

TEE 843 – Sistem Telekomunikasi

Review and Summary



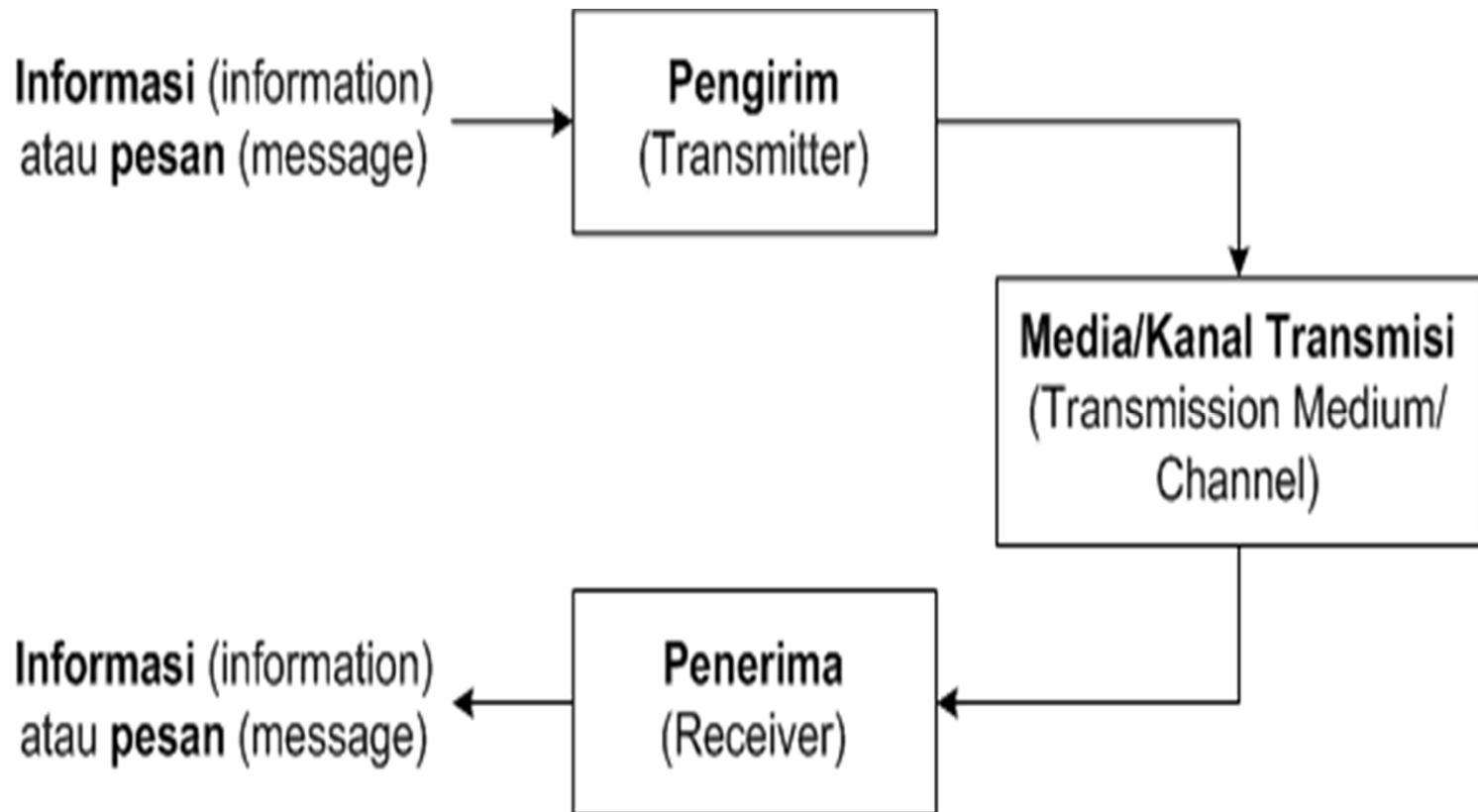
universitas
MALIKUSSALEH

Muhammad Daud Nurdin

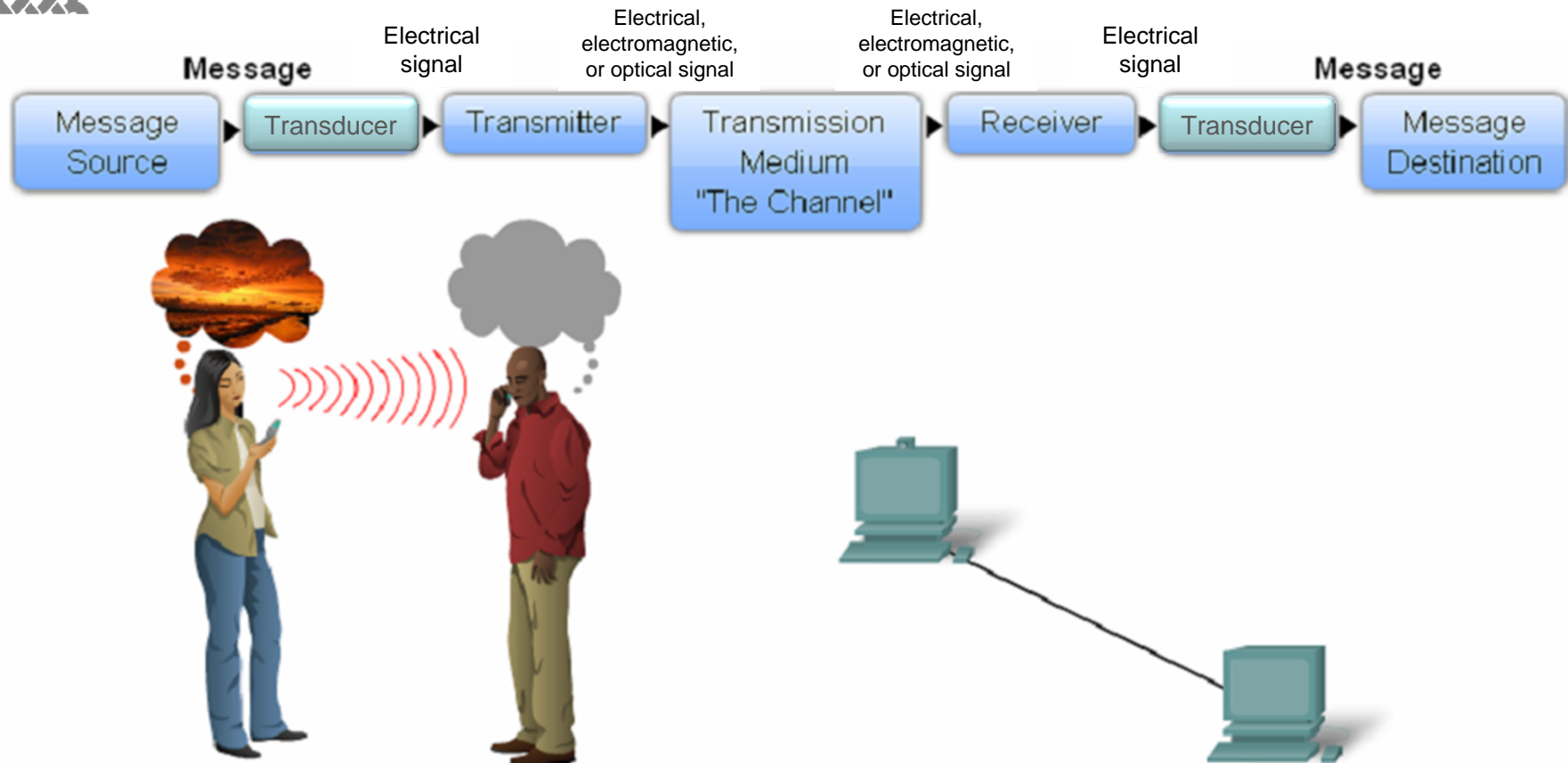
mdaud@unimal.ac.id, syechdaud@yahoo.com

**Jurusan Teknik Elektro FT-Unimal
Lhokseumawe, 2018**

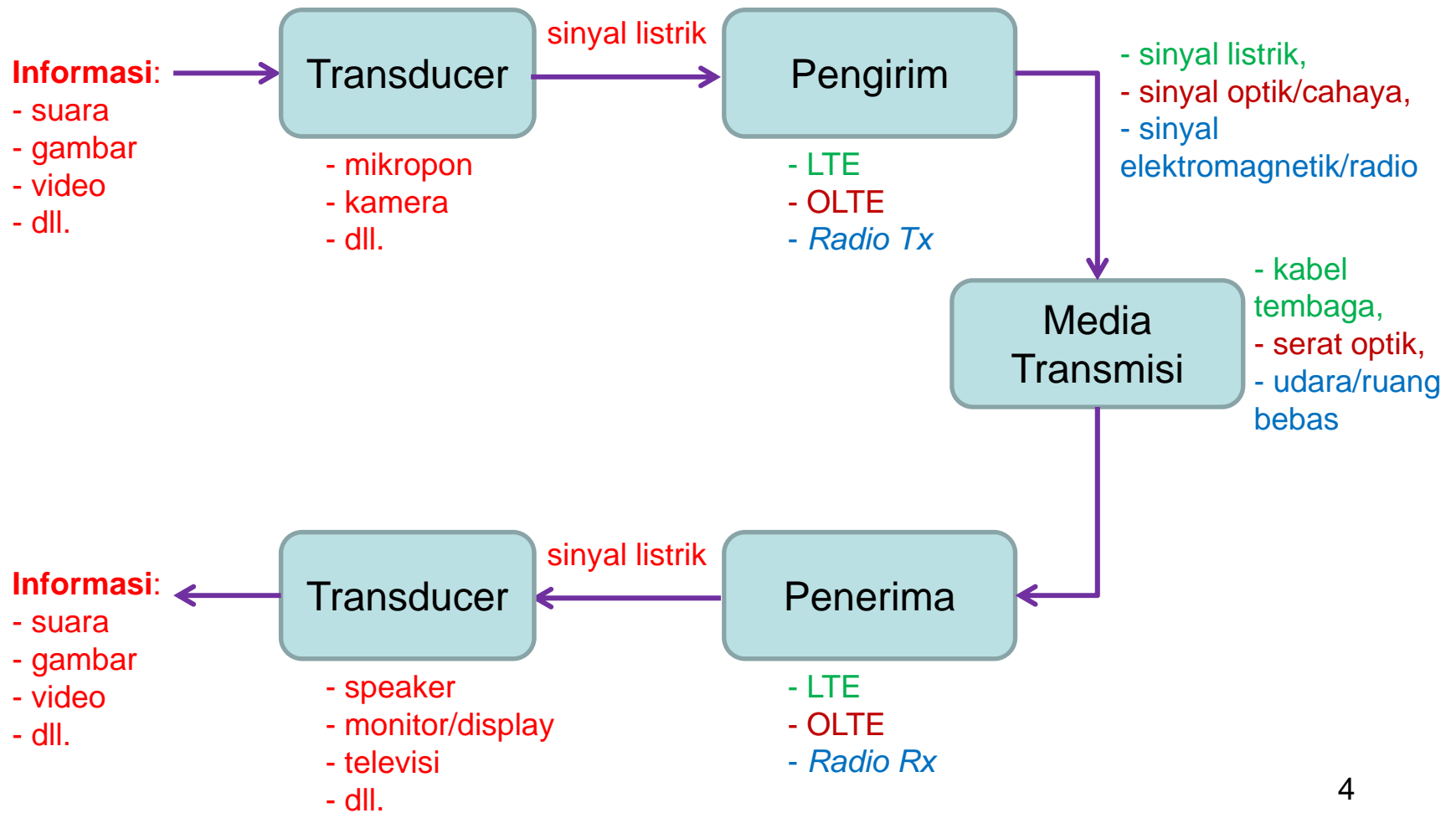
Sistem Telekomunikasi



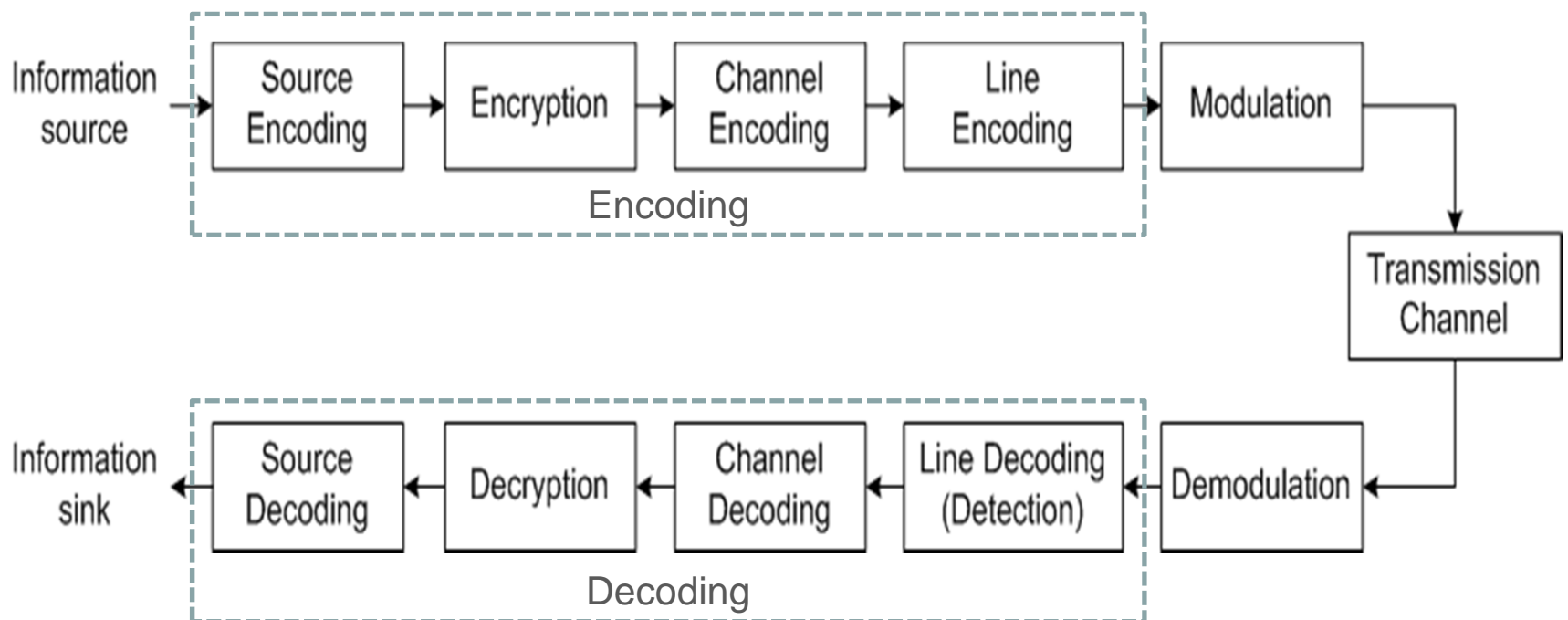
Sistem Telekomunikasi (2)



