

TEE 843 – Sistem Telekomunikasi

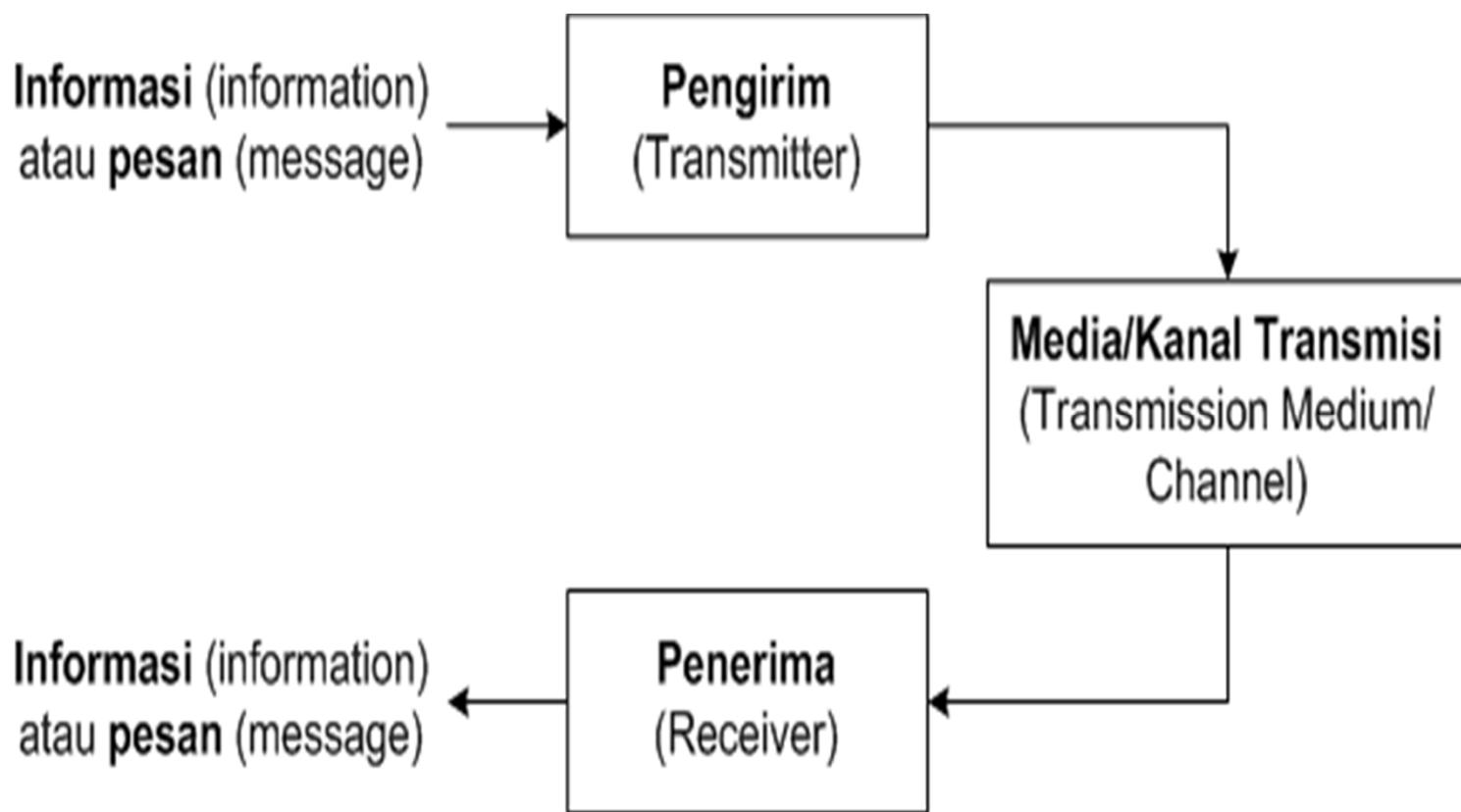
Review and Summary



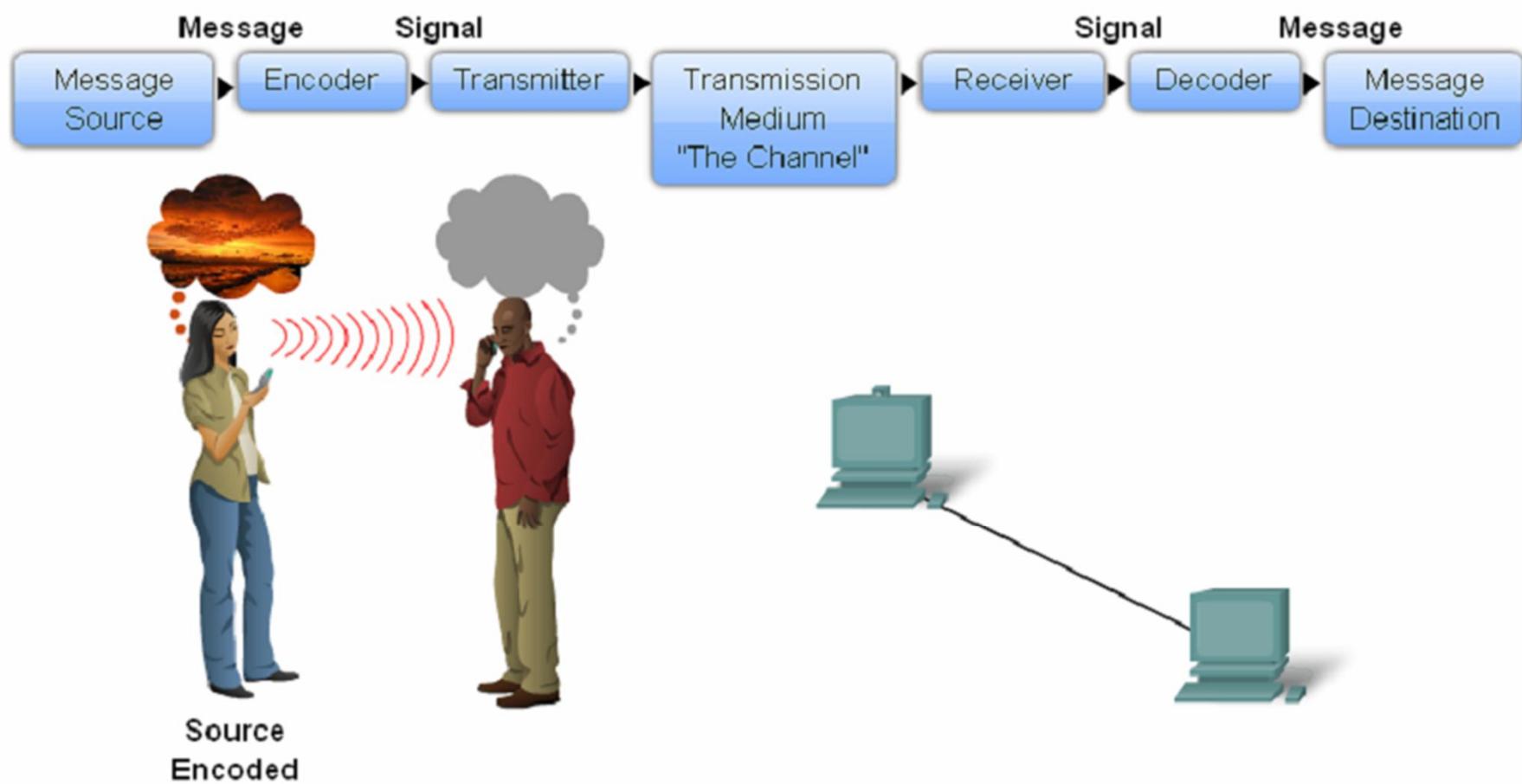
Muhammad Daud Nurdin
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Jurusan Teknik Elektro FT-Unimal
Lhokseumawe, 2016

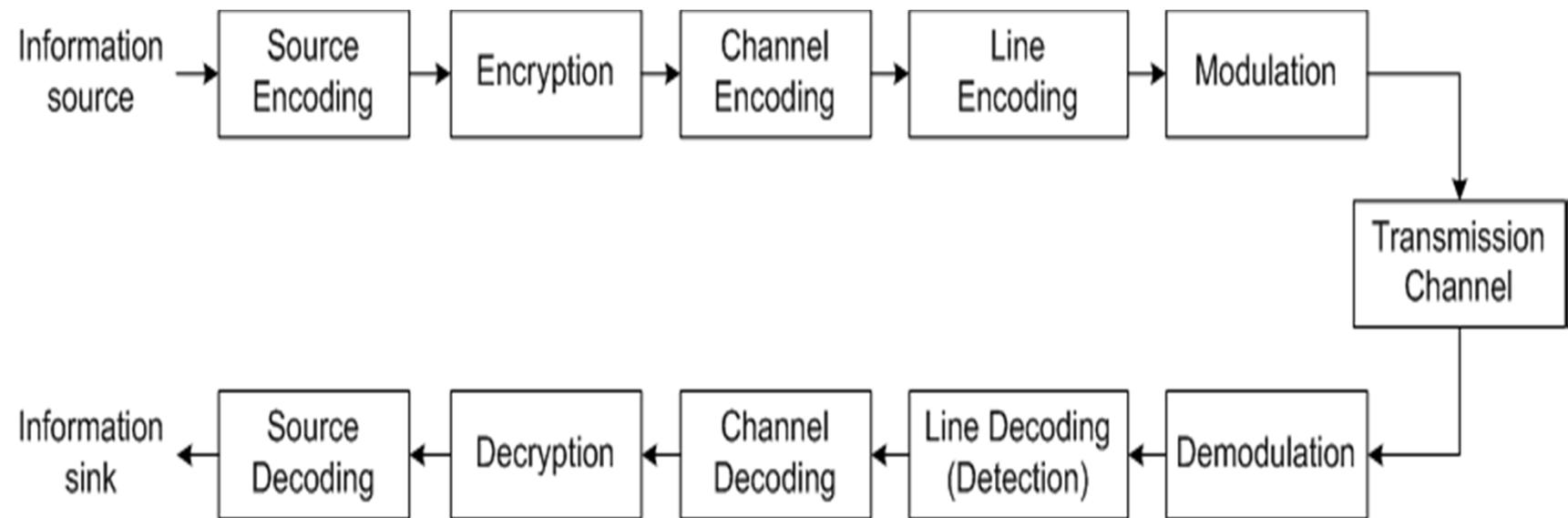
Sistem Telekomunikasi



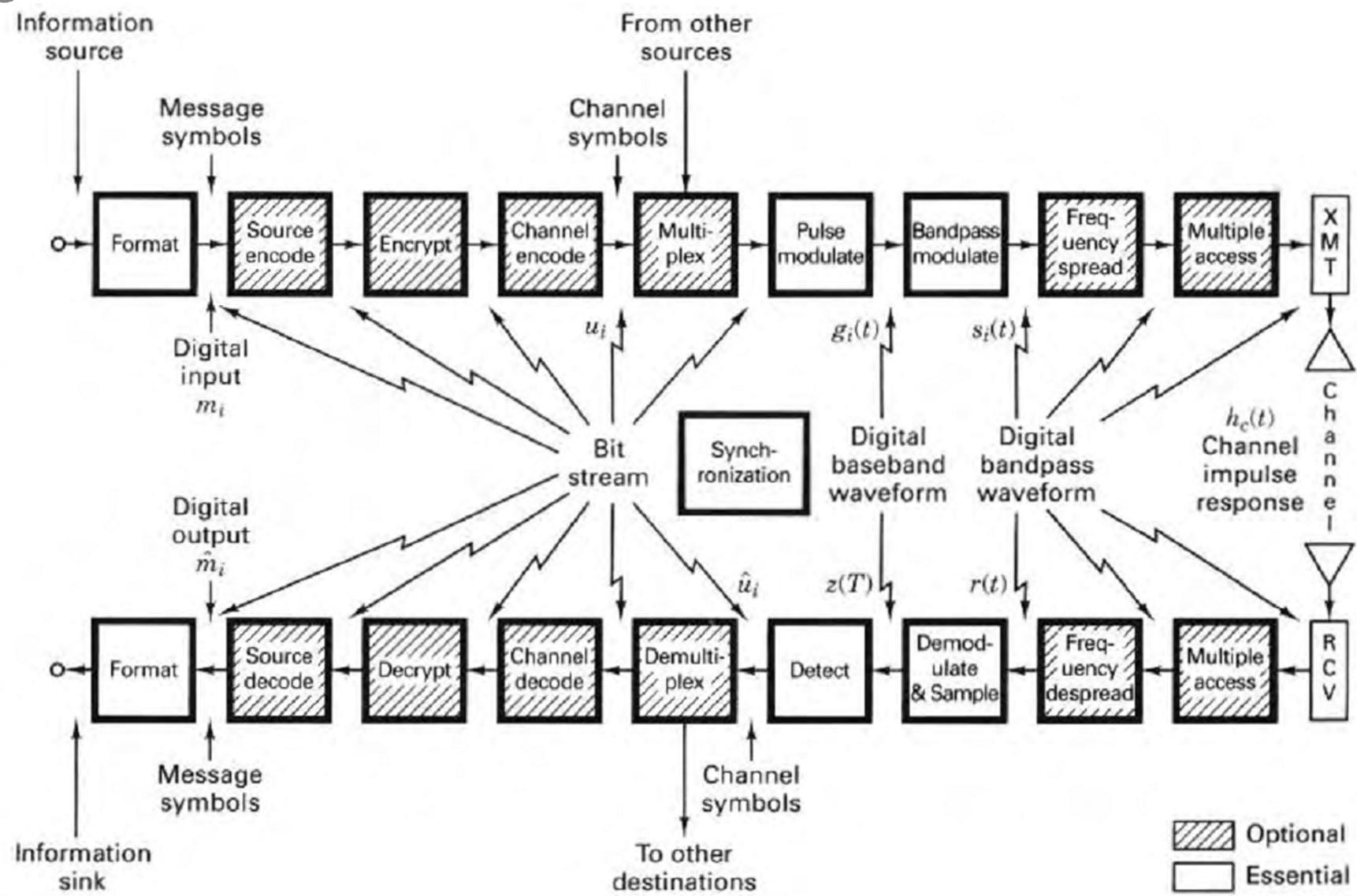
Sistem Telekomunikasi (2)



