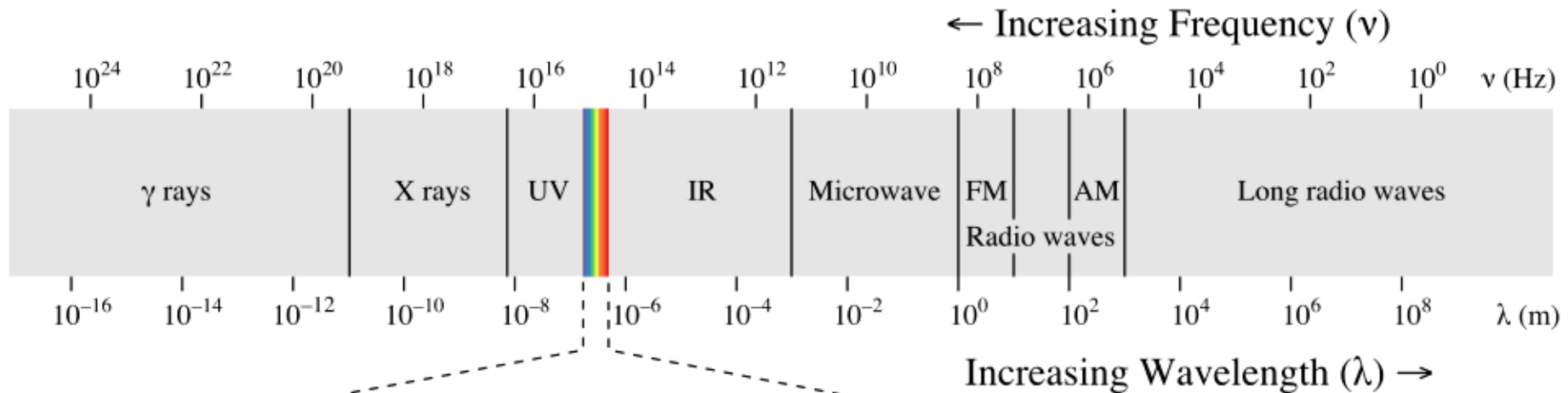
- **Optical source**
Semiconductor laser or LED
- **Modulator**
Direct modulated source or external modulator
- **Conector/Splicer**
Join fiber lengths
- **Repeater**
Electronically detect and regenerate signal
- **Optical amplifier**
Amplify signal power
- **Optical receiver (detector, preamp, logic circuits)**
Recover transmitted signal



BEBERAPA PERTIMBANGAN PENTING

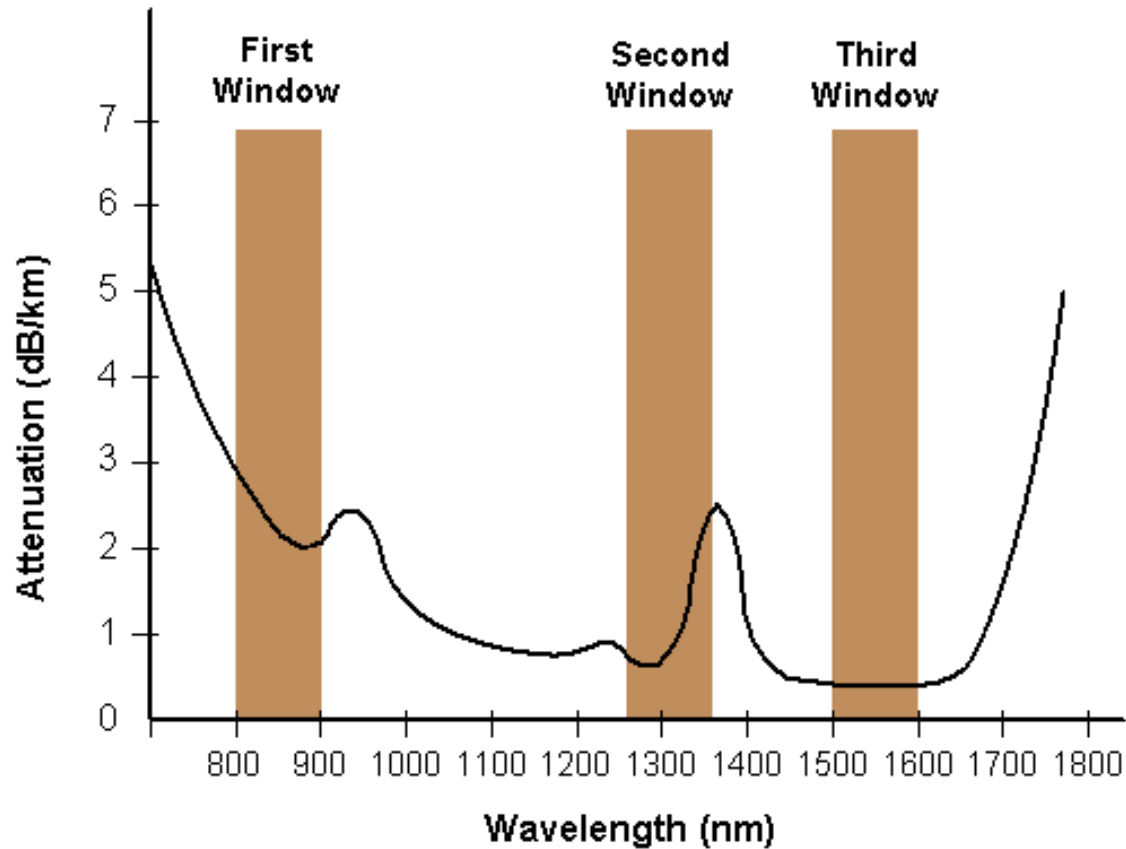
- Signal
 - Analog or Digital
 - Source
 - LED or Laser
 - Modulation Format
 - Cost, reability, output power level
 - Temperature stability
 - Detector
 - Detector material (wavelength)
 - Sensitivity
 - Cost
 - Temperature stability
 - Fiber
 - Attenuation
 - Dispersion
 - Bandwidth (singlemode/multimode)
 - Distance
 - Cable strenght, size, wieght
 - Conector/ Splicer
 - Splices or conectors
 - Splices under operating conditions
 - Keep out water or gases
- Etc.....

SPEKTRUM FREKUENSI OPTIK



Optik adalah gelombang elektromagnetik dengan frekuensi yang tinggi [ordenya 10^{14} Hz]

WINDOW SISKOM OPTIK



Window Optik: range frekuensi optik yang memiliki redaman serat optik rendah, range frekuensi inilah yang digunakan sebagai carrier



KENAPA MEMILIH FIBER

- Wide Bandwidth
- Lower cost than cooper
- Light weigth and low volume
- Immunity from Electromagnetic Interference
- Elimination of sparking
- Compatibility with modern solid state devides



Selesai