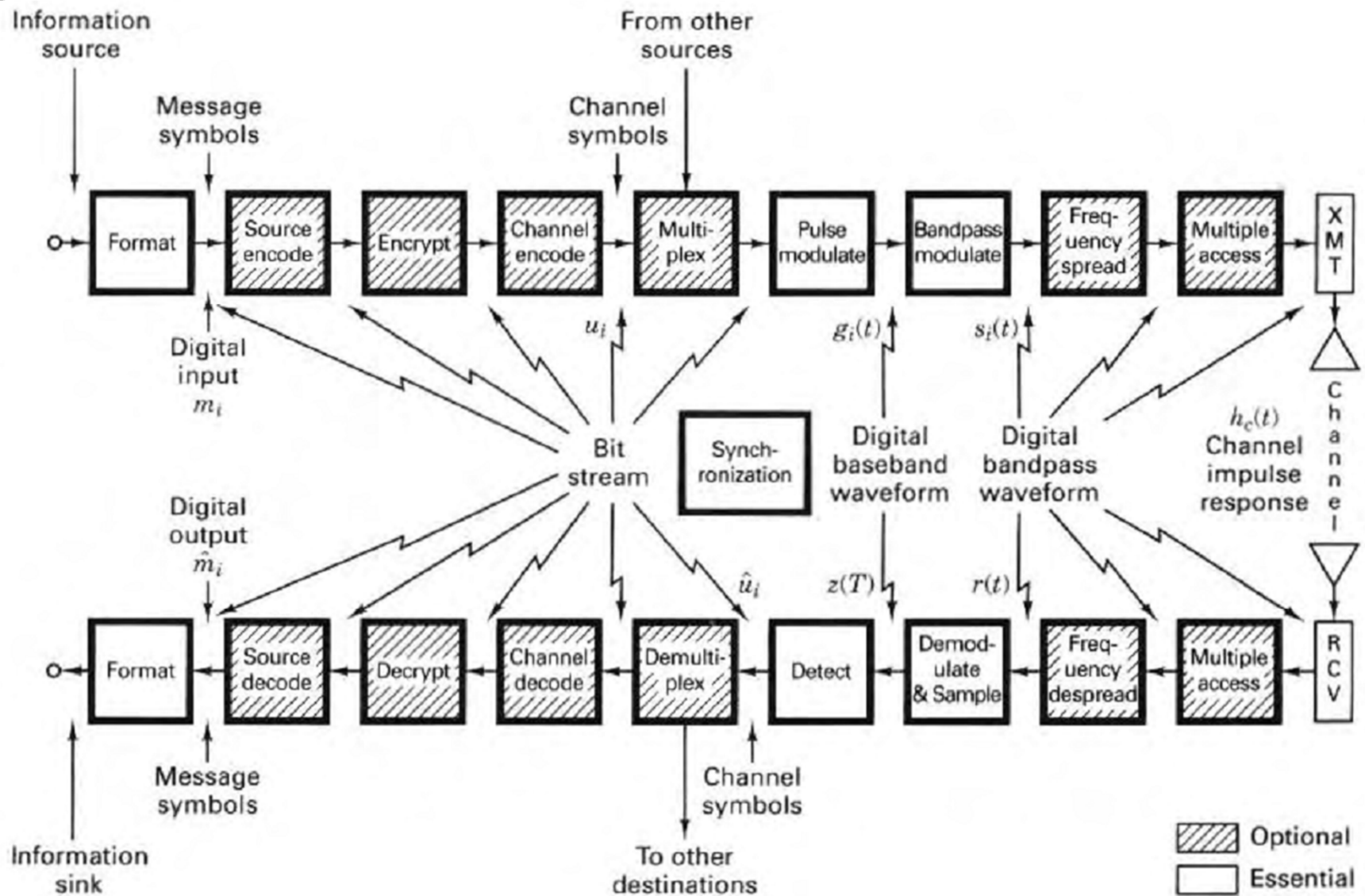
Sistem Telekomunikasi (3)



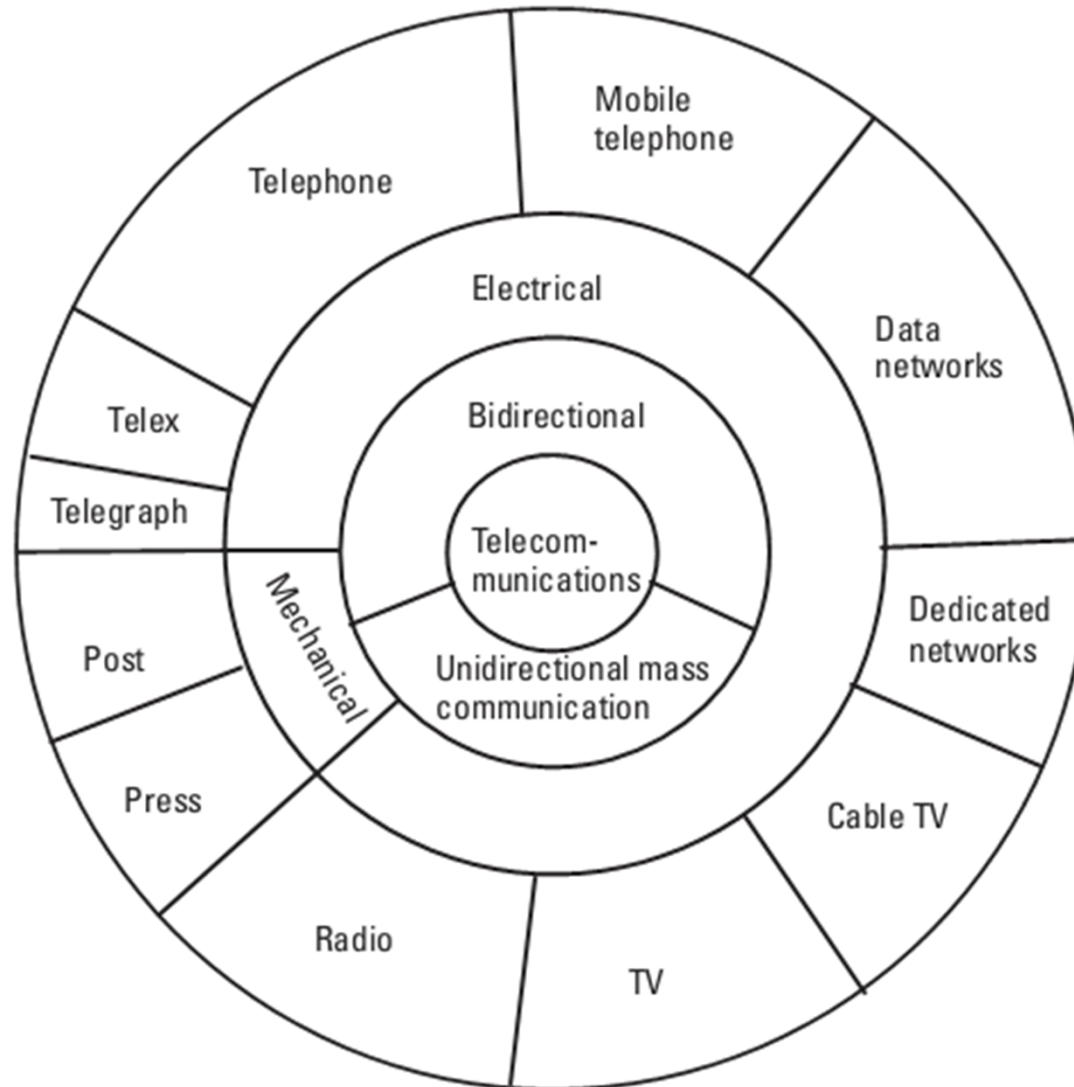
Sistem Telekomunikasi Digital (1)



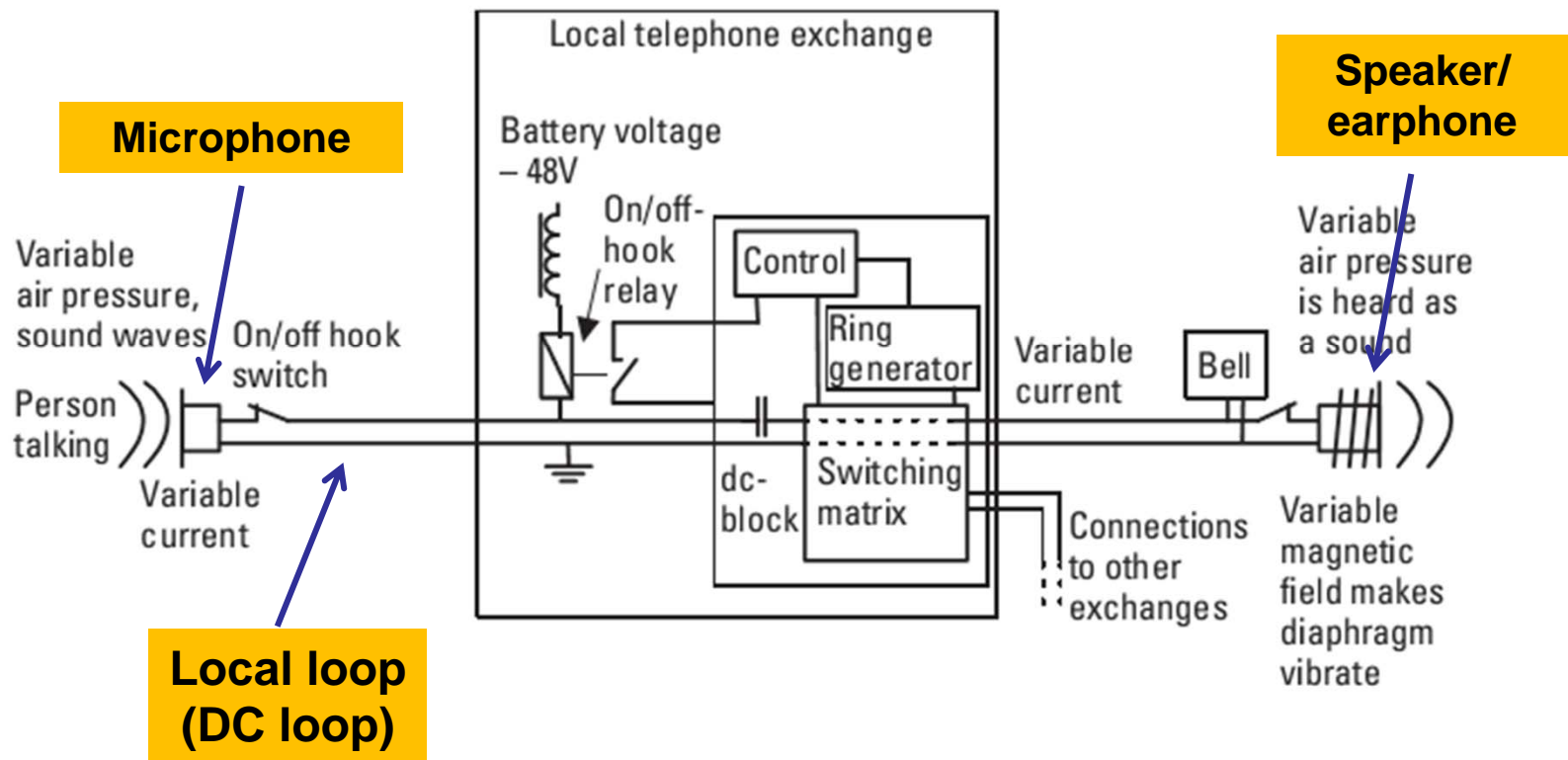
Sistem Telekomunikasi Digital (2)