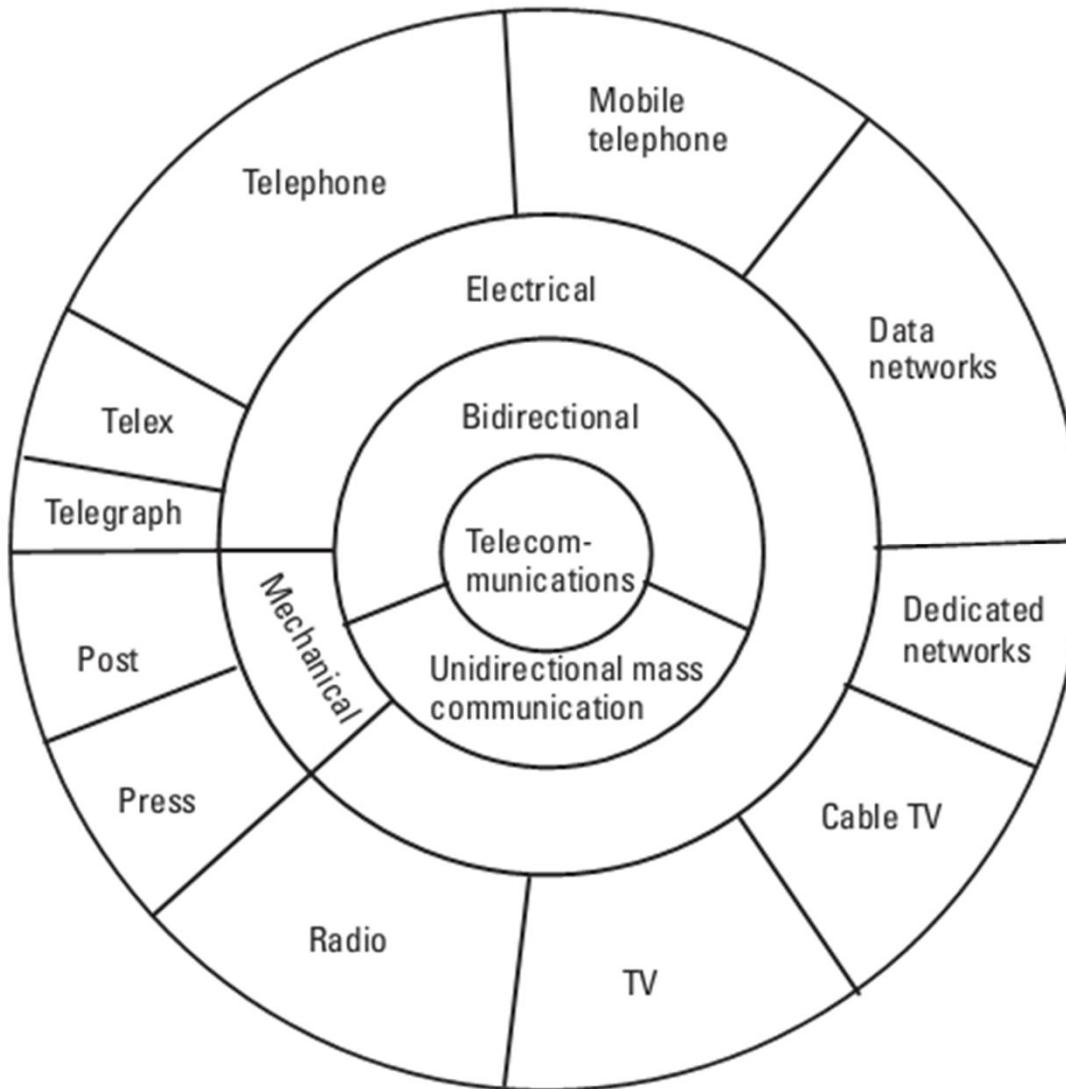
Sistem Telekomunikasi (3)



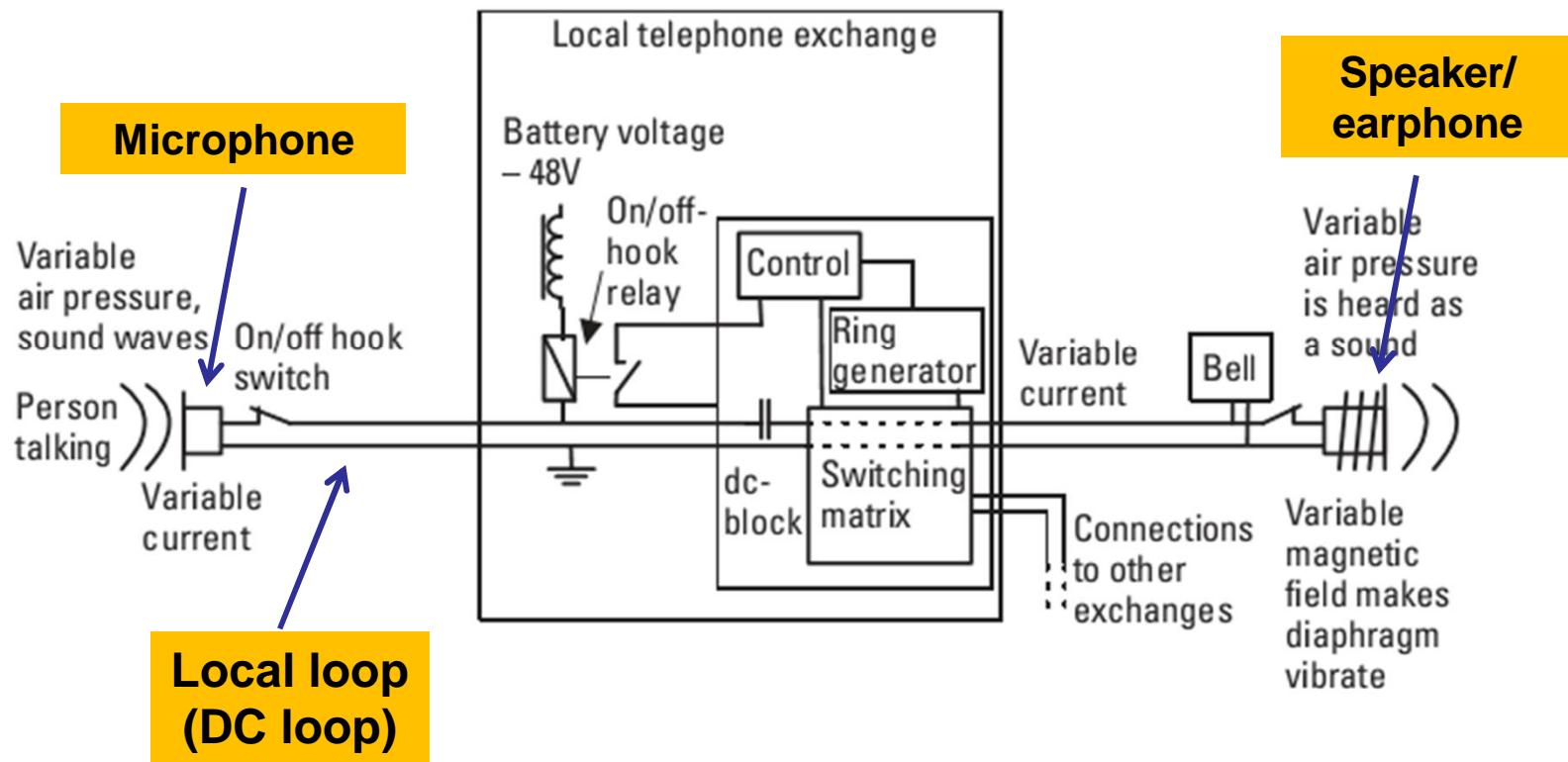
Sistem Telekomunikasi (4)



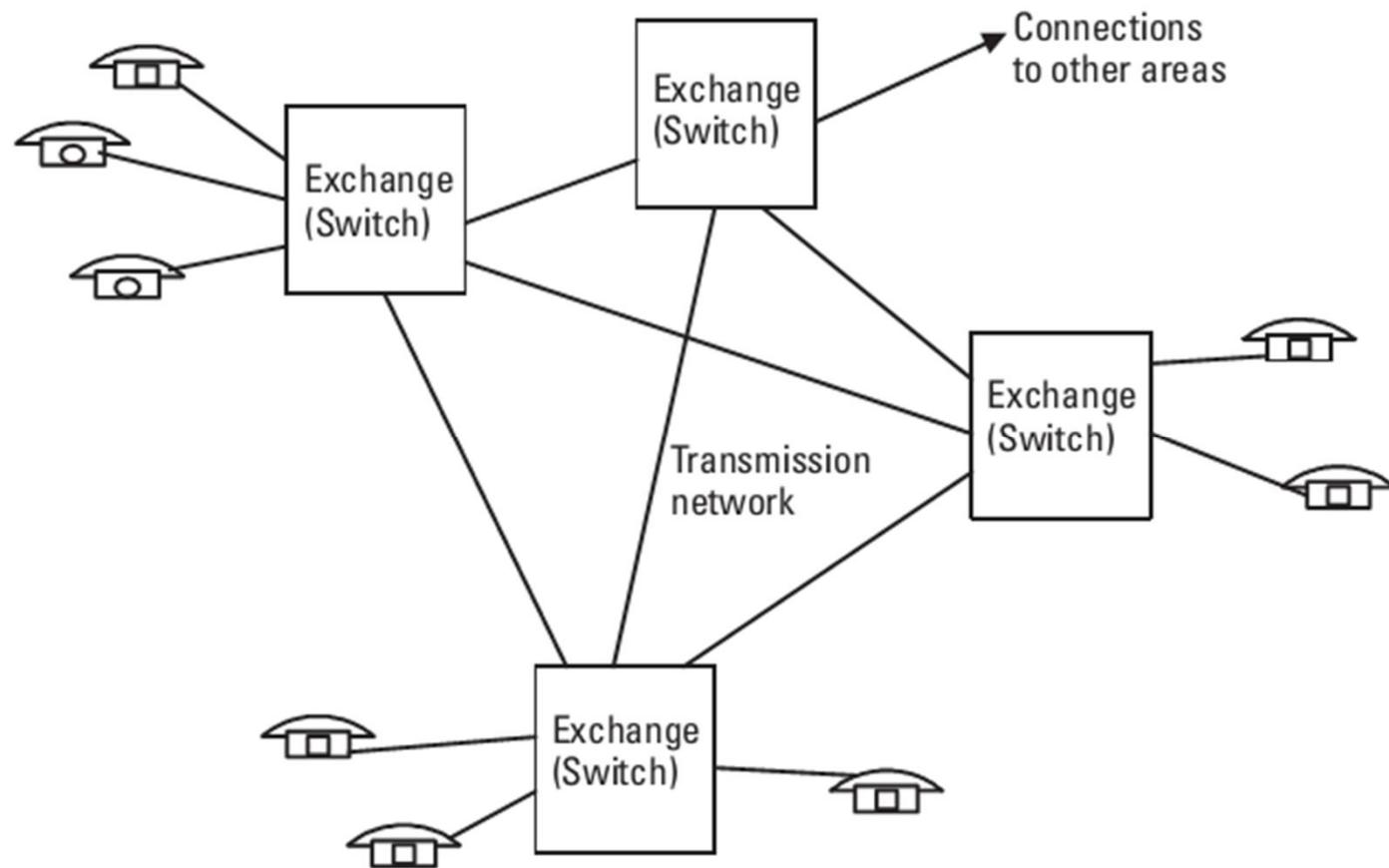
Macam-macam Sistem Telekomunikasi



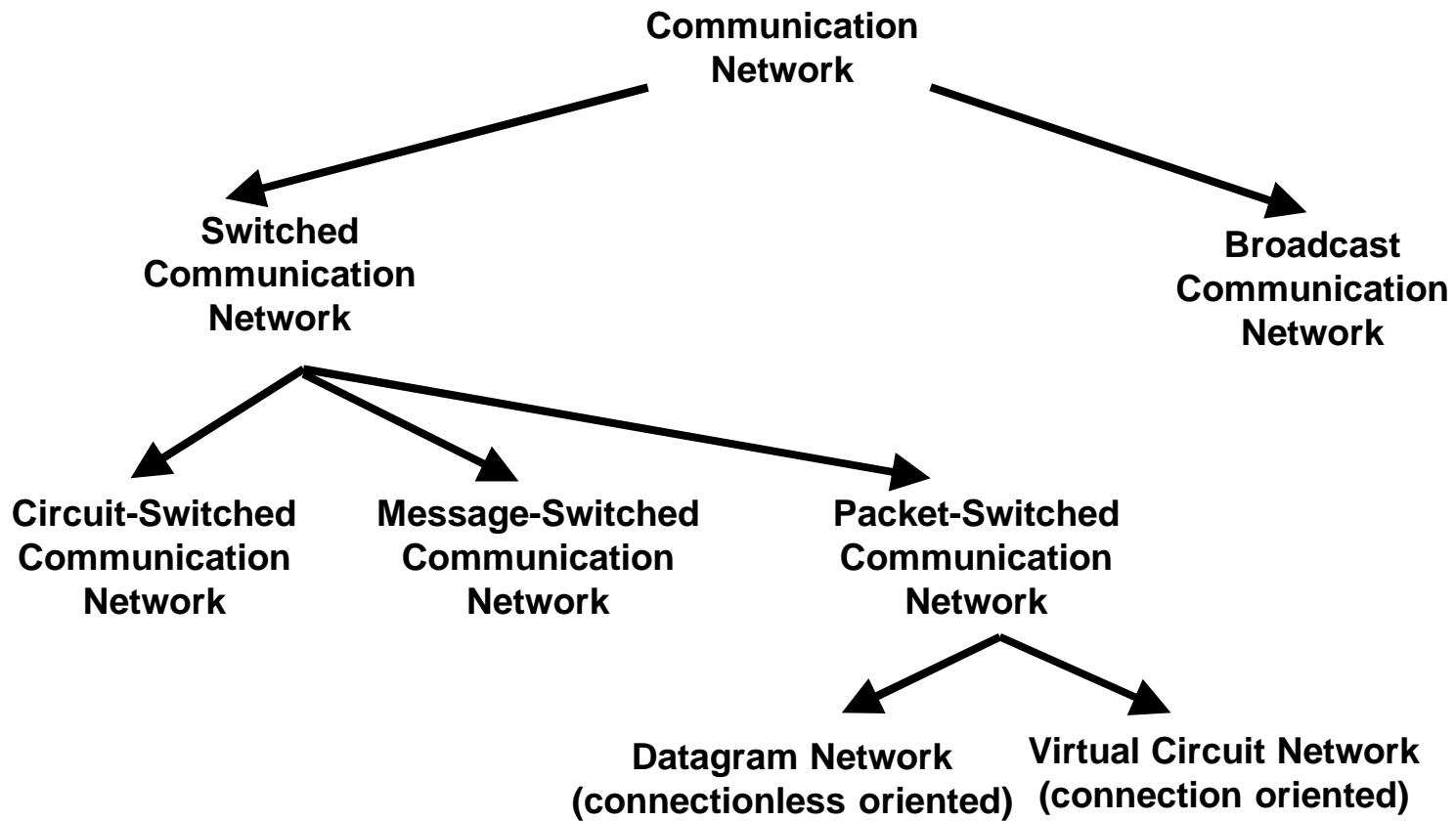
Sistem Komunikasi Telepon



Sistem Komunikasi Telepon (2)



