Overview of the ITU and ITU Radio-Communication Sector (ITU-R)

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Today's ITU

- Today, the ITU bills itself as "the leading United Nations agency for information and communication technologies"
  - Originally created to help connect telegraphic networks between countries, its mandate consistently broadens with the advent of new communications technologies
  - "(T)he work of ITU now covers the whole ICT sector, from digital broadcasting to Internet, and from mobile technologies to 3D TV."

- The current ITU mandate is to
  - develop the technical standards that "ensure networks and technologies seamlessly interconnect"
  - allocate global radio spectrum and satellite orbits
  - "strive to improve access to ICTs to underserved communities worldwide"

ITU Timeline

- 1865 – The International Telegraph Union (ITU) created as a standards organization; adopted Morse code as the international telegraph alphabet

- 1906 – International Radiotelegraph Union (IRU) created at the International Radiotelegraph Convention (Berlin, Germany); adopted the SOS distress signal

- 1925 – CCIF (telephone) and CCIT (telegraph), later merged to become CCITT

- 1927 – International