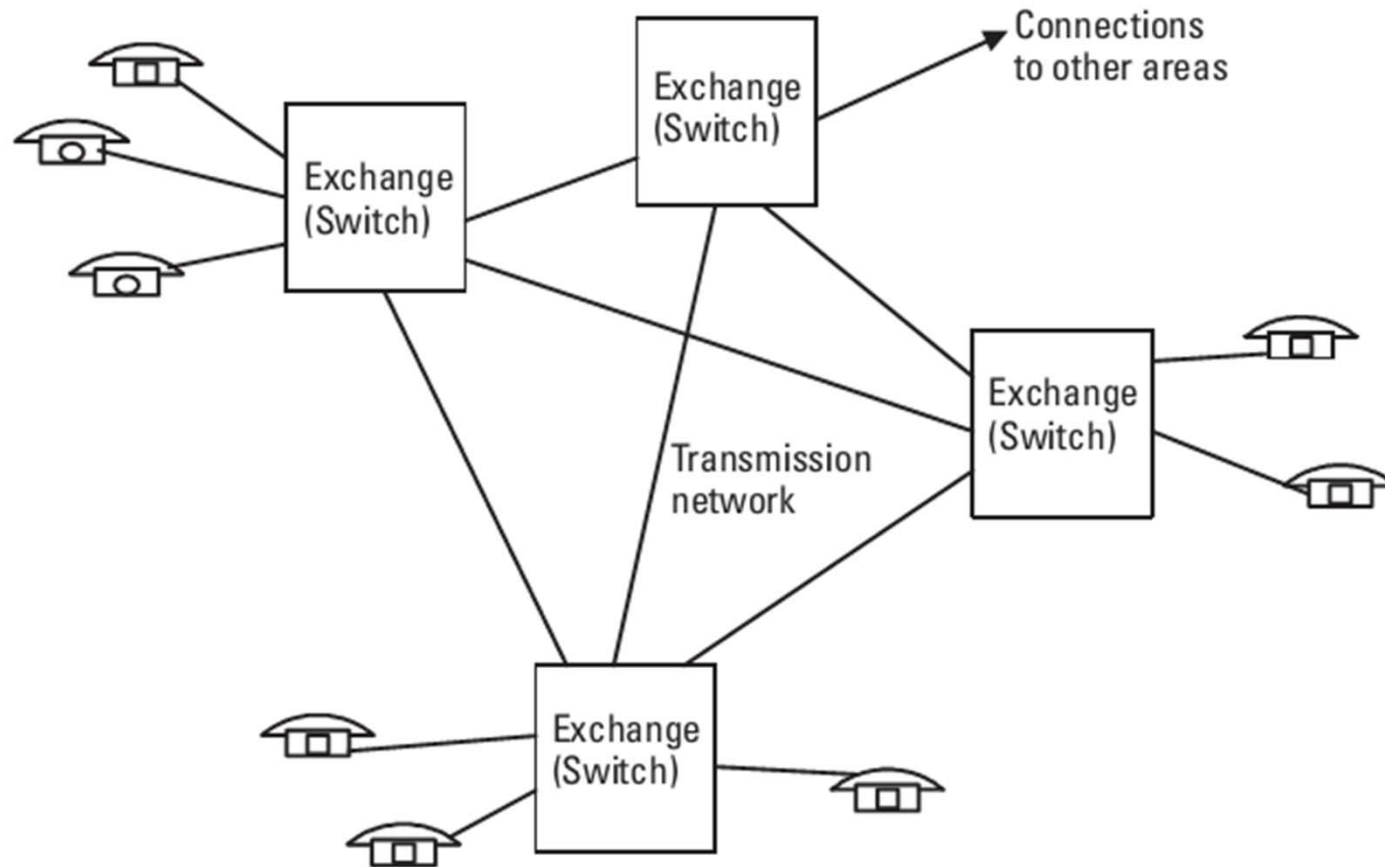
Macam-macam Sistem Telekomunikasi



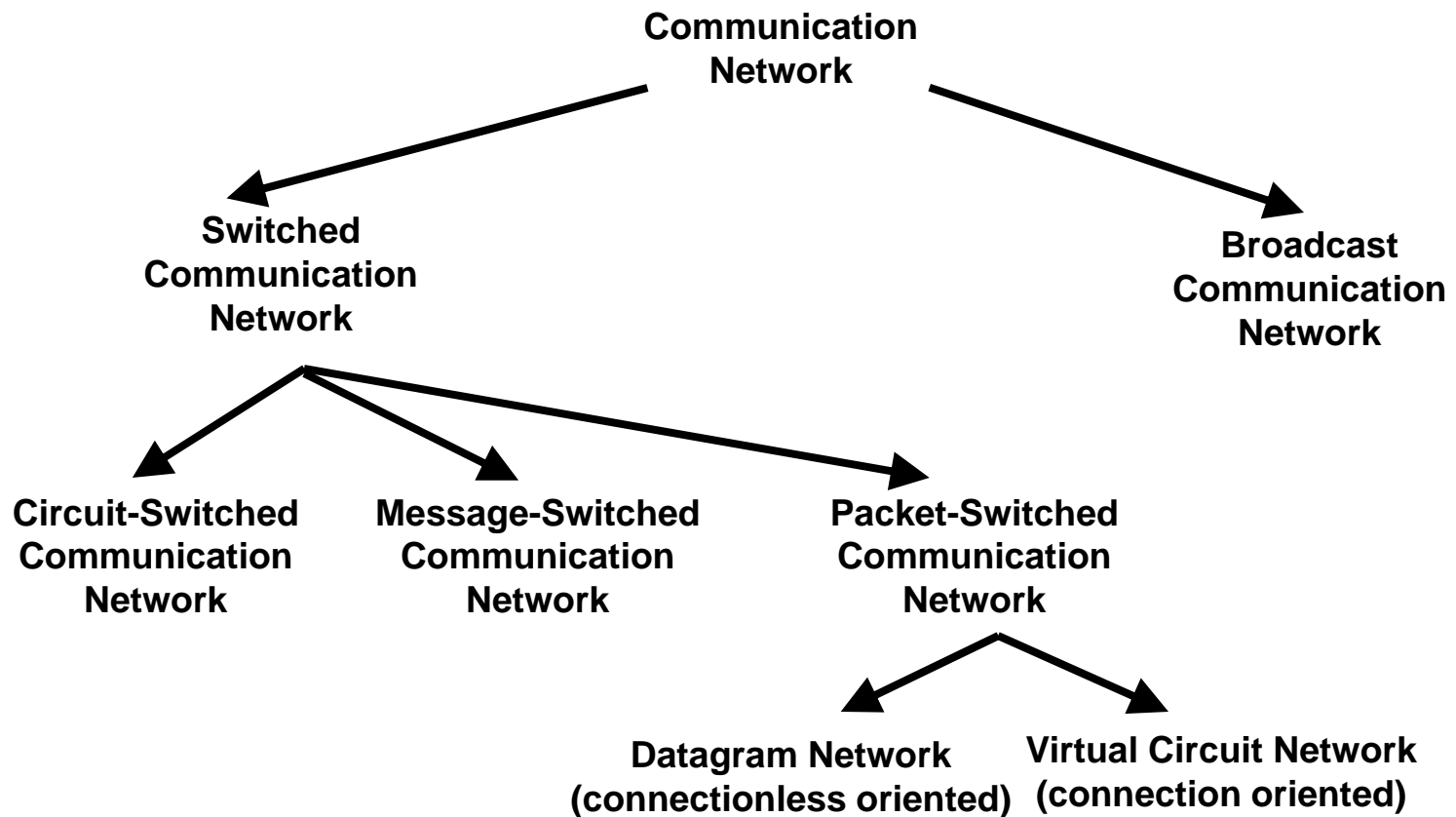
Sistem Komunikasi Telepon



Sistem Komunikasi Telepon (2)



Jaringan Telekomunikasi



Jaringan Telekomunikasi (2)

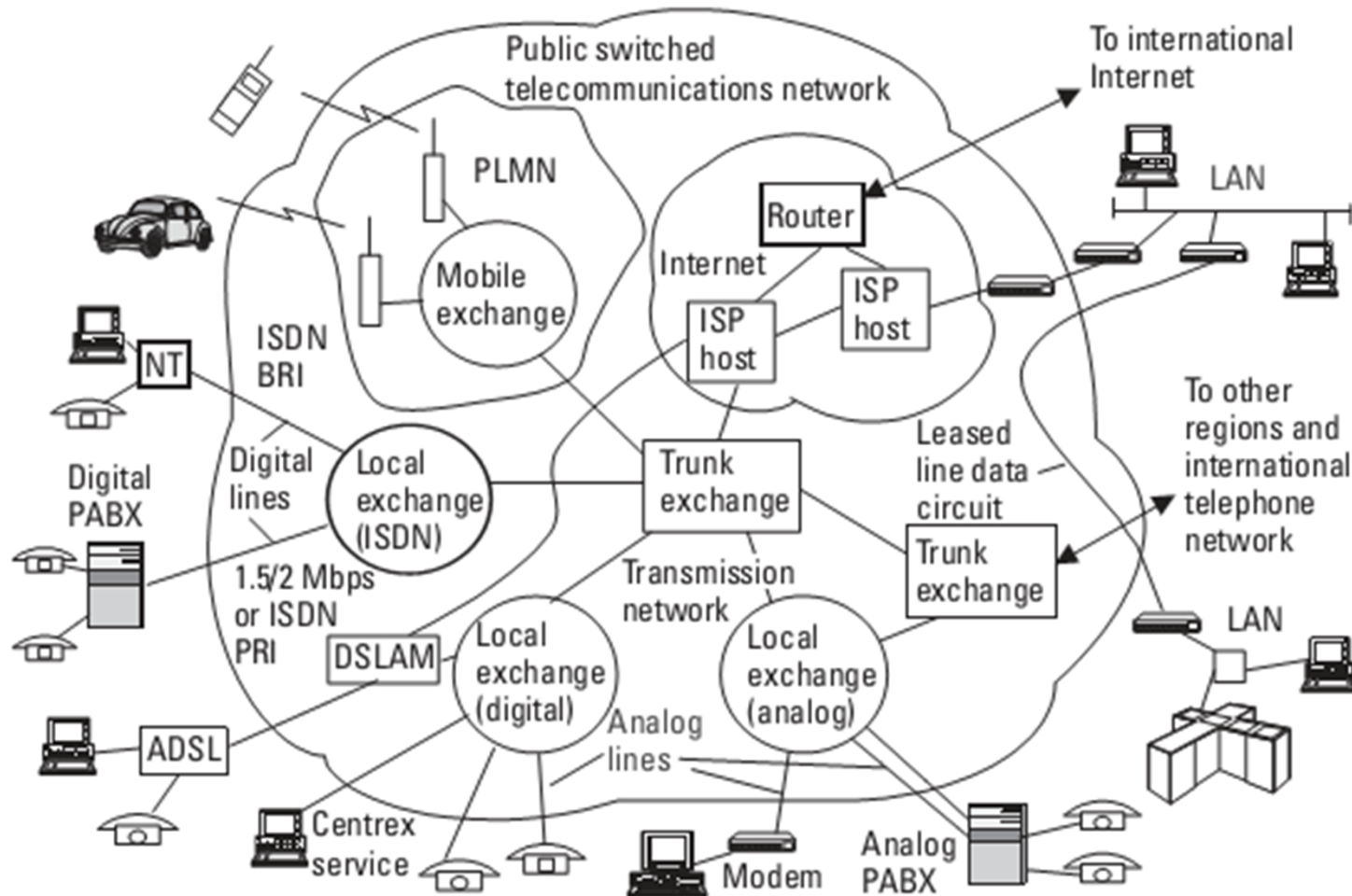
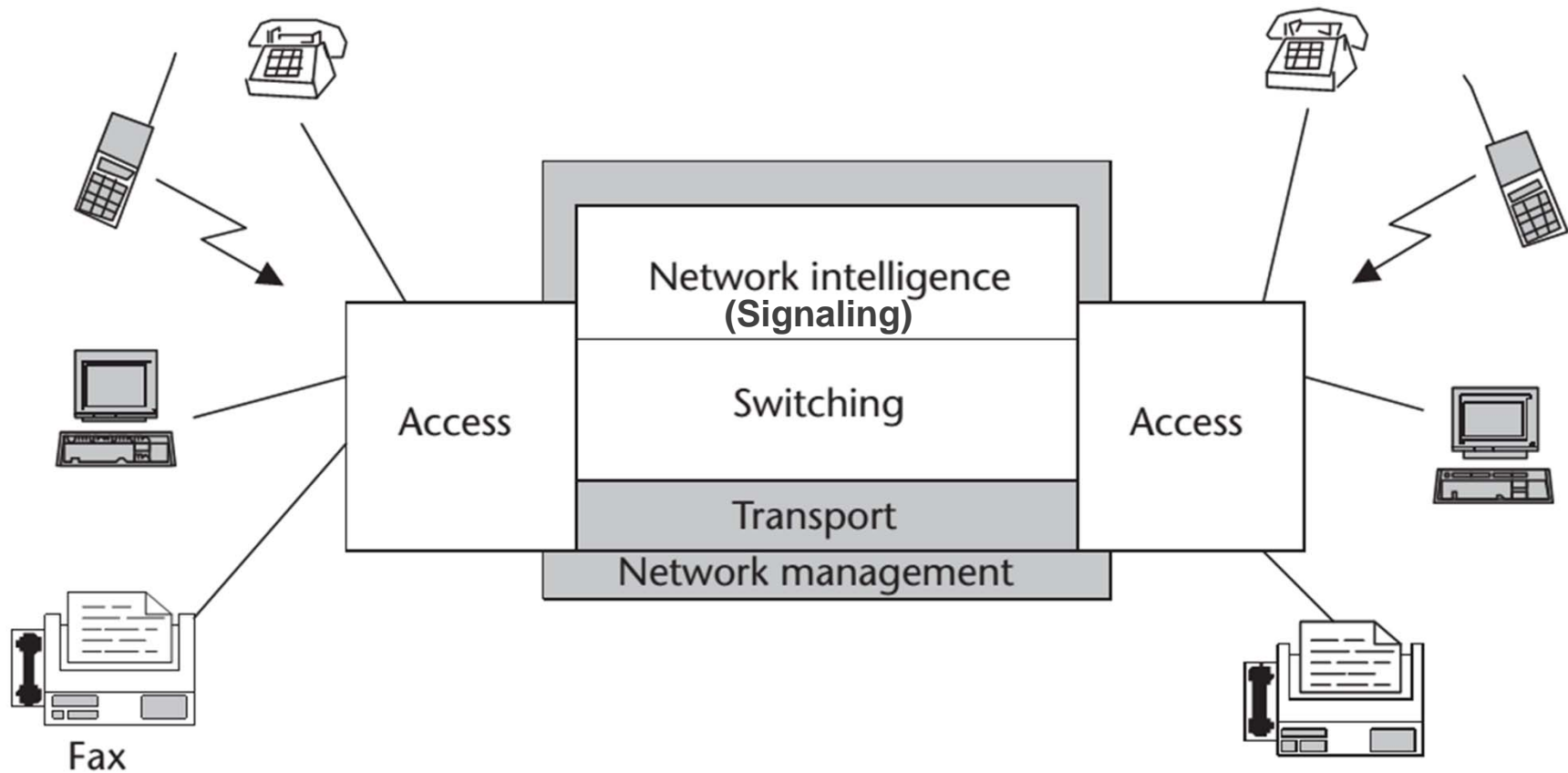


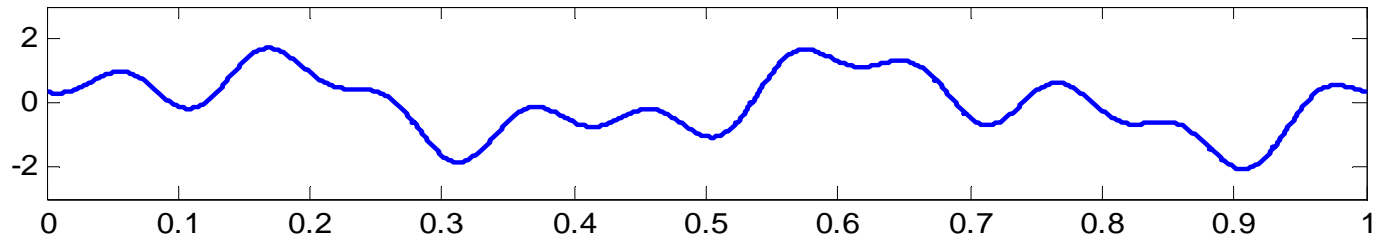
Figure 2.20 Overview of the public switched telecommunications network.