Jaringan Telekomunikasi



Jaringan Telekomunikasi (2)

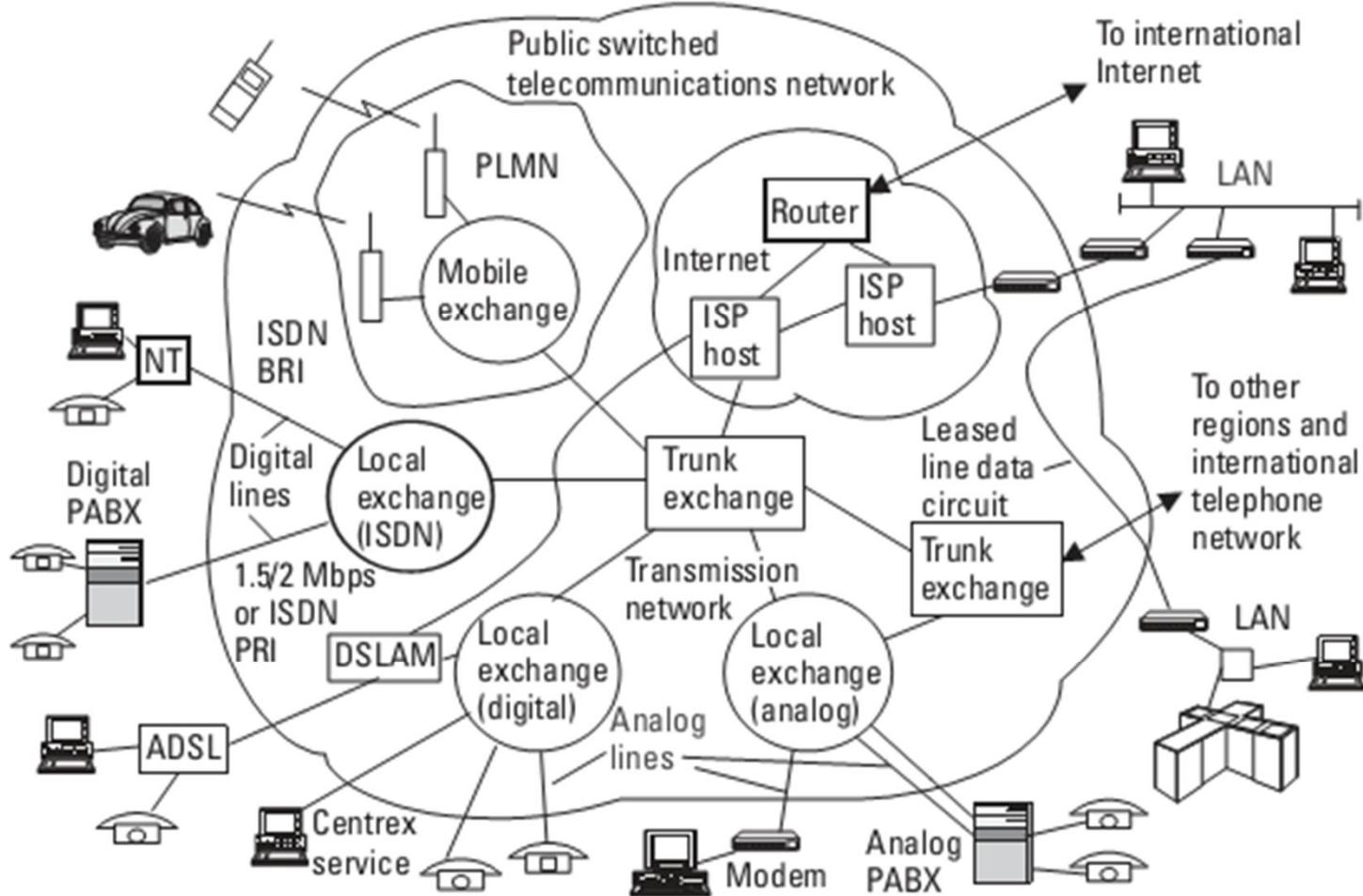
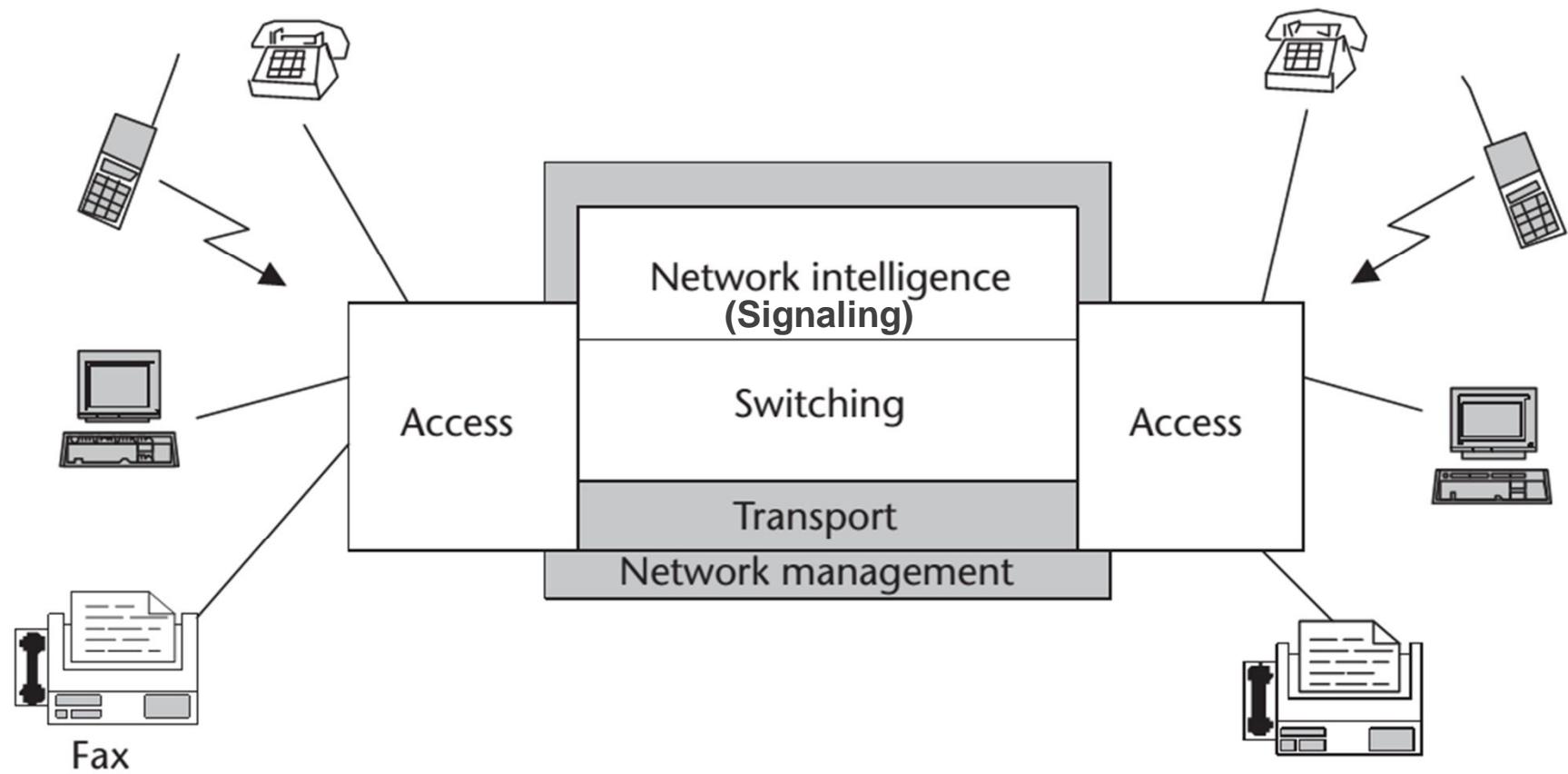
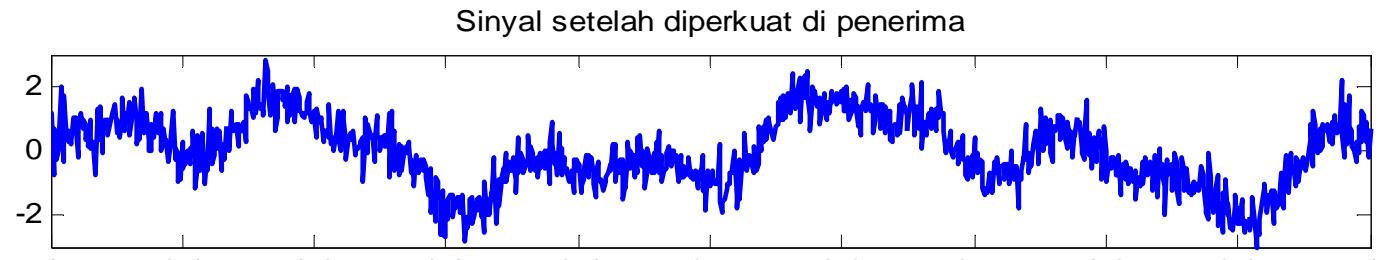
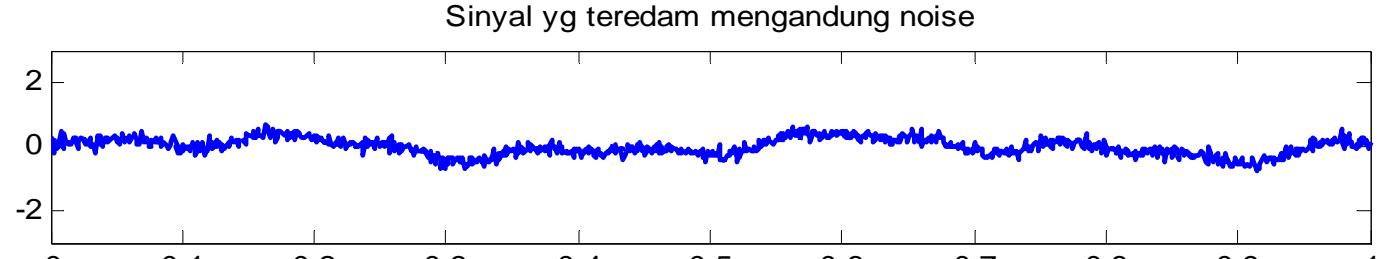
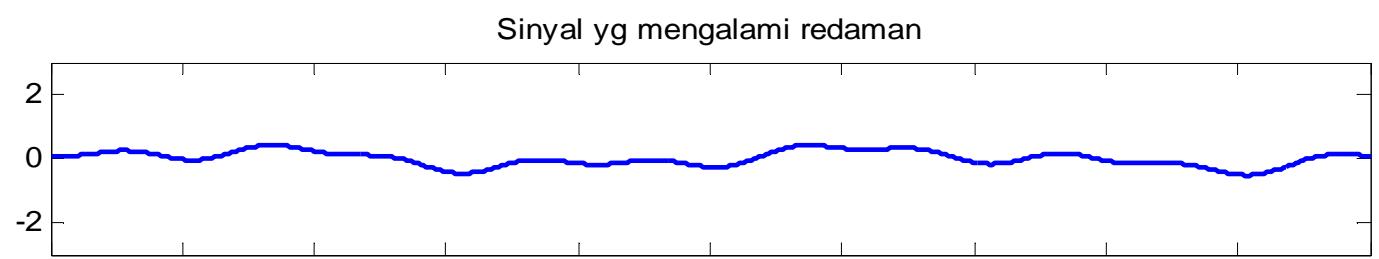
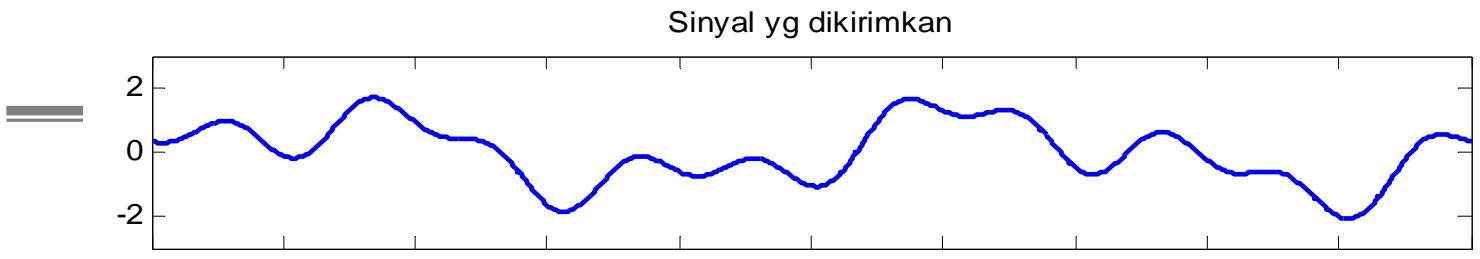


Figure 2.20 Overview of the public switched telecommunications network.

Jaringan Telekomunikasi (3)

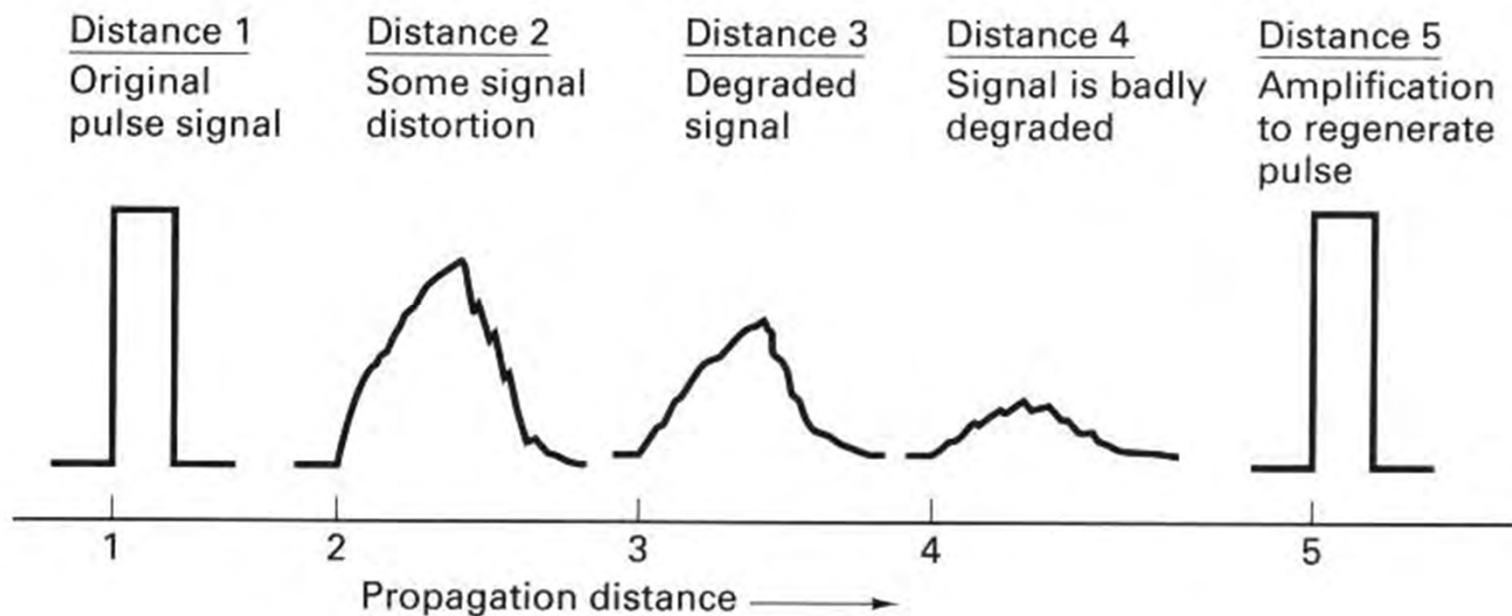


Sinyal Komunikasi; Analog

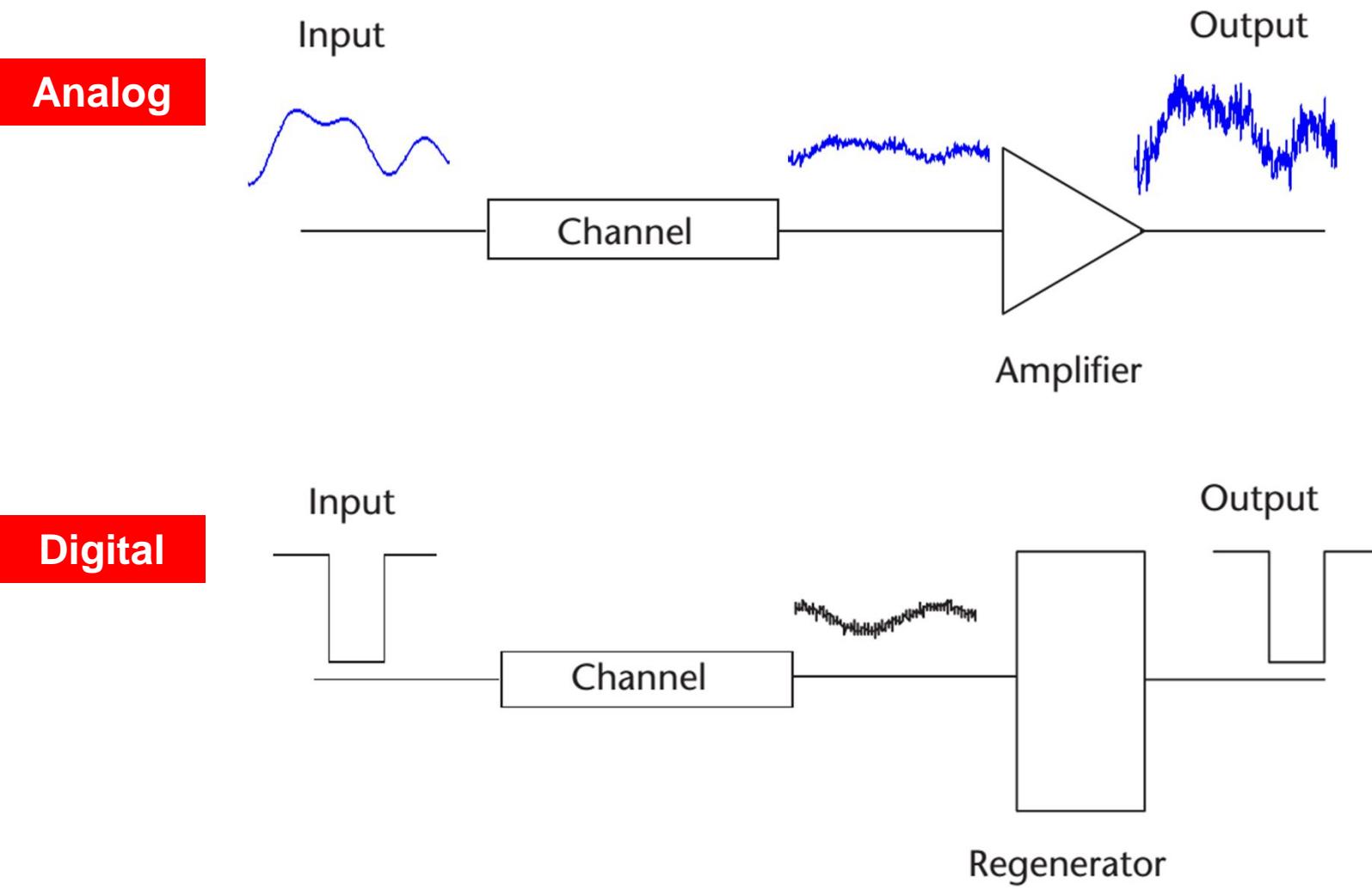


Sinyal Komunikasi; Digital

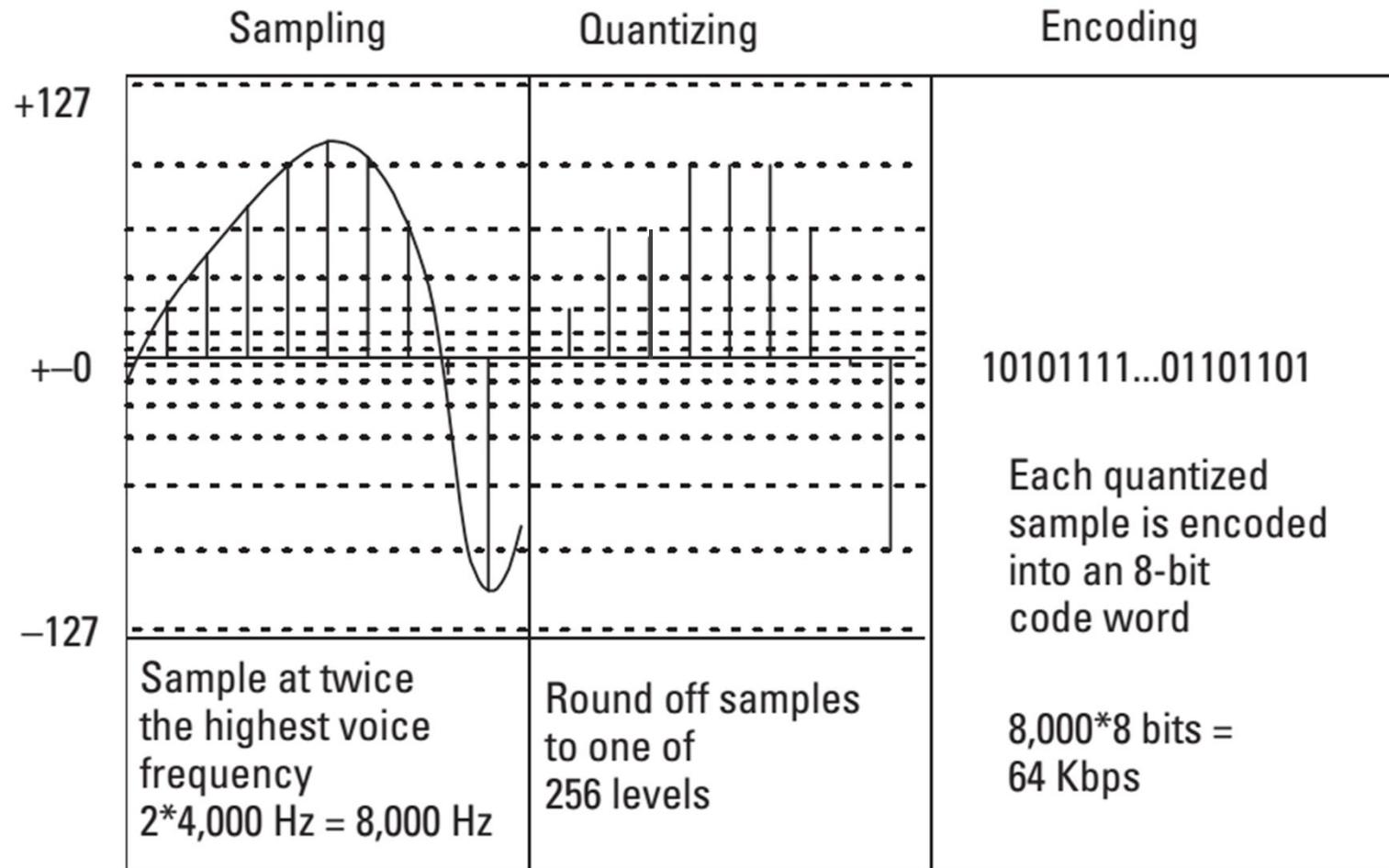
- Digital pulse degradation and regeneration



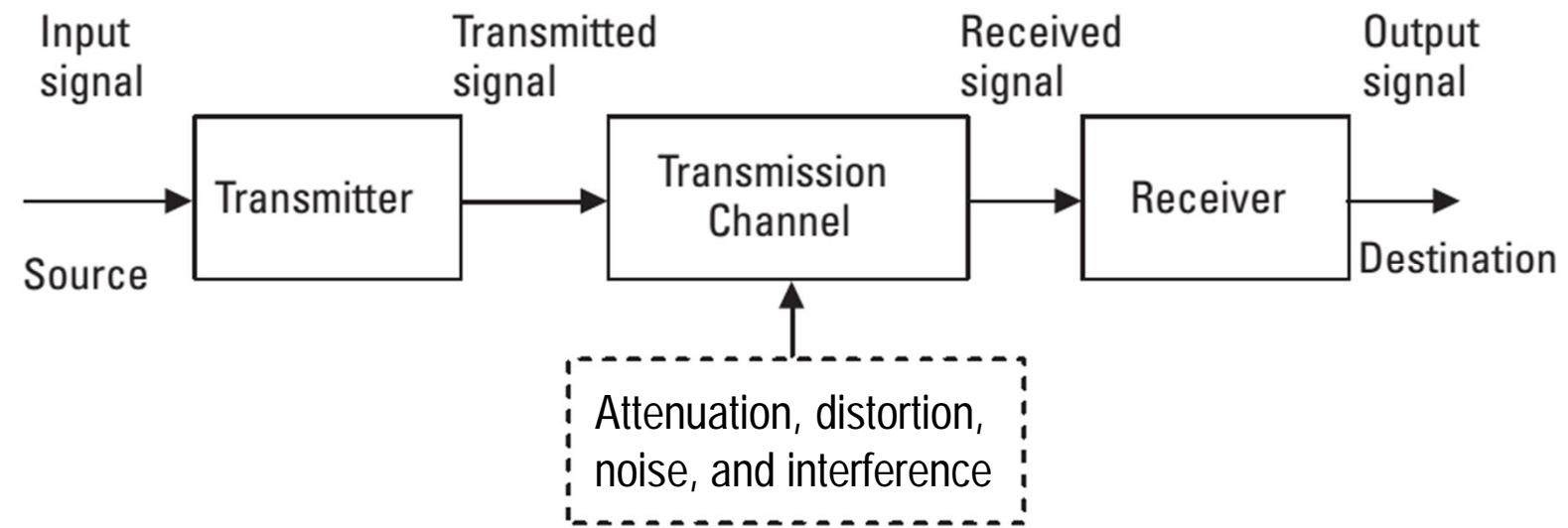
Transmisi Analog vs. Transmisi Digital



Sinyal Komukasi; PCM



Sistem Transmisi



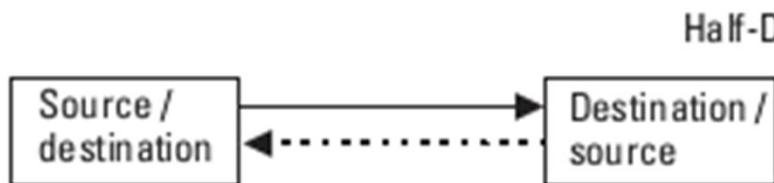
- Untuk sistem komunikasi dua arah (bidirectional), maka pada arah transmisi yang berlawanan juga diperlukan elemen yang sama.