Jaringan Telekomunikasi (3)

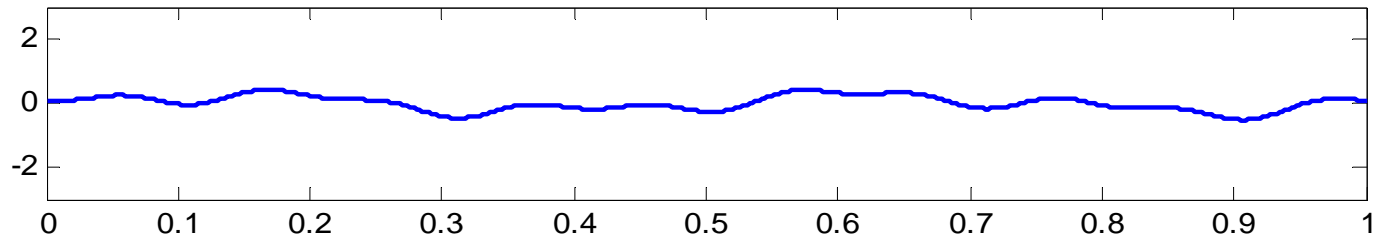


Sinyal Komunikasi; Analog

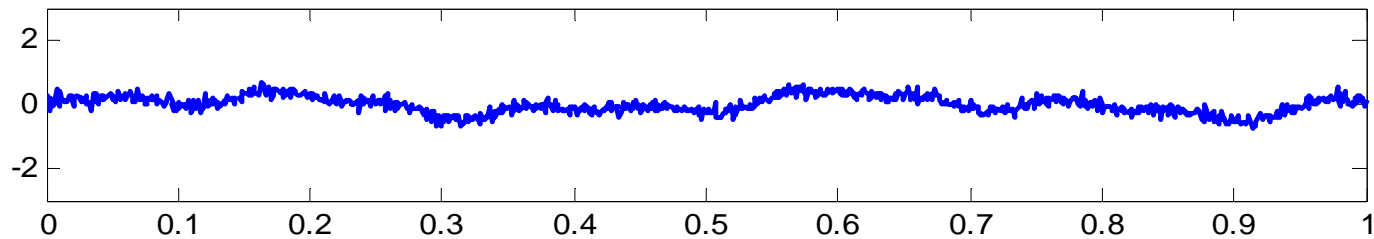
Sinyal yg dikirimkan



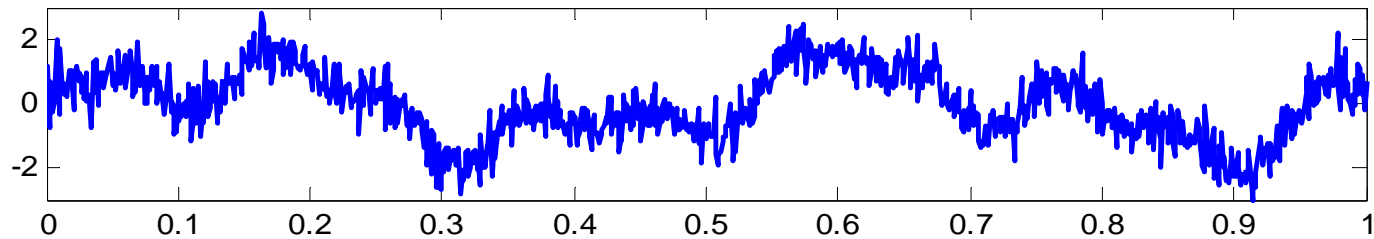
Sinyal yg mengalami redaman



Sinyal yg teredam mengandung noise

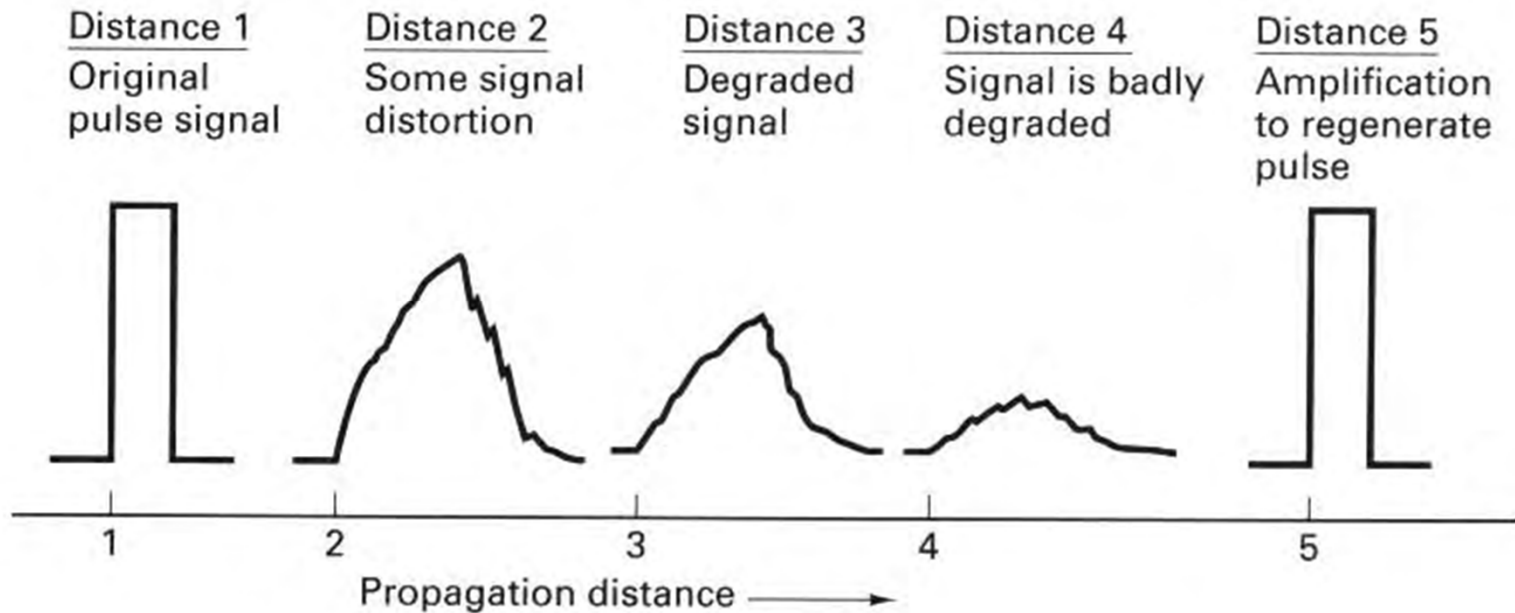


Sinyal setelah diperkuat di penerima



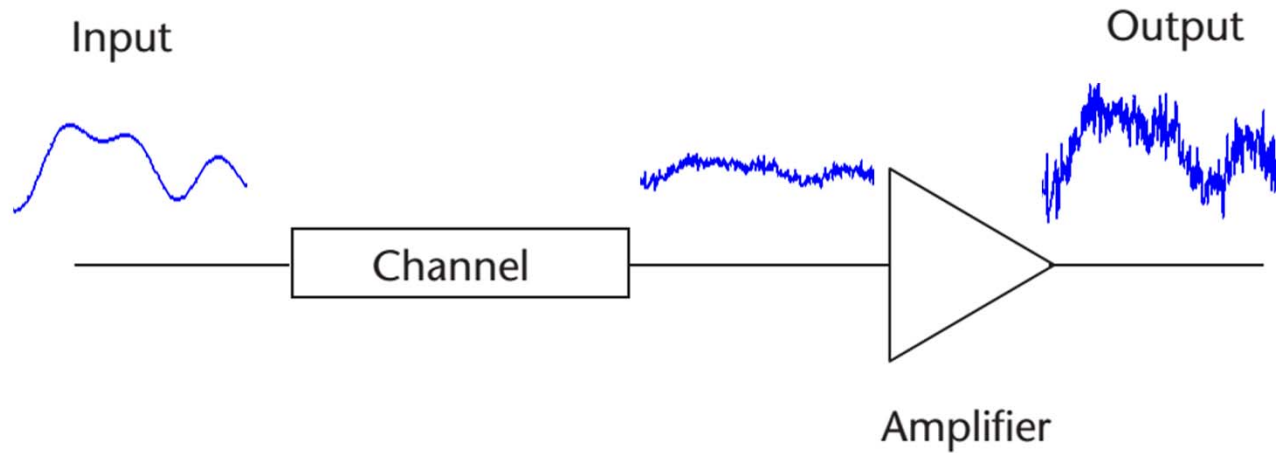
Sinyal Komunikasi; Digital

- Digital pulse degradation and regeneration

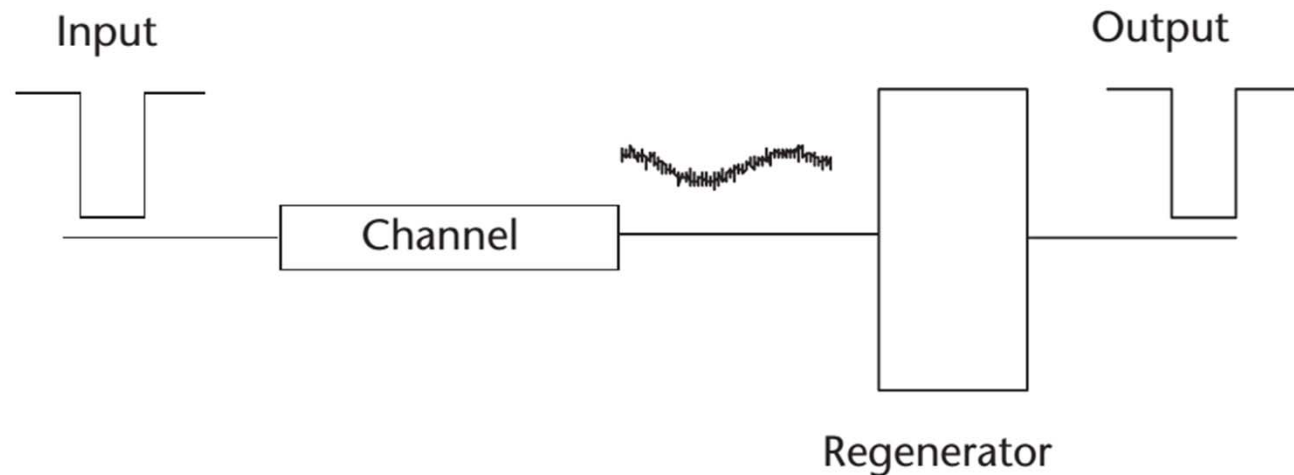


Transmisi Analog vs. Transmisi Digital

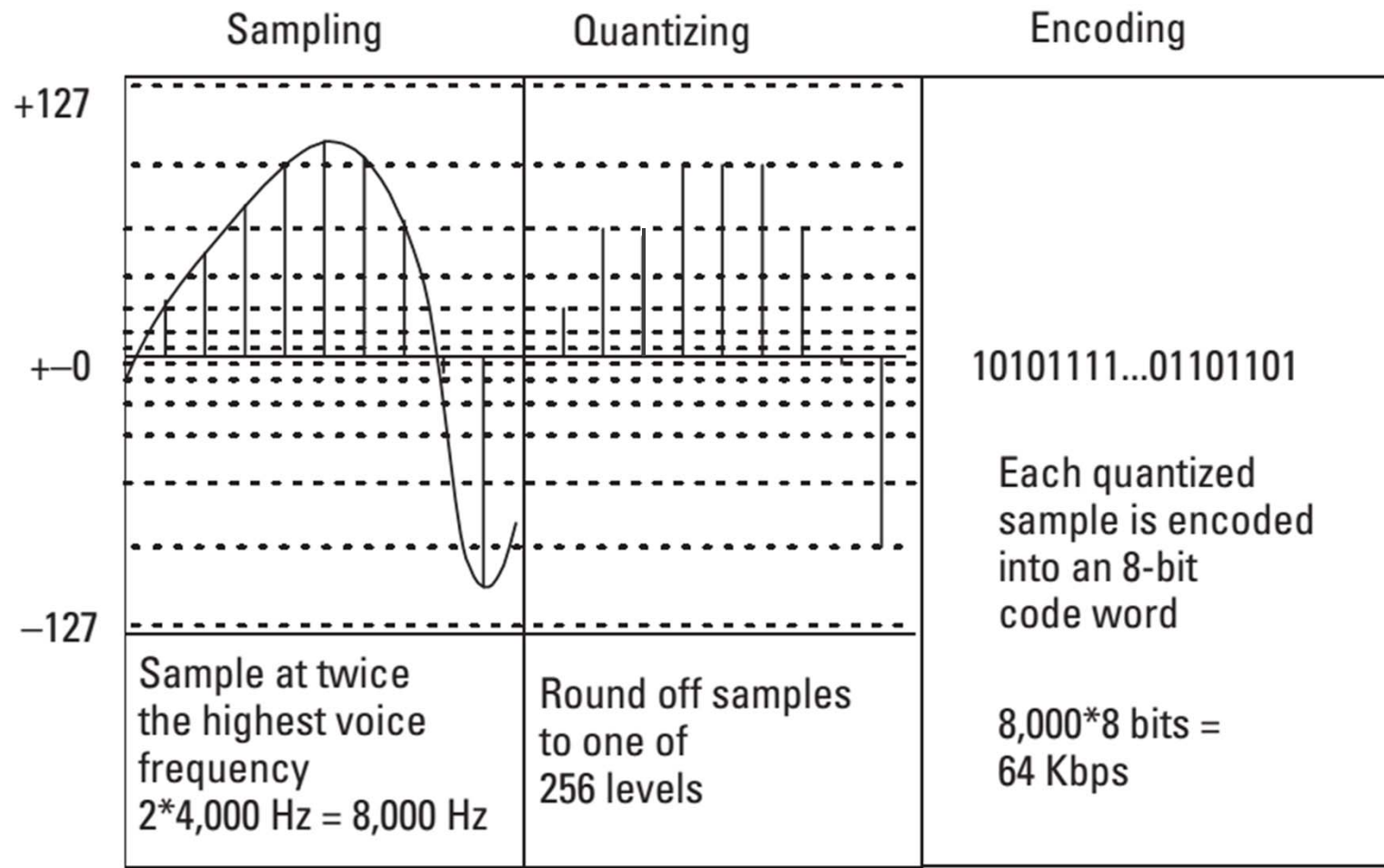
Analog



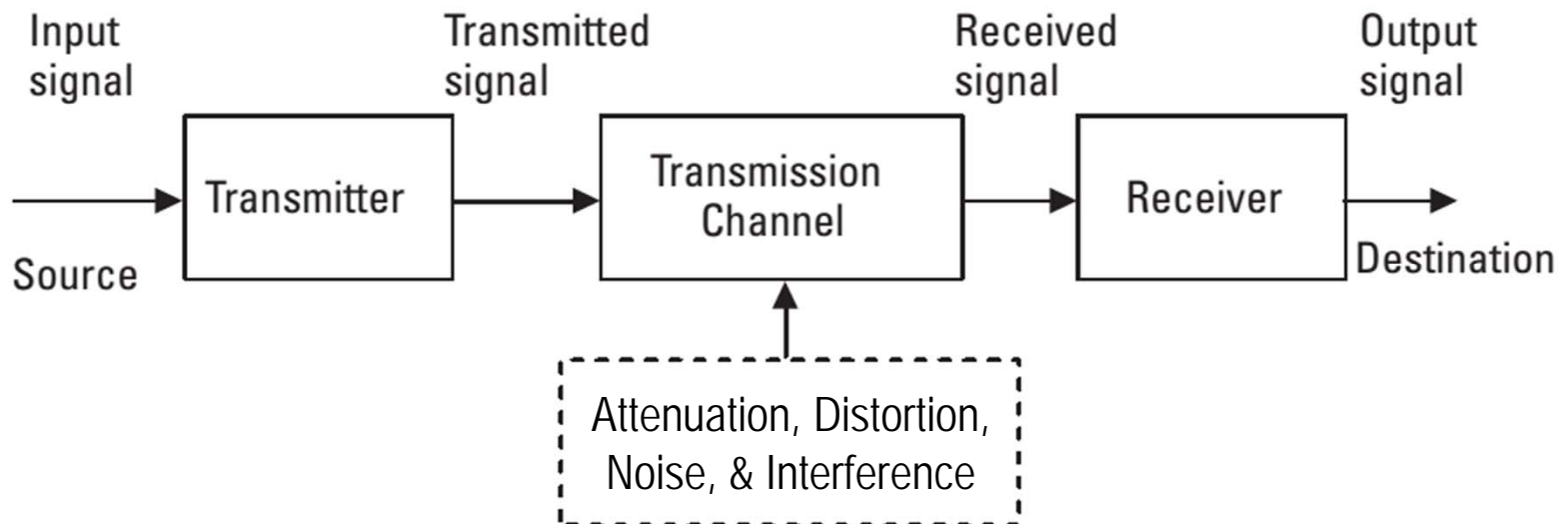
Digital



Analog-to-Digital Conversion; PCM



Sistem Transmisi



- Untuk sistem komunikasi dua arah (bidirectional), maka pada arah transmisi yang berlawanan juga diperlukan elemen yang sama.

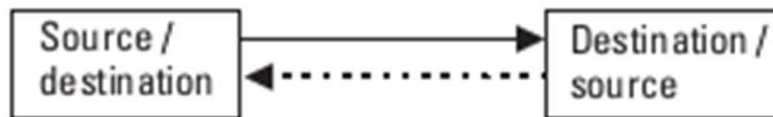