Sistem Transmisi (2)



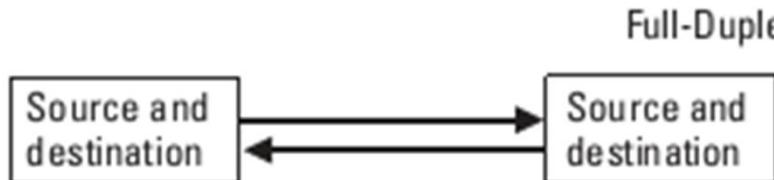
Simplex:

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



Half-Duplex:

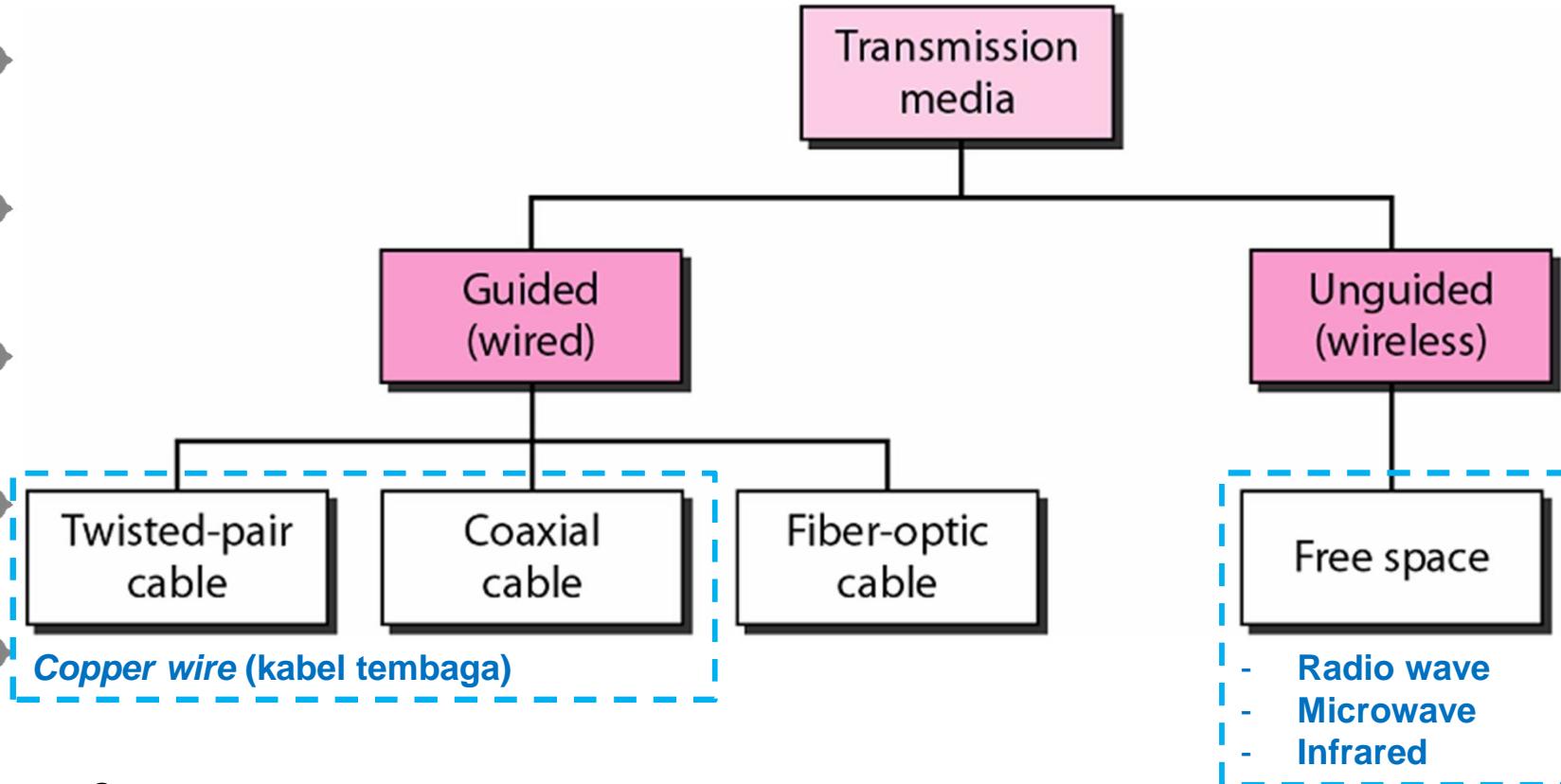
Signals are transmitted in one direction at a time.
Examples: Some data and radio systems.



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

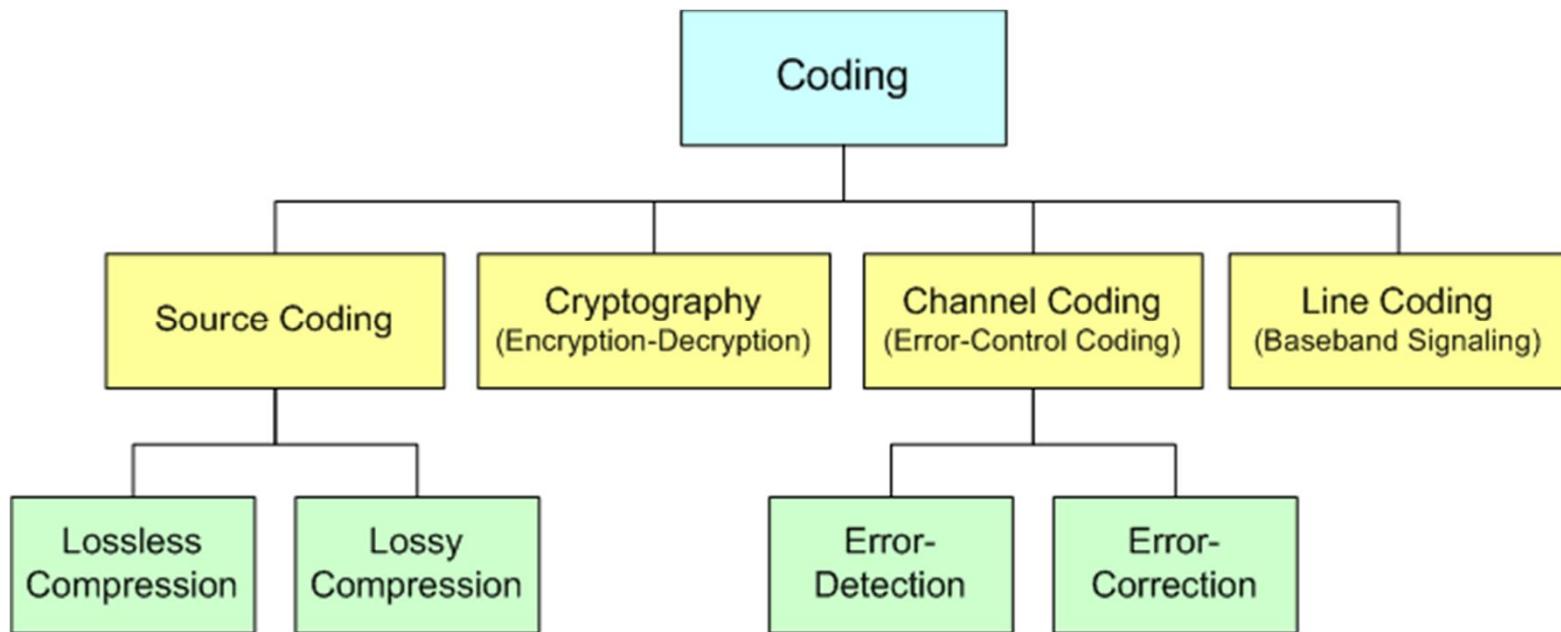


Catatan:

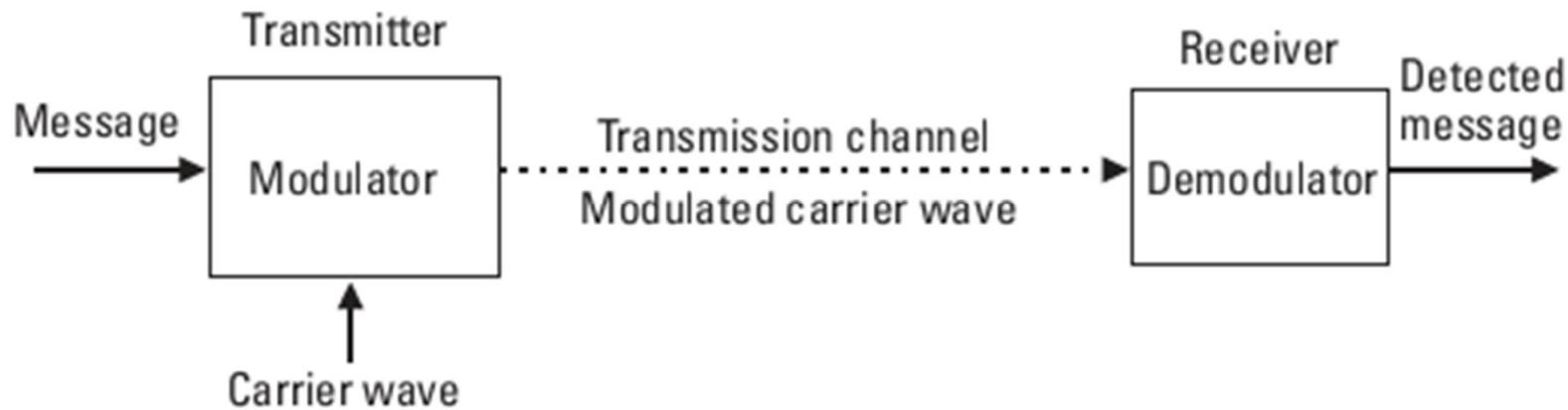
- Tidak ada batas yg tegas antara radio wave dgn microwave, malah ada yg mengelompokkan microwave ke dalam radio wave. Secara umum microwave ditujukan utk frekuensi yg lbh tinggi.
- Transmisi satelit termasuk ke dalam komunikasi microwave.

Pengkodean (*Coding*)

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

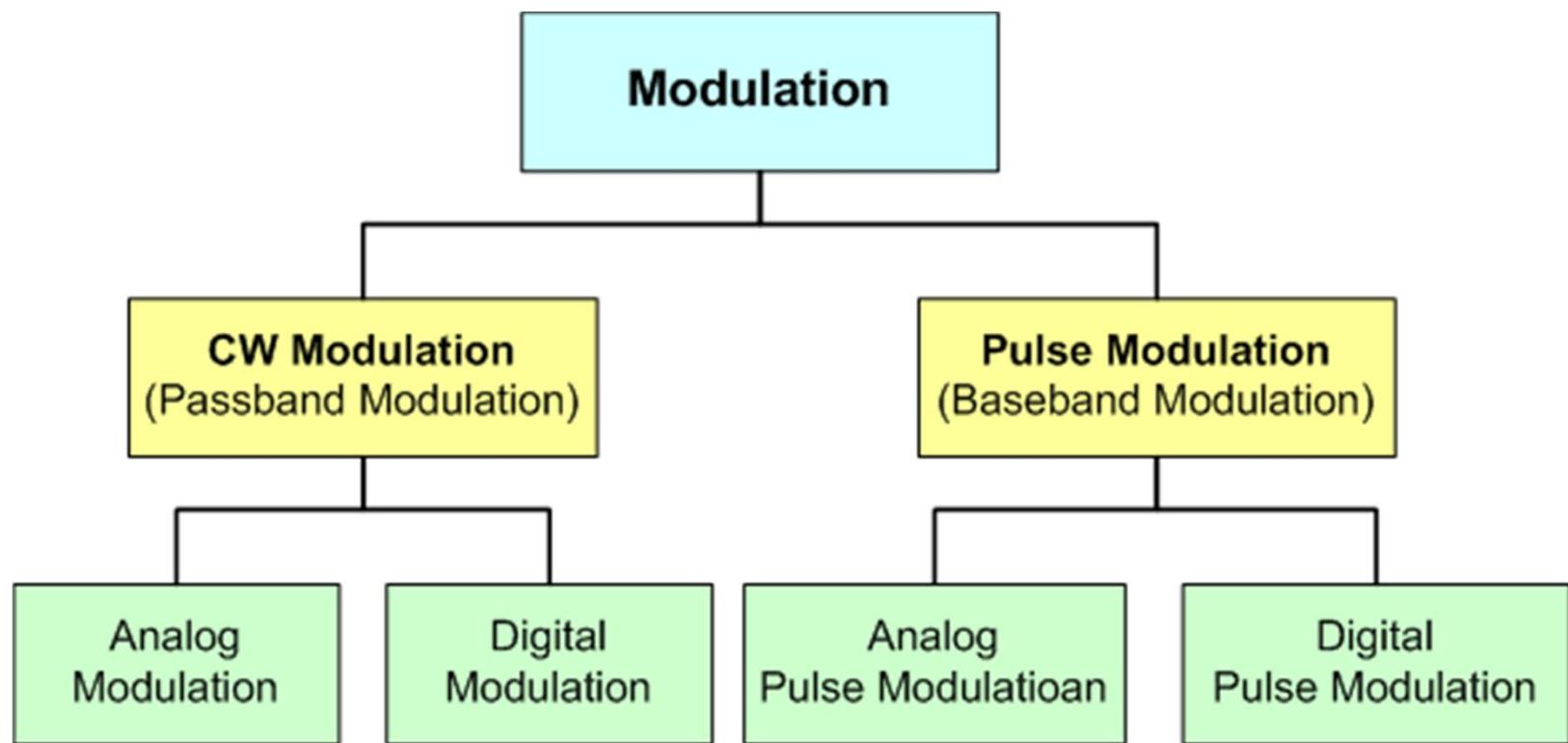


Modulasi-Demodulasi

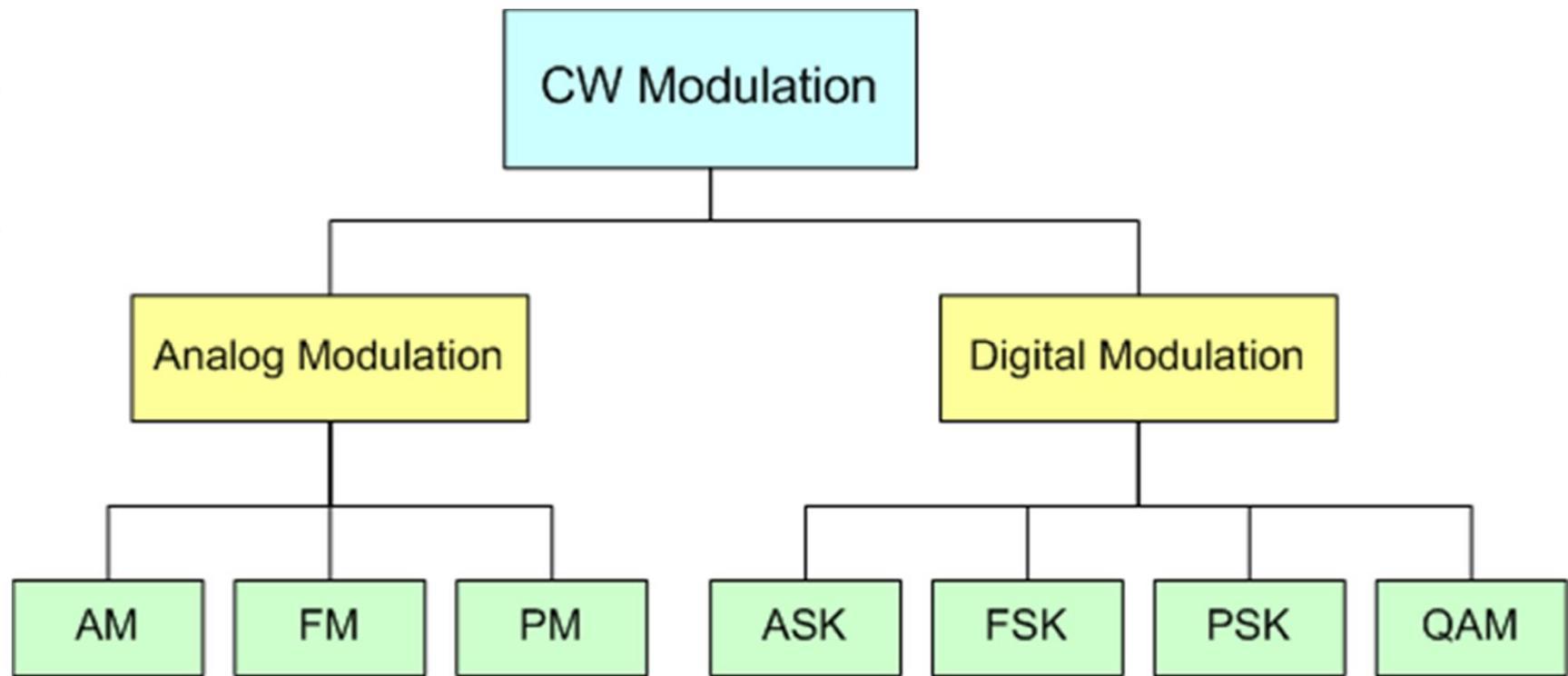


- **Modulasi (*modulation*)** adalah proses menumpangkan informasi (*information/message*) pada suatu gelombang pembawa (*carrier wave*).
- Penumpangan ini dilakukan dgn **mengubah-ubah parameter dari gelombang pembawa** secara proporsional/sesuai dgn sinyal informasi.

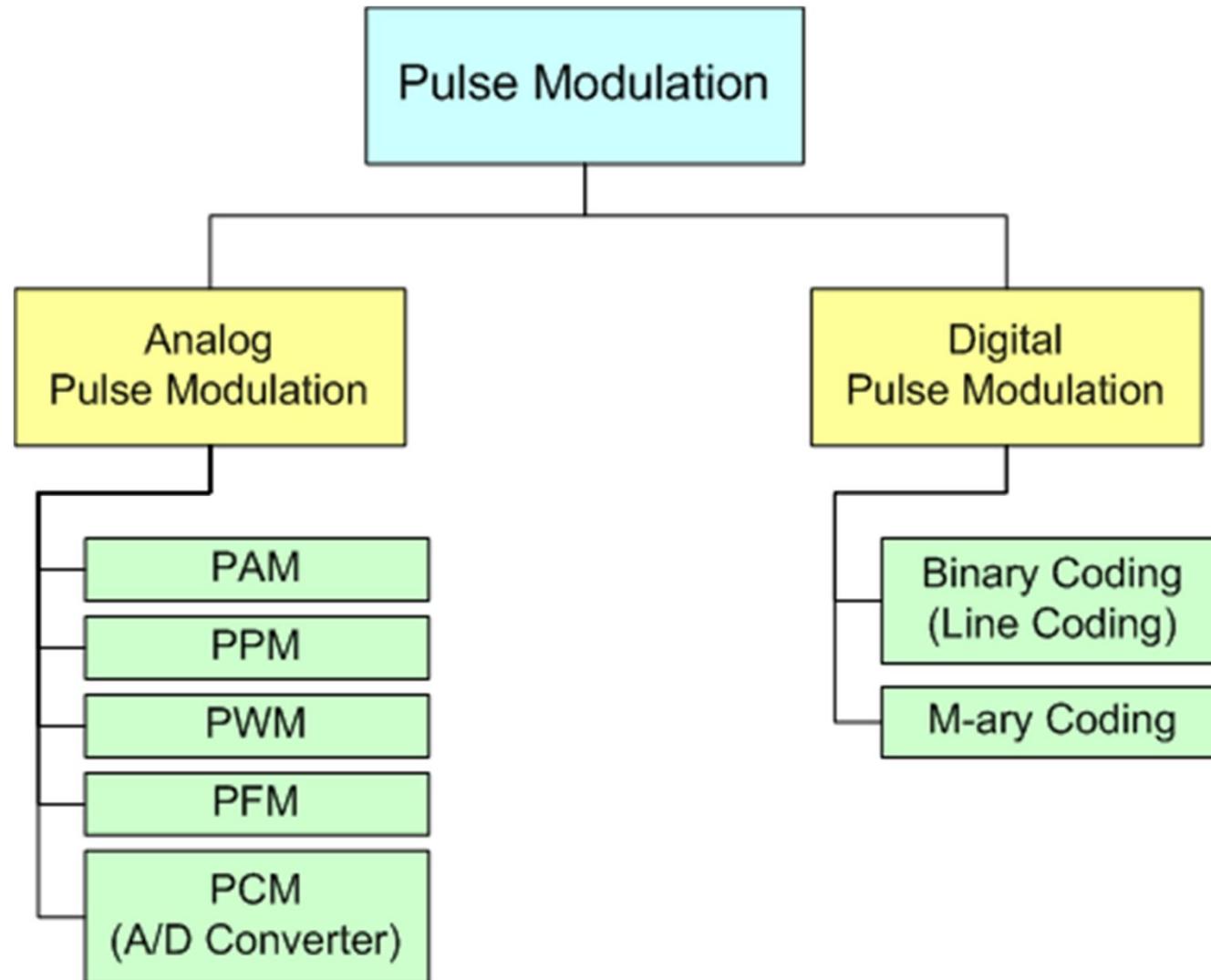
Modulasi (2)



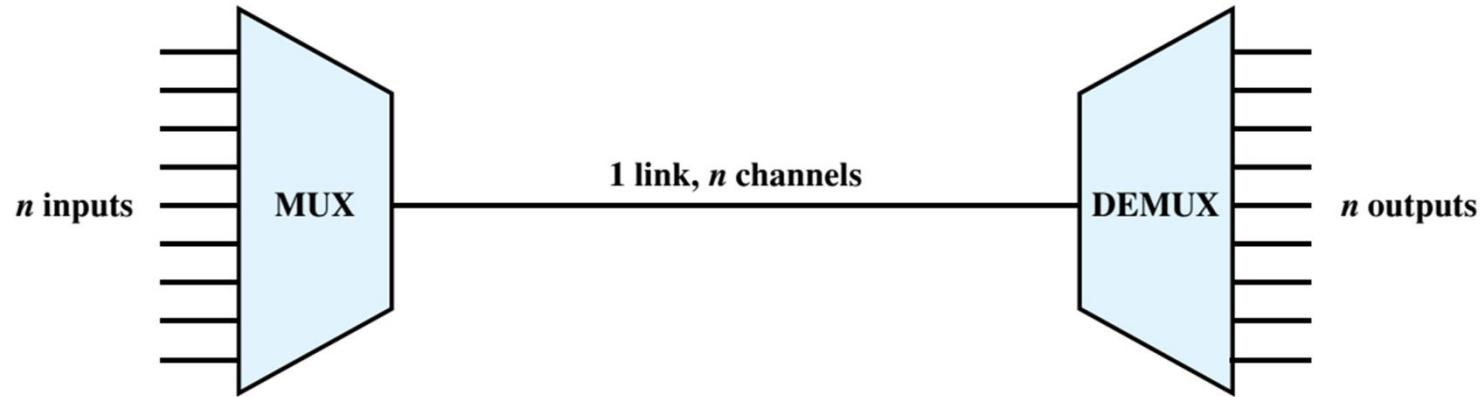
Modulasi Gelombang Kontinu



Modulasi Pulsa (Pulse Modulation)

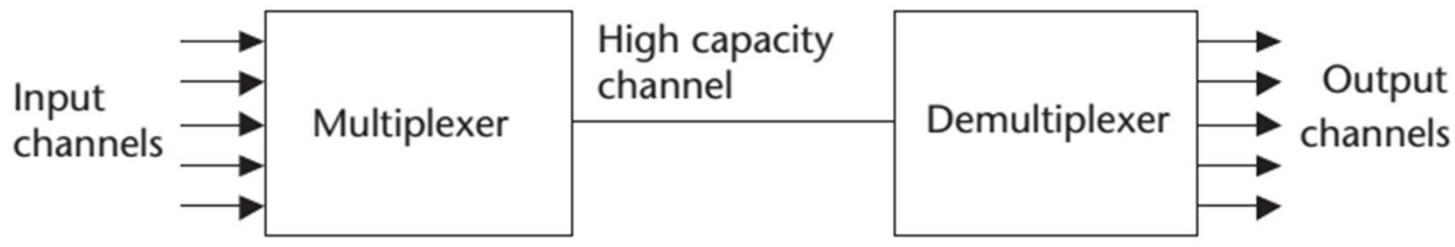


Multiplexing-Demultiplexing

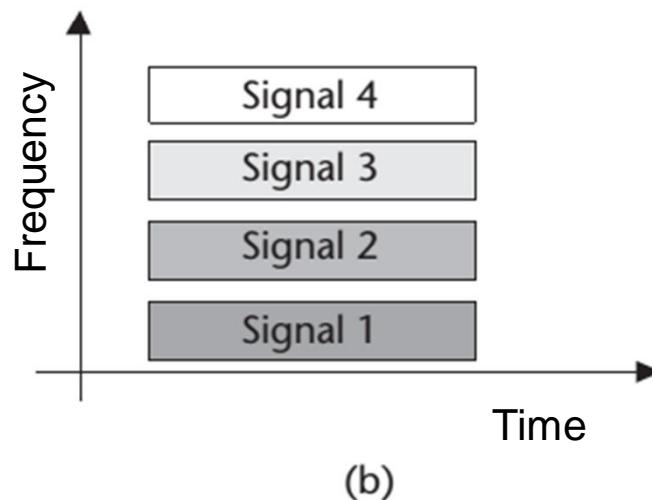


- ***Multiplexing*** adalah suatu proses penggabungan beberapa sinyal utk ditransmisikan secara simultan melalui satu media/link transmisi.
- Pada **pengirim** dilakukan ***multiplexing***, alatnya dinamakan ***multiplexer***.
- Sebaliknya, pada **penerima** dilakukan ***demultiplexing***, alatnya dinamakan ***demultiplexer***⁴

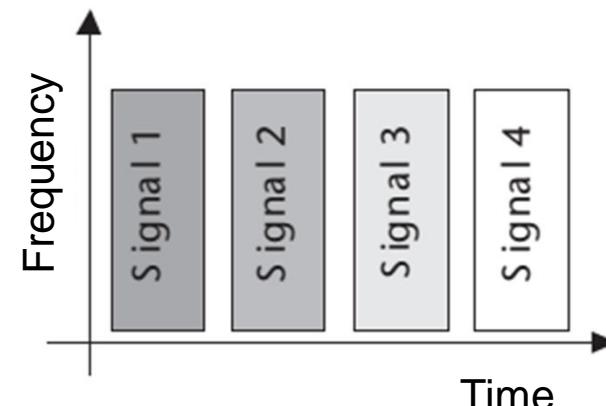
Multiplexing (lanjutan)



(a)