Sistem Transmisi (2)

Simplex:



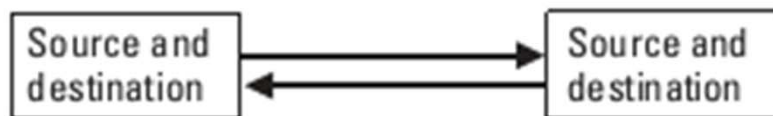
Signal is transmitted in one direction only.
Examples: broadcast radio and TV and paging systems.

Half-Duplex:



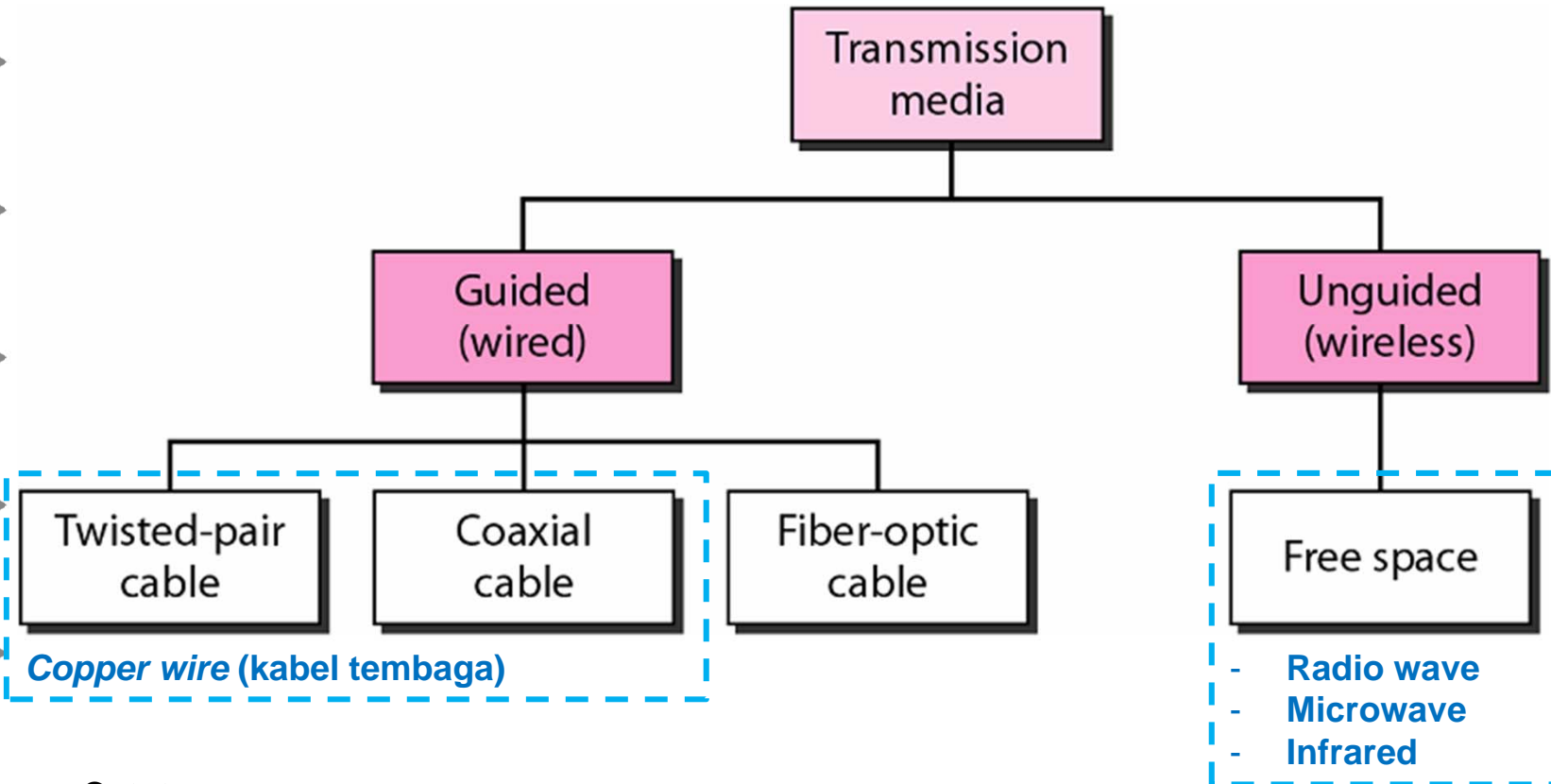
Signals are transmitted in one direction at a time.
Examples: Some data and radio systems.

Full-Duplex (or Duplex):



Signals are transmitted in both directions at the same time.
Examples: Conventional telephone, cellular or mobile telephone systems and ISDN.

Media Transmisi

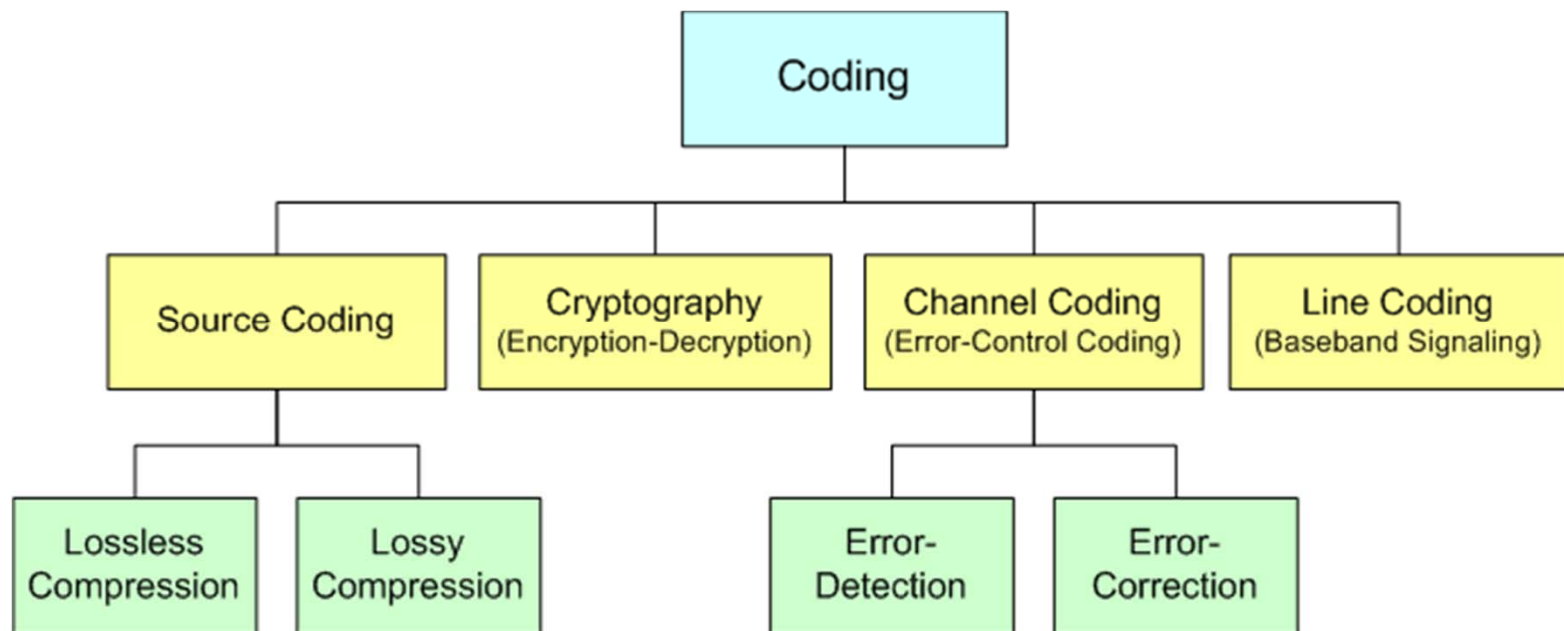


Catatan:

- Tidak ada batas yg tegas antara radio wave dgn microwave, malah ada yg mengelompokkan microwave ke dalam radio wave. Secara umum microwave ditujukan utk frekuensi yg lbh tinggi.
- Transmisi satelit termasuk ke dalam komunikasi microwave.

Pengkodean (*Coding*)

- Dlm Sistem Telekomunikasi, pengkodean (*coding*) dpt dikelompokkan sbb:

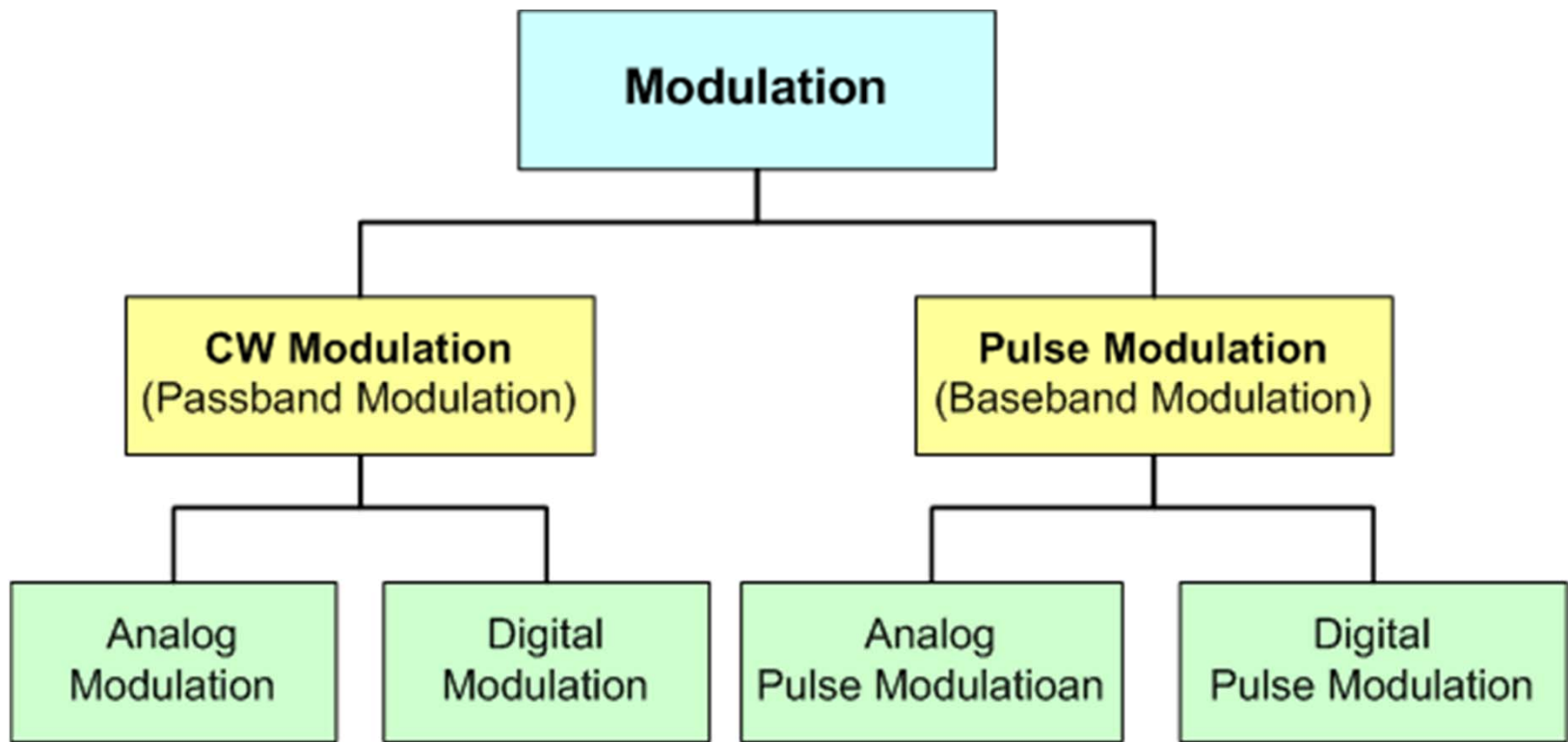


Modulasi-Demodulasi

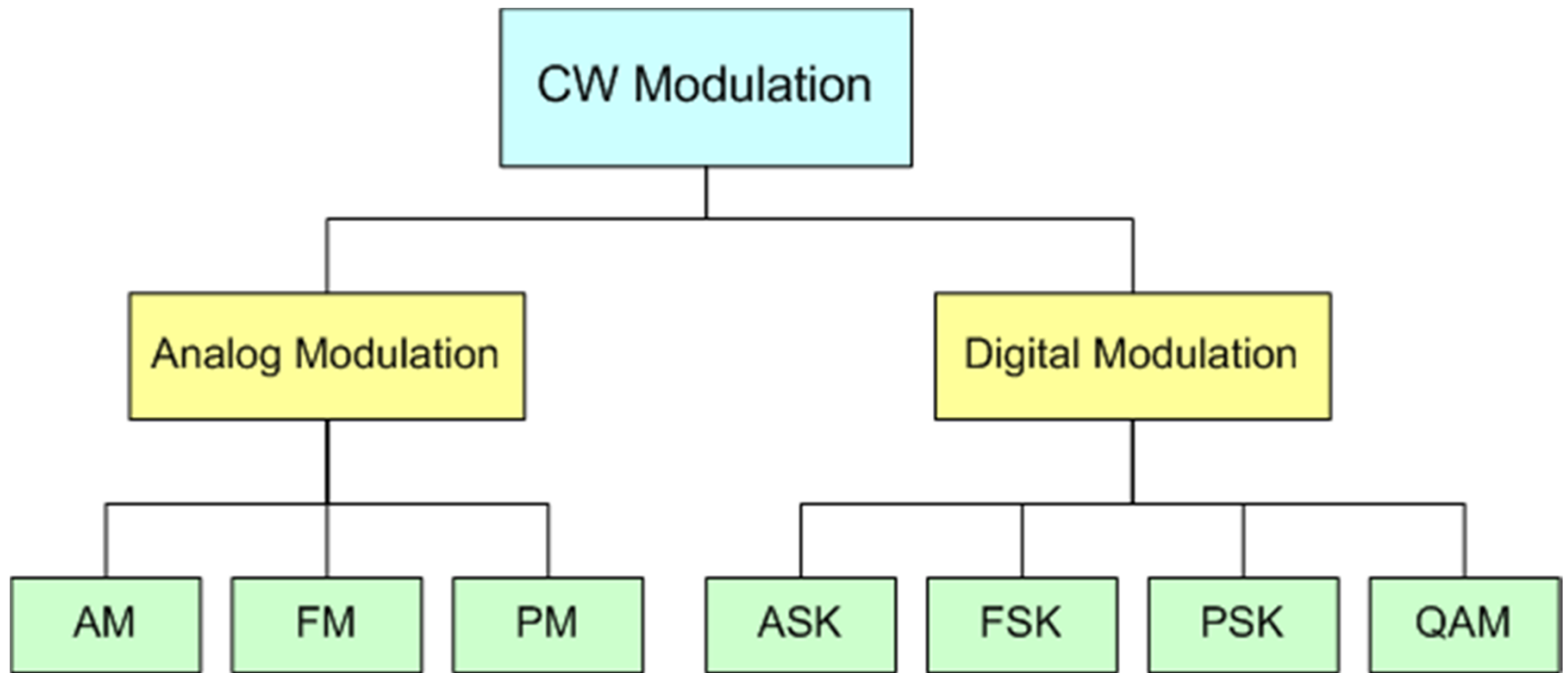


- **Modulasi (*modulation*)** adalah proses menumpangkan informasi (*information/message*) pada suatu gelombang pembawa (*carrier wave*).
- Penumpangkan ini dilakukan dgn **mengubah-ubah parameter dari gelombang pembawa** secara proporsional/sesuai dgn sinyal informasi.

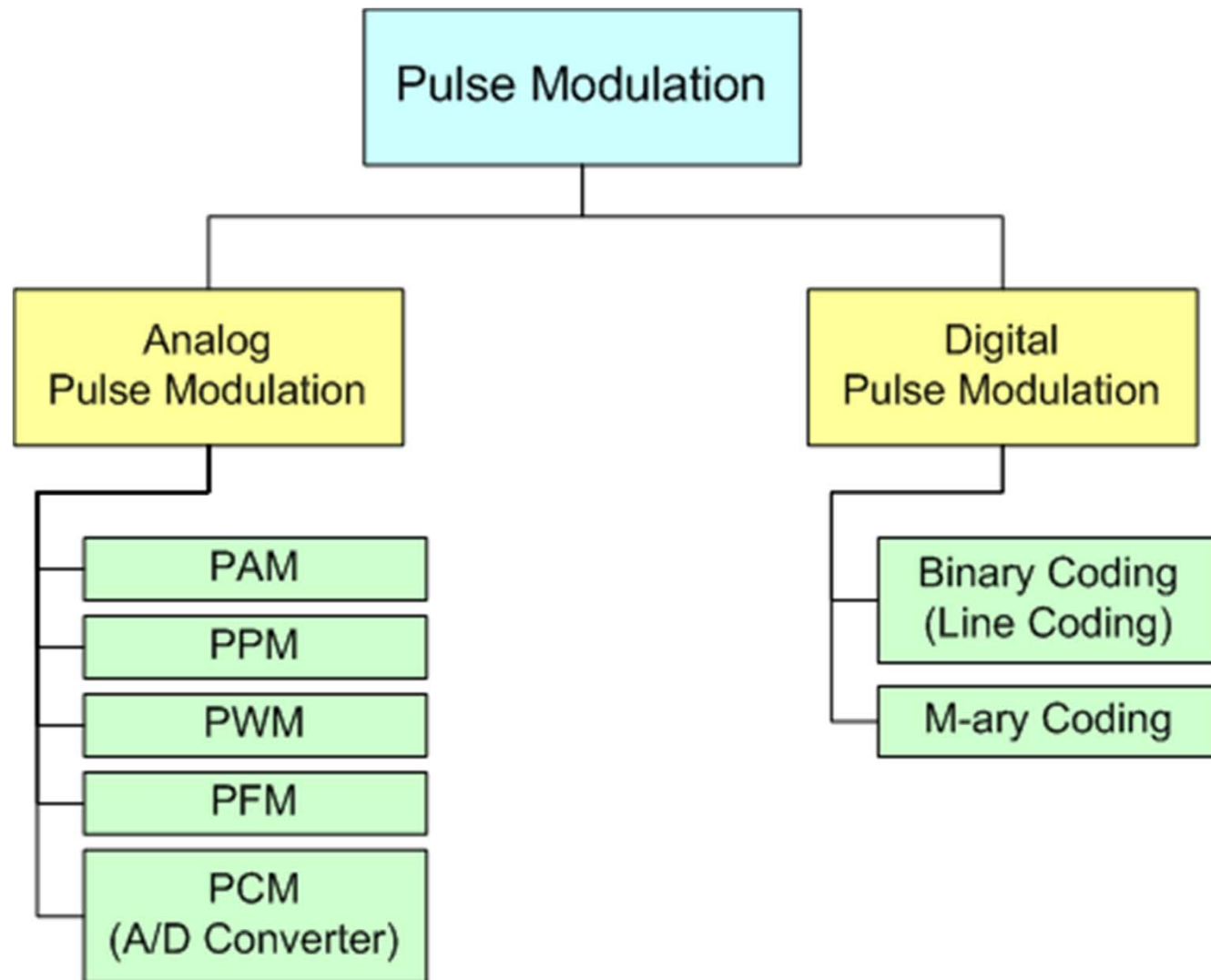
Modulasi (2)



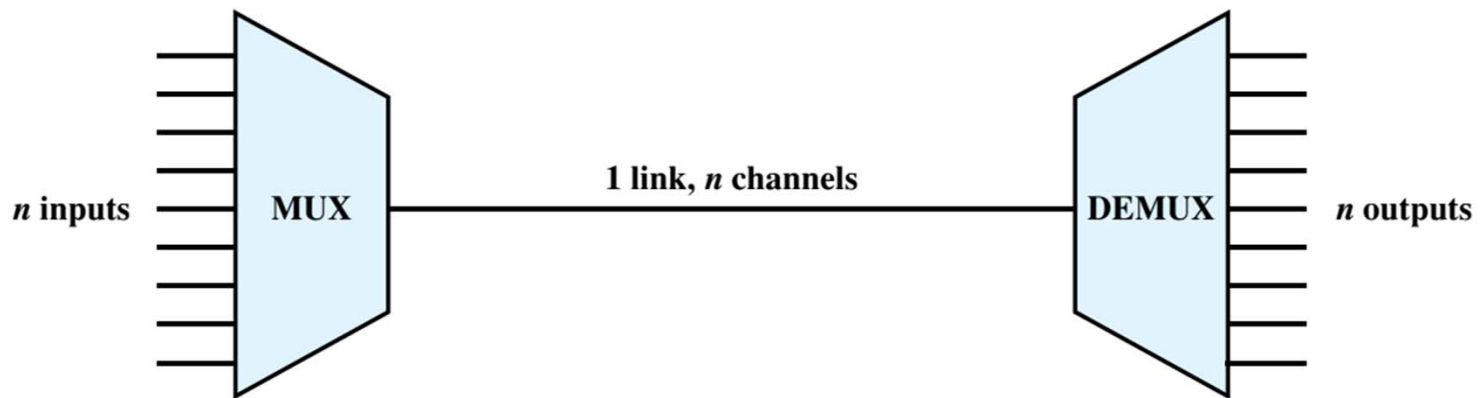
Modulasi Gelombang Kontinu



Modulasi Pulsa (*Pulse Modulation*)

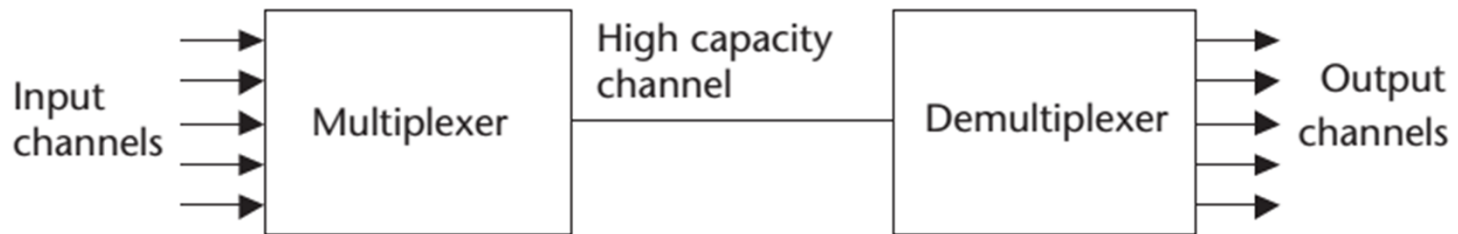


Multiplexing-Demultiplexing

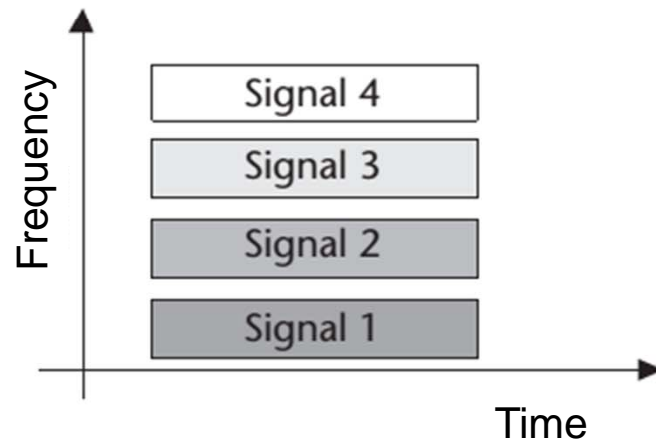


- **Multiplexing** adalah suatu proses penggabungan beberapa sinyal utk ditransmisikan secara simultan melalui satu media/link transmisi.
- Pada **pengirim** dilakukan **multiplexing**, alatnya dinamakan **multiplexer**.
- Sebaliknya, pada **penerima** dilakukan **demultiplexing**, alatnya dinamakan **demultiplexer**²⁵

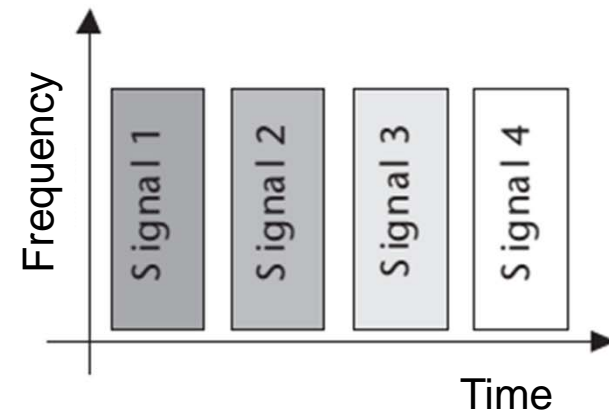
Multiplexing (lanjutan)



(a)



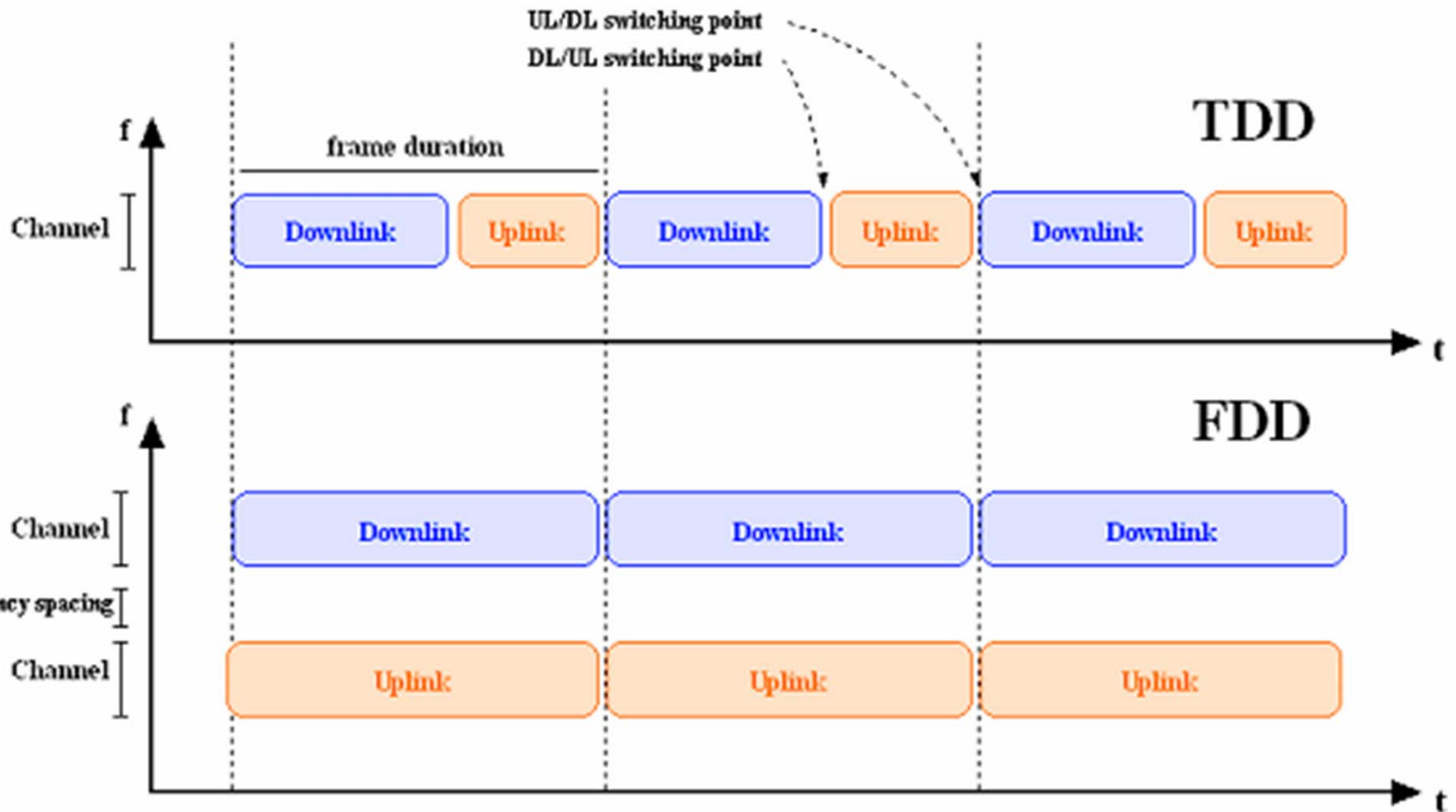
(b)



(c)

(a) Konsep dasar multiplexing/demultiplexing, (b) FDM, (c) TDM

Duplexing



Multiple-Access

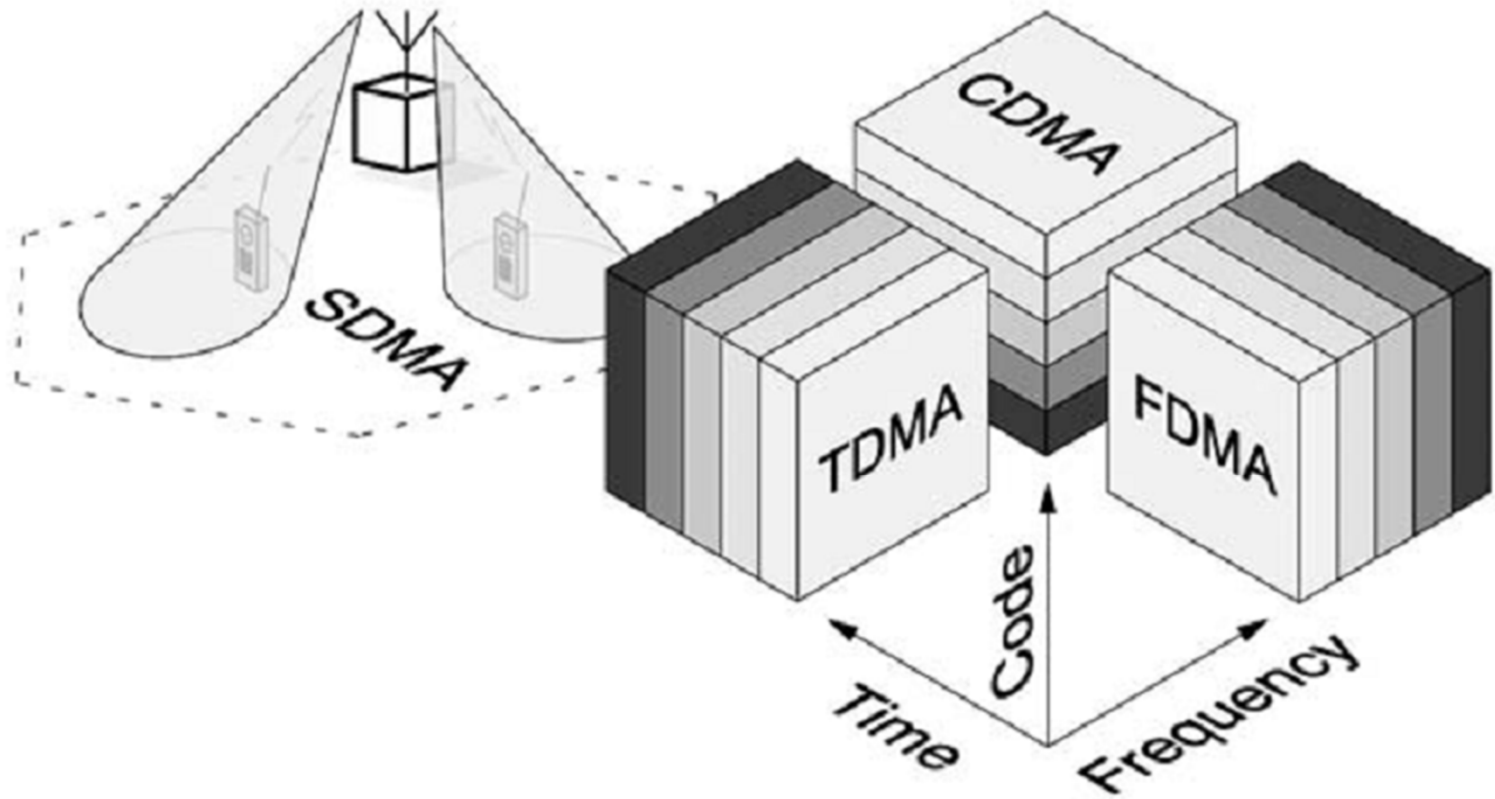
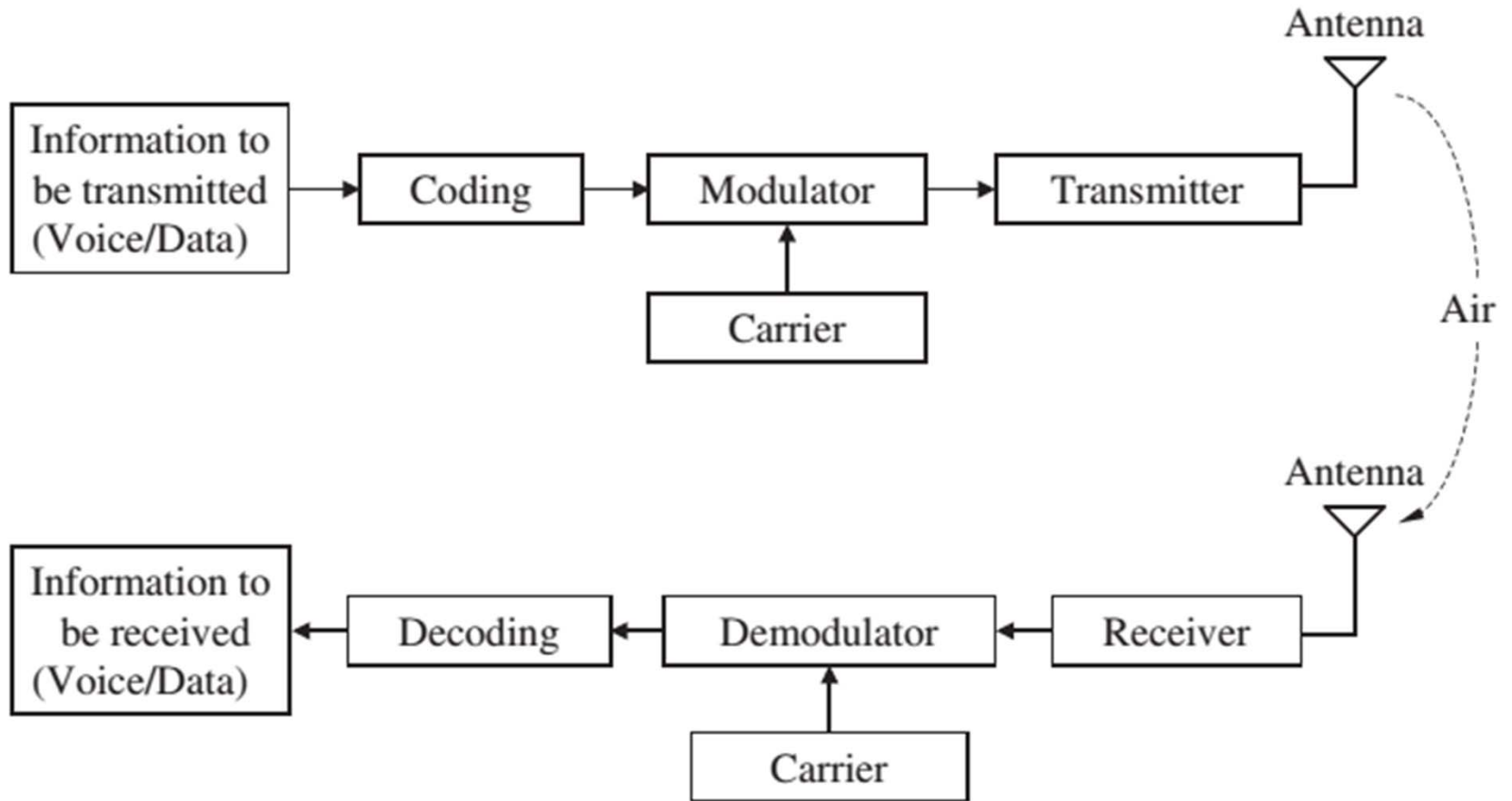


Figure 2.4 Multiple access procedures.

Sistem Komunikasi Nirkabel



Jaringan Telekomunikasi: Jaringan Akses dan Jaringan Transmisi

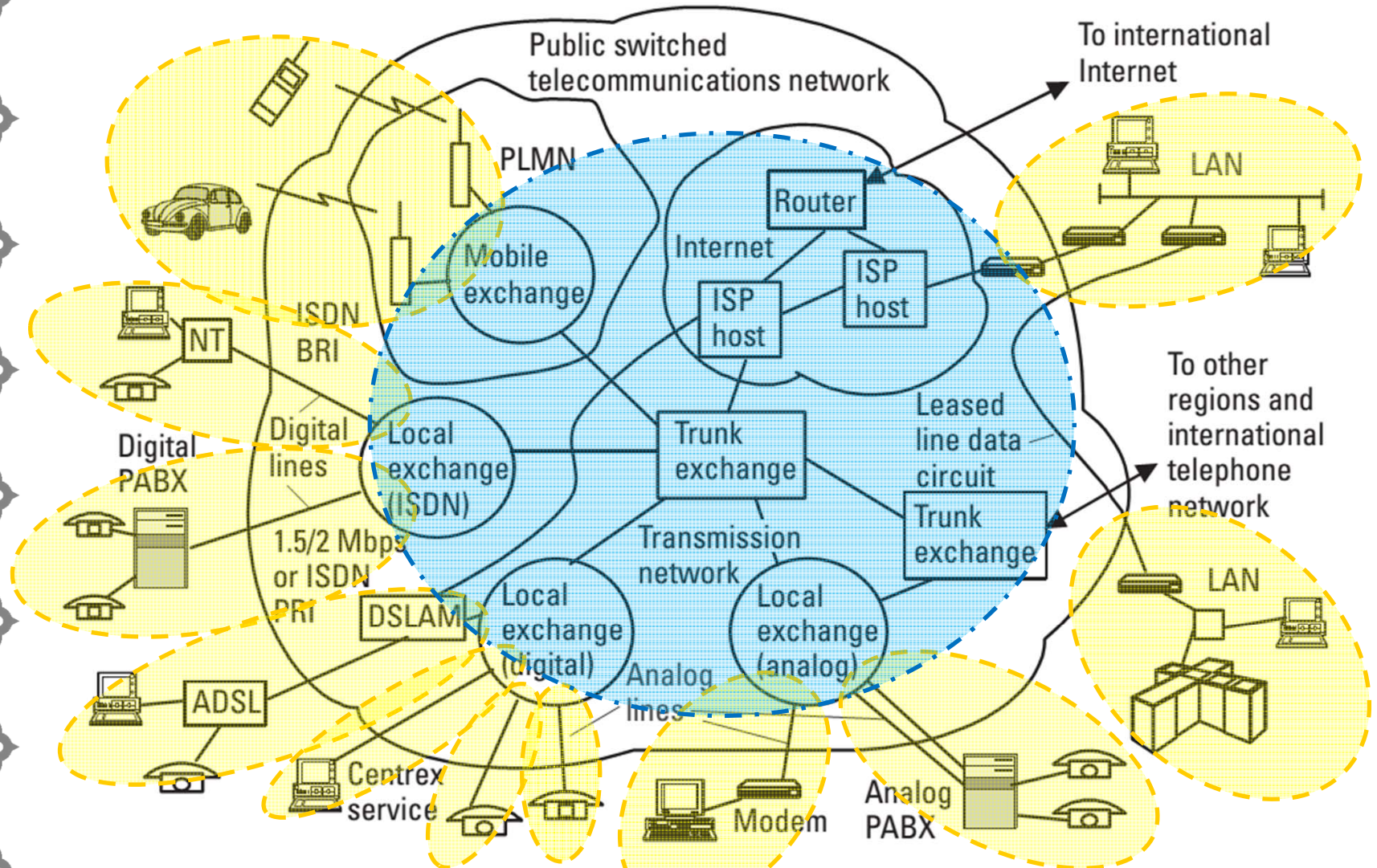
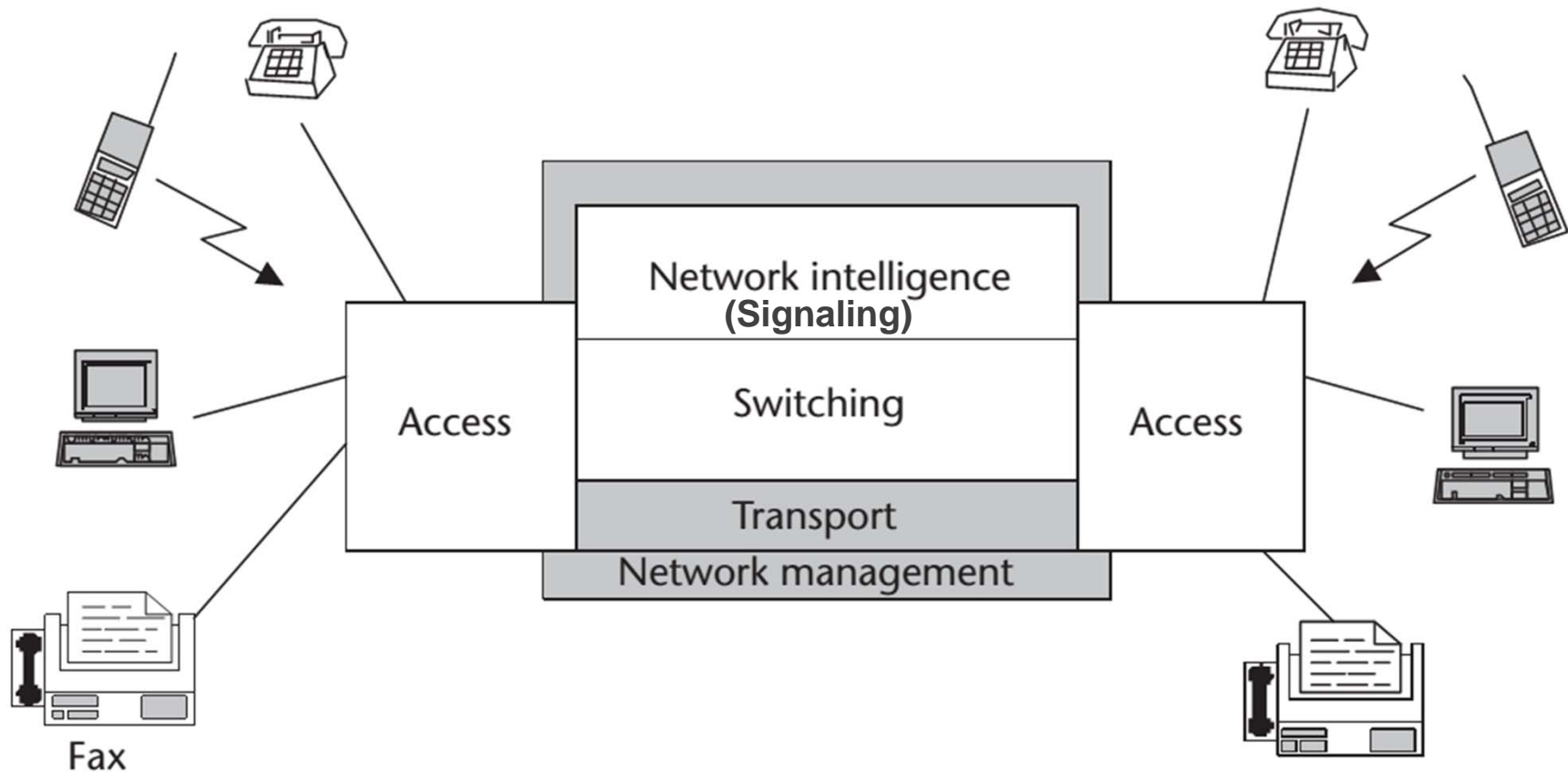


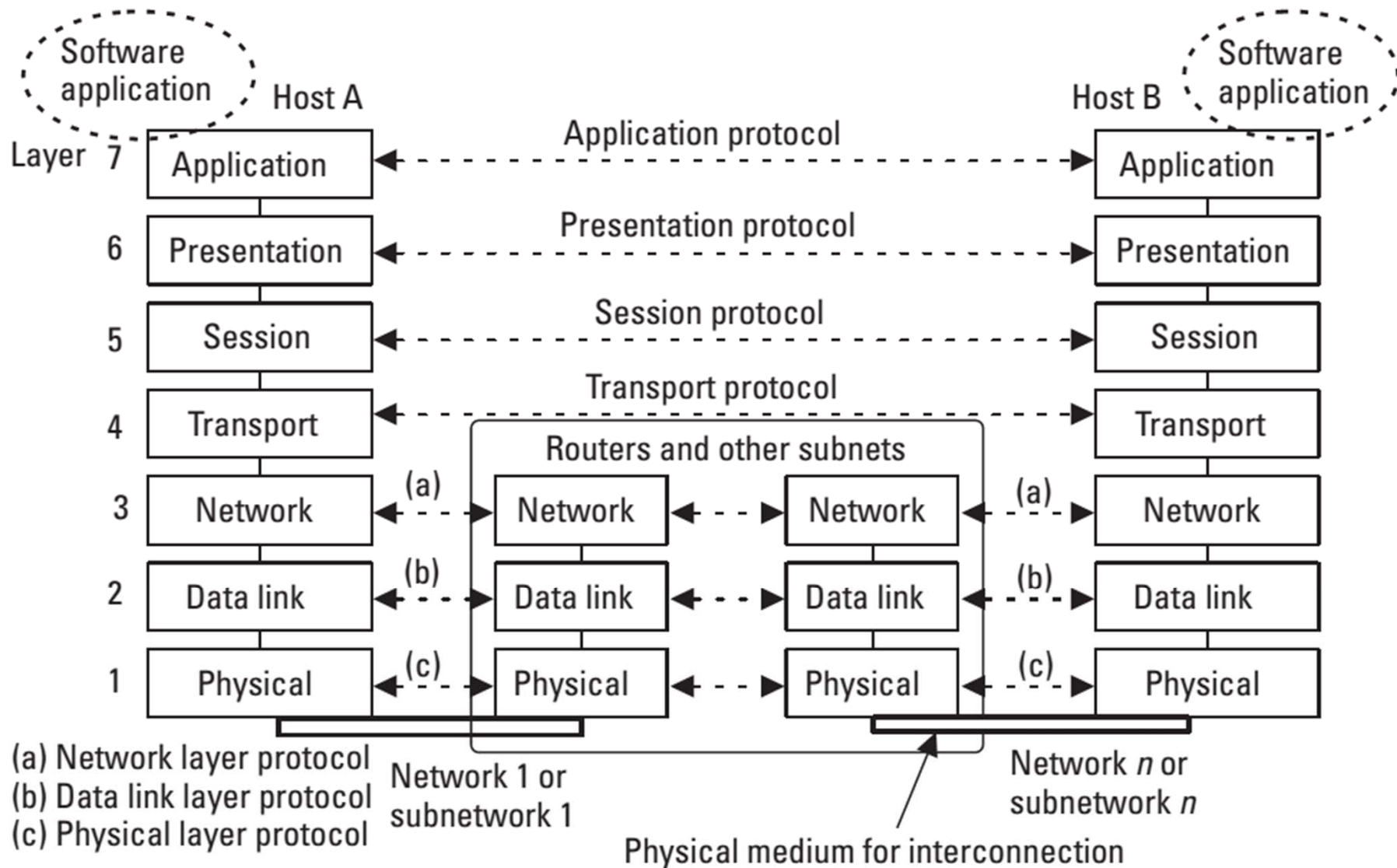
Figure 2.20 Overview of the public switched telecommunications network.

Jaringan Telekomunikasi Modern





Komunikasi Data: Model Referensi OSI





Internet: TCP/IP

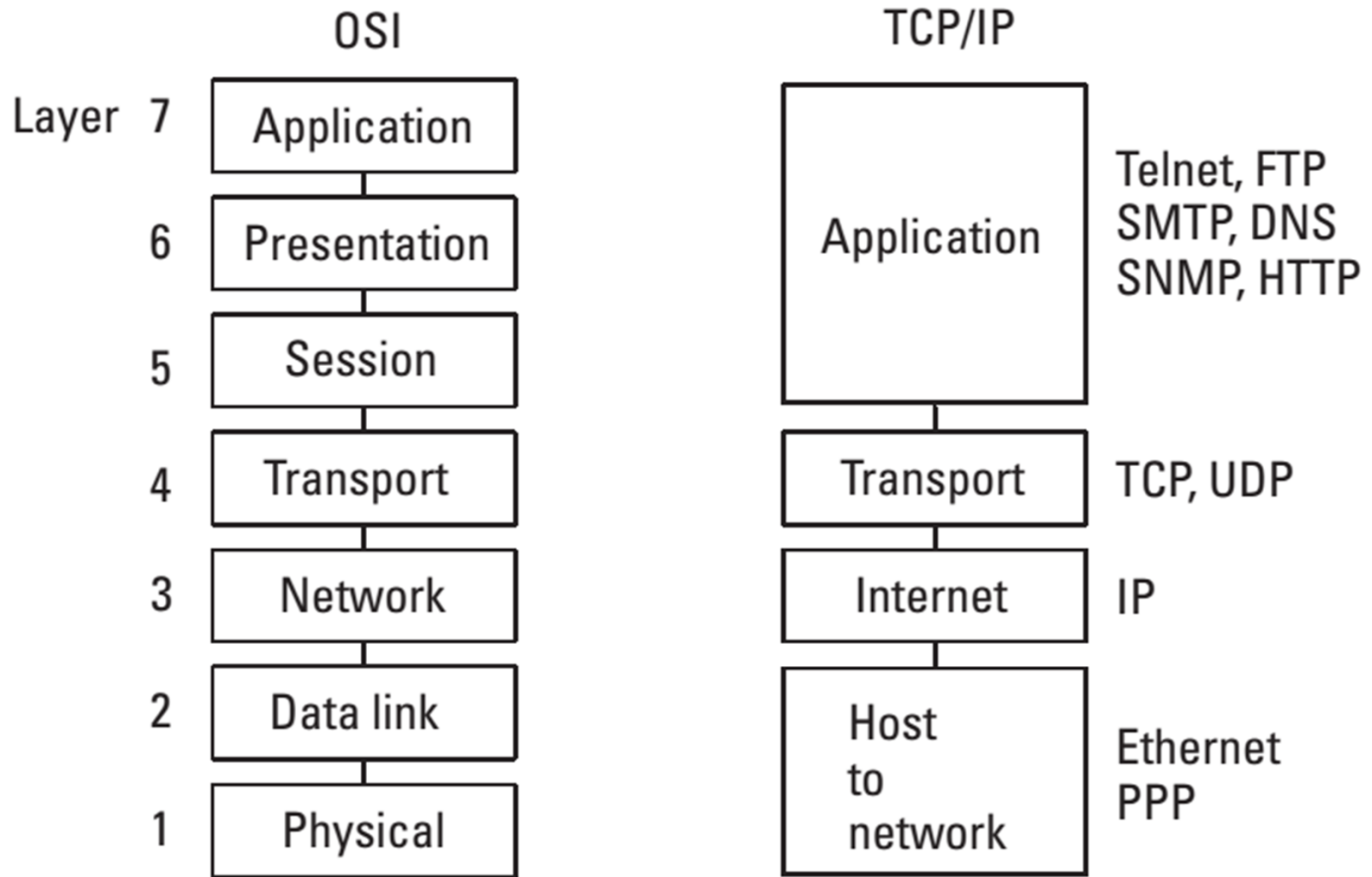


Figure 6.11 The TCP/IP stack and OSI reference model.



Bahan Kajian pd Konsentrasi Teknik Telekomunikasi

- Pengolahan Sinyal
 - Pengolahan Sinyal Digital, Pengolahan Sinyal Suara, Pengolahan Citra & Video, dll.
- Sistem Komunikasi
 - Siskom Analog, Siskom Digital, Siskom Optik, Siskom Nirkabel, Siskom Satelit, Siskom Multimedia, Kinerja Siskom, dll.
- Jaringan Telekomunikasi
 - Jartel & Jarkom (Jartelkom), Rekayasa Trafik, Manjartel, Rekayasa Internet, Keamanan Jartel, dll.
- Teori Informasi dan Pengkodean
 - Teori Informasi, Pengkodean Sumber, Pengkodean Kanal
- Antena dan Propagasi
- Elektronika Telekomunikasi
- Regulasi dan Bisnis Telekomunikasi
- Tambahan: Kecerdasan Buatan, dll.



Ujian Akhir Semester (UAS)

- **UAS** insya ALLAH akan dilaksanakan pd pekan ujian tgl 25 Juni – 6 Juli 2018 (jadwal menyusul)
- Seluruh **bahan/slide kuliah** wajib *di-print/ di-copy* dan dijilid bersama dgn **catatan tangan**, pertinggal **Pretest, Kuis** dan **PR**. Wajib **dibawa pd saat UAS** utk **dinilai**.
- **Materi ujian** adalah **semua** bahan kuliah.
- Sifat ujian: ***tutup buku, tetapi boleh buka catatan 2 (dua) lembar A4. Setelah ujian, catatan ini ikut dikumpulkan utk dinilai.***



Penilaian Catatan Thp 2 (Bobot 10% utk Nilai Akhir)

A). Bahan Kuliah (5%)

No.	Komponen Penilaian	Nilai
1	Fotokopi slide (Cover, Kontrak Kuliah, Bab 1 s/d Bab 12, serta Review and Summary)	4
2	Latihan di Kelas (6x) → tulisan sendiri	2
3	Catatan Tangan (corat-corek)	1
4	Pertinggal Pretest & Kuis	1
5	Pertinggal PR	1
6	Rapi (dijilid permanen)	1
Total		10

B). Catatan utk Ujian; 2 lembar A4 (5%)

Komponen penilaian: isinya ringkas tapi lengkap/representatif dan rapi.



Sekian, terima kasih, semoga berkah.

Ada pertanyaan?