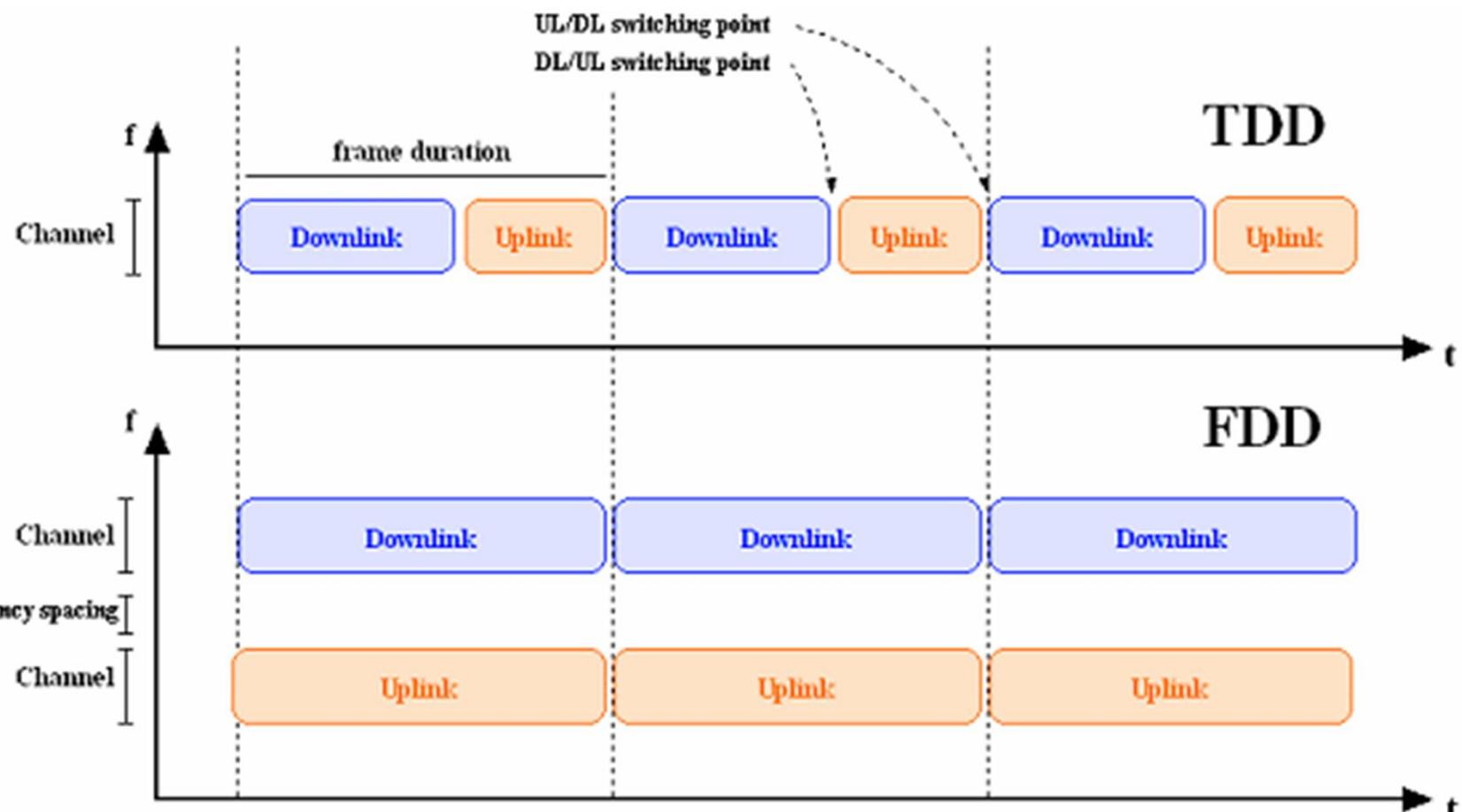
(b)



(c)

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

Duplexing



Multiple-Acess

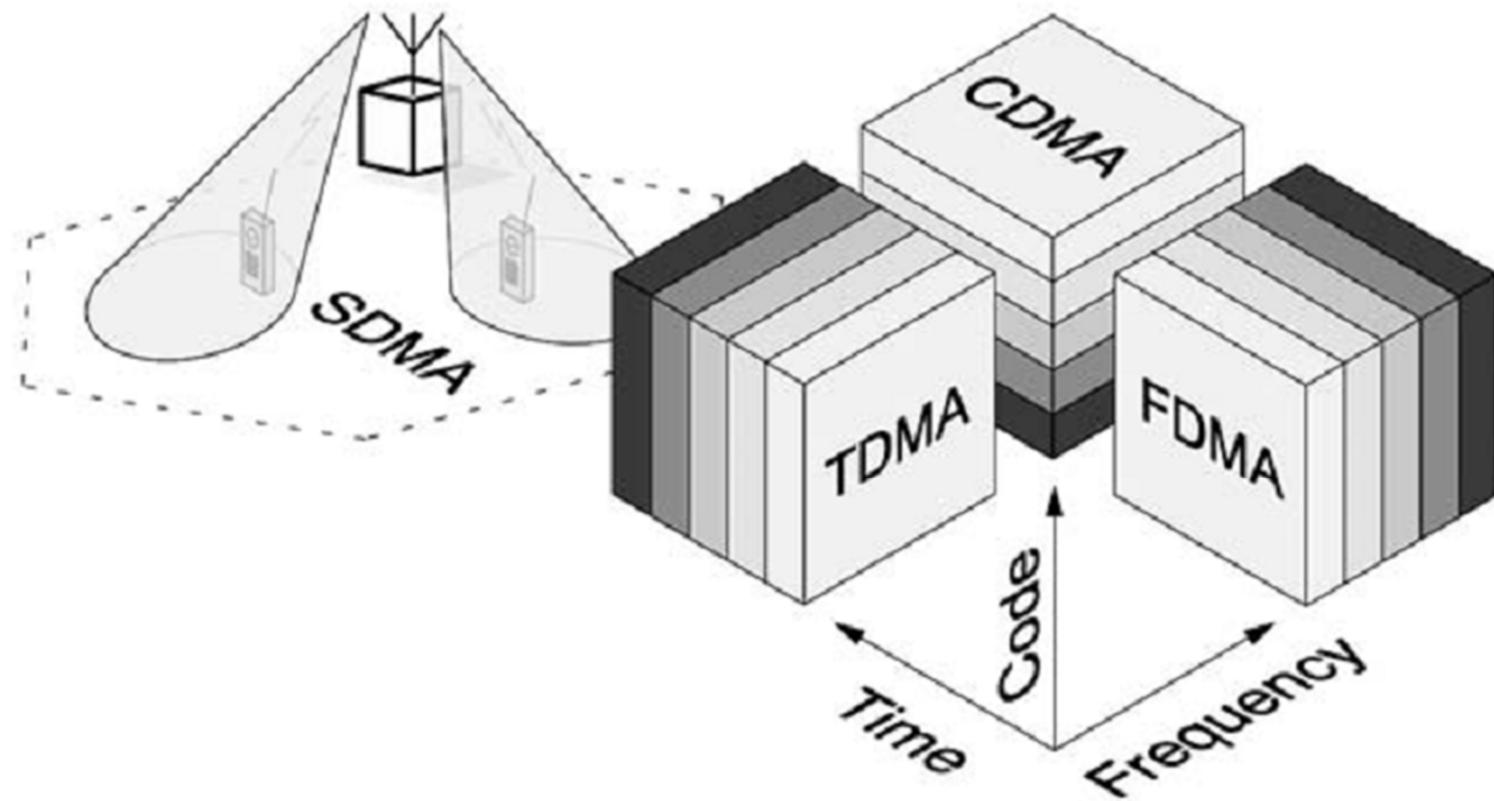
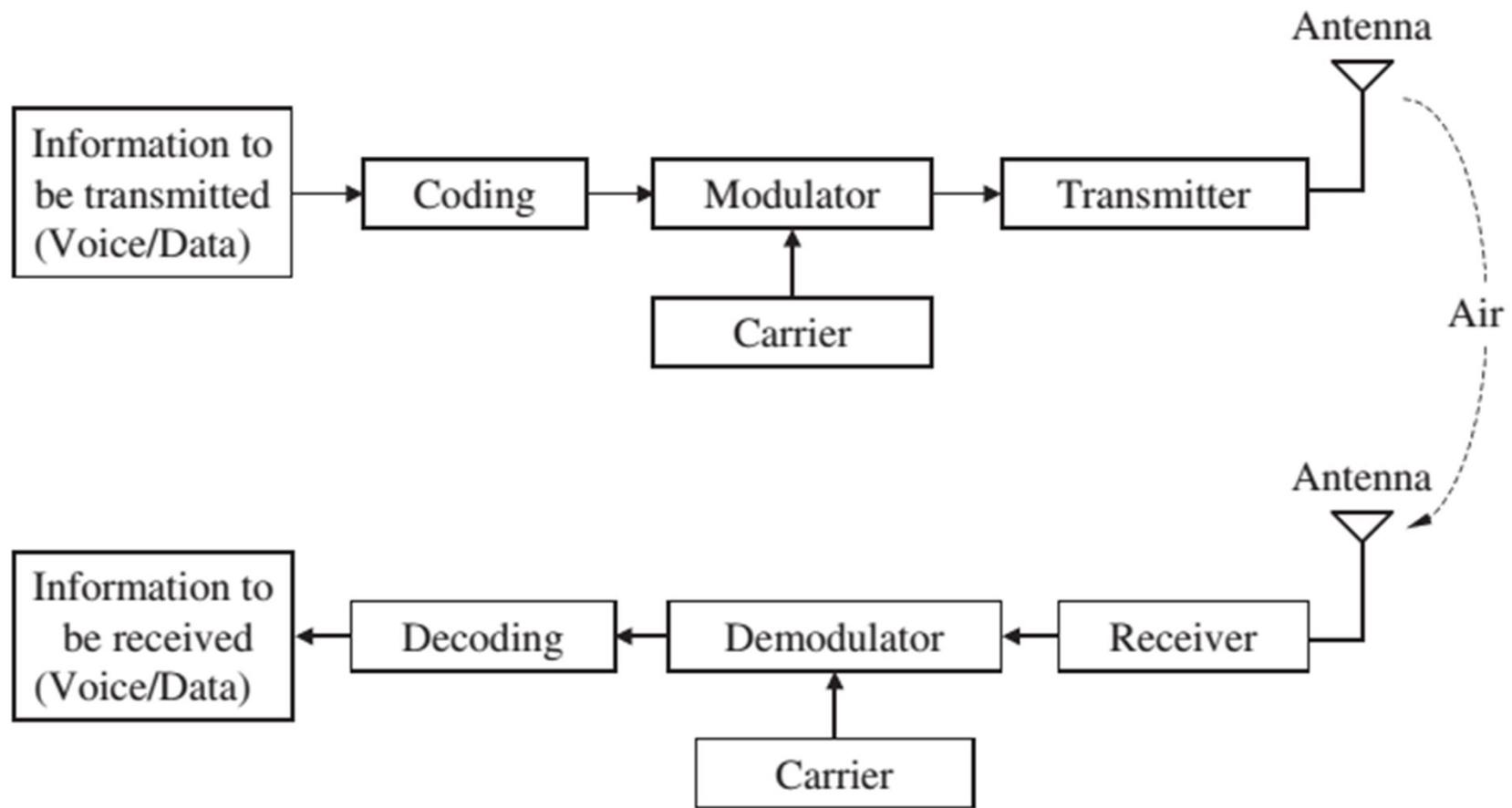


Figure 2.4 Multiple access procedures.

Sistem Komunikasi Nirkabel



Jaringan Telekomunikasi:

Jaringan Akses dan Jaringan Transmisi

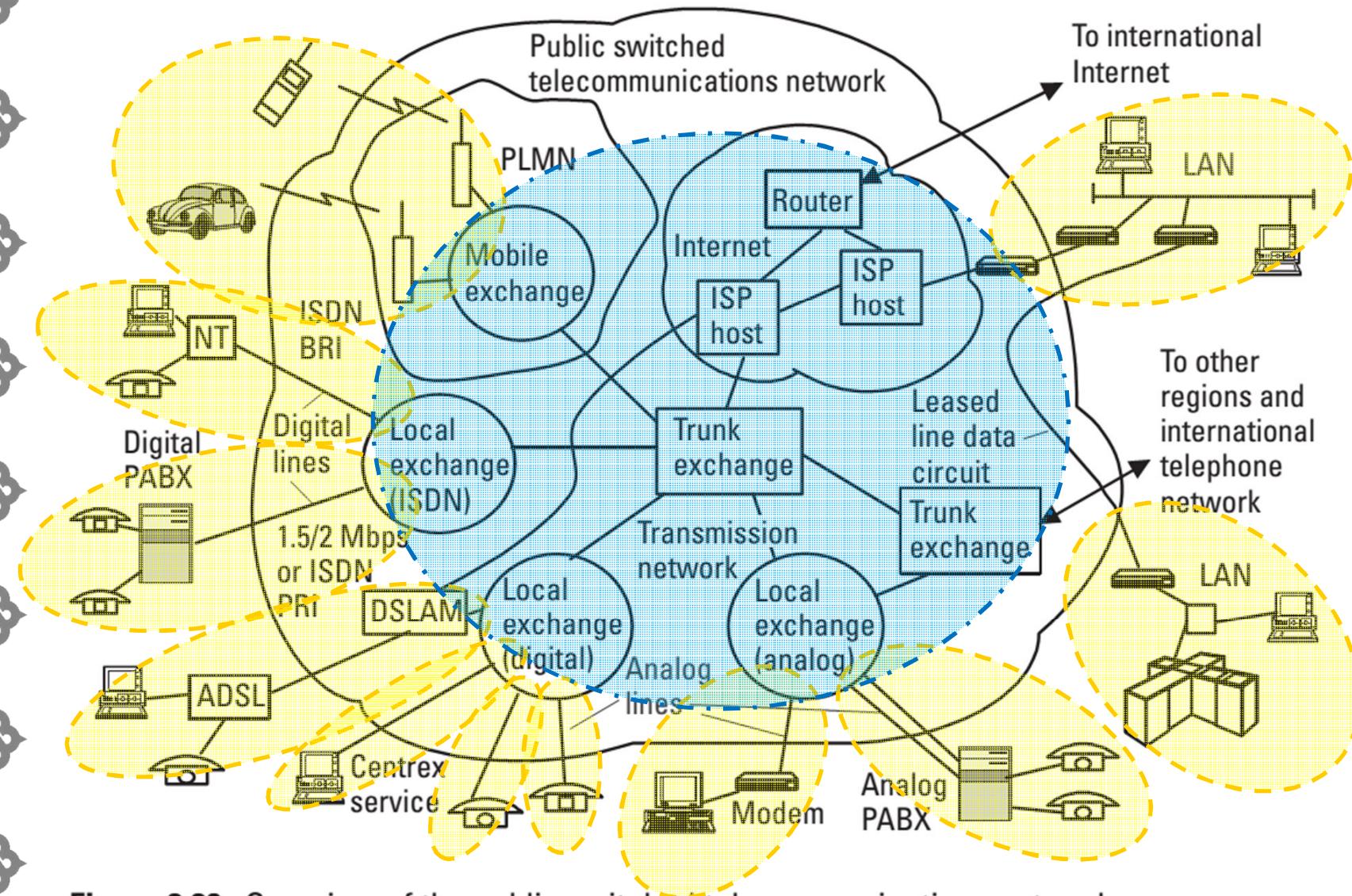
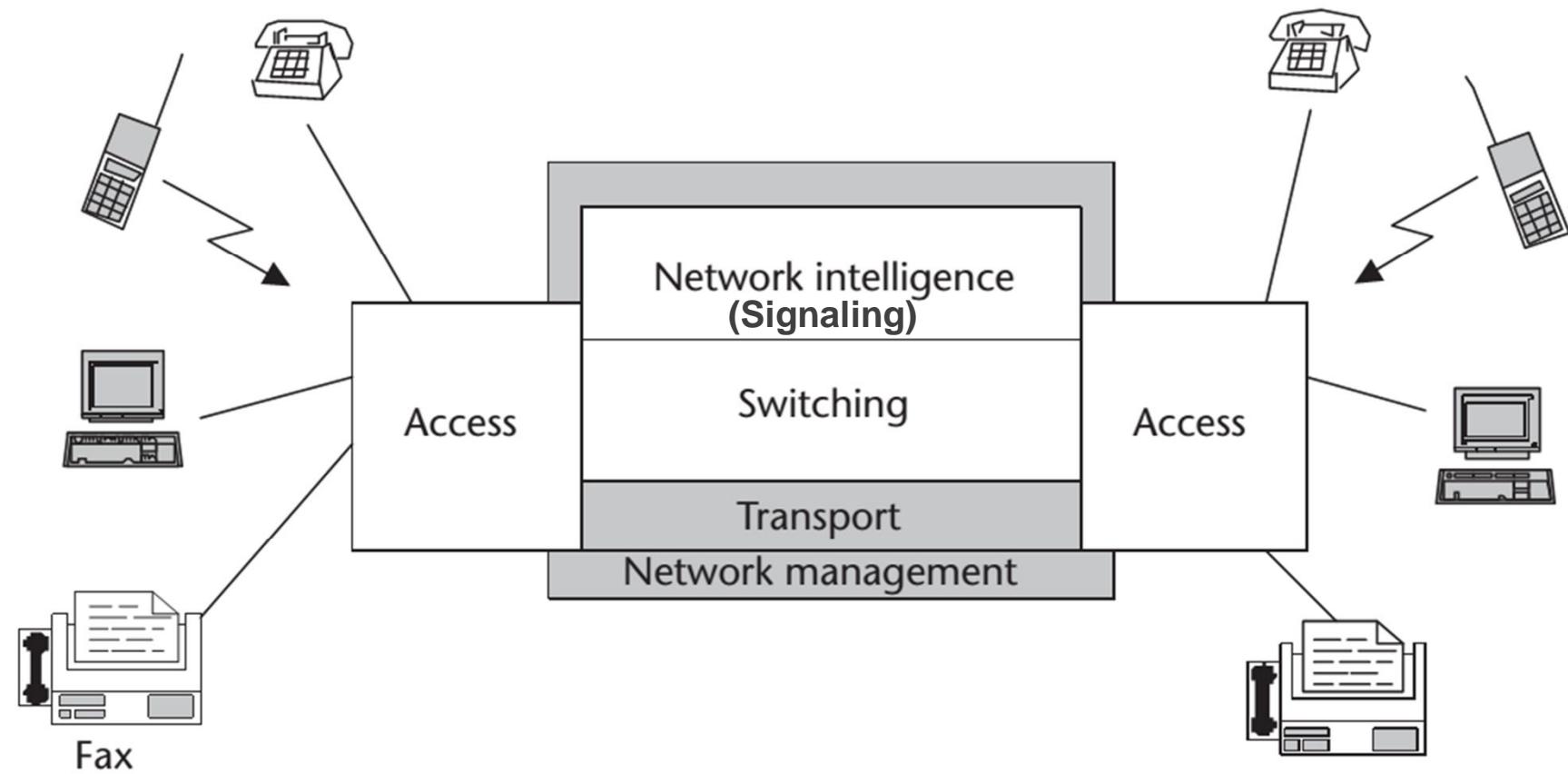


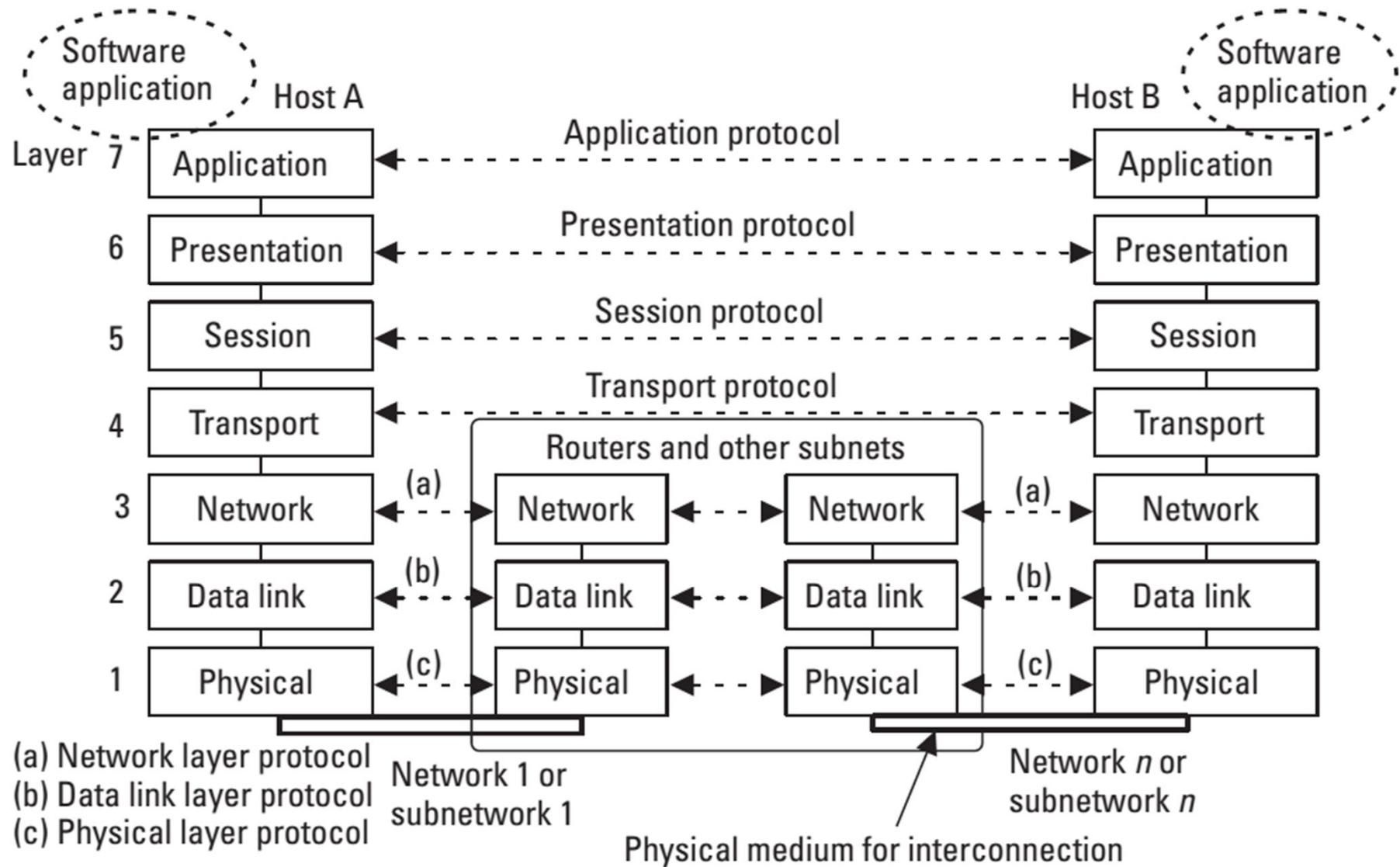
Figure 2.20 Overview of the public switched telecommunications network.

Jaringan Telekomunikasi Modern





Komunikasi Data: Model Referensi OSI





Internet: TCP/IP

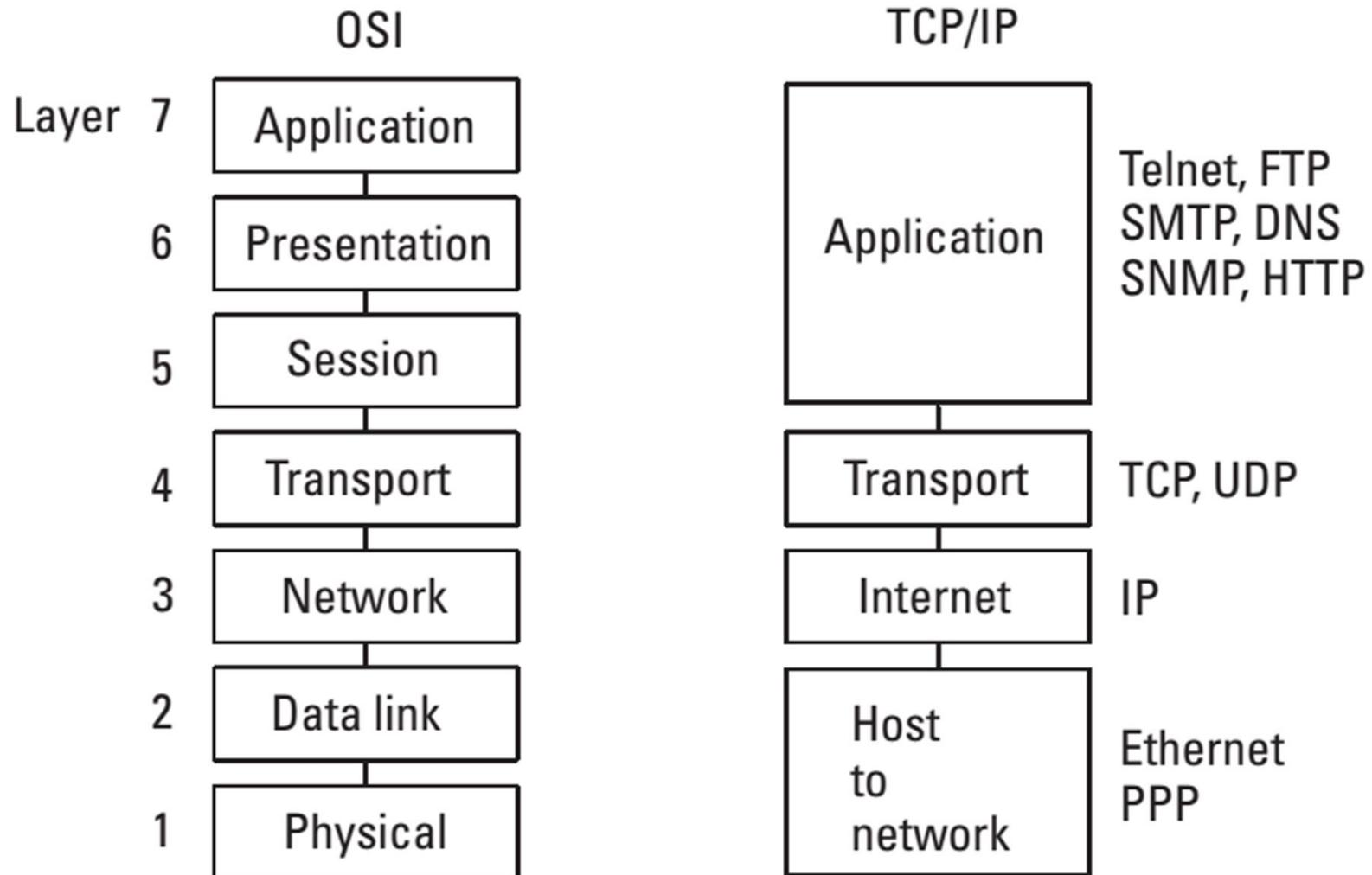


Figure 6.11 The TCP/IP stack and OSI reference model.



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:
 - Rabu 8-Jun-2016 jam 10.30-12.10 WIB → A3 dan A1
 - Kamis 9-Jun-2016 jam 08.00-09.40 WIB → A4
 - Kamis 9-Jun-2016 jam 10.30-12.10 WIB → A2
- Seluruh **bahan/slides kuliah** wajib di-print dan dijilid bersama dgn **catatan tangan**, pertinggal **Kuis** dan **PR**, serta **dibawa pd saat UAS** utk **dinilai**.
- **Materi ujian** adalah **semua** bahan kuliah.
- Sifat ujian: *closed book, open note 2 sheets₃₄ of F4 paper.*



Sekian, terima kasih, semoga berkah.

Ada pertanyaan?

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dan <http://repository.unimal.ac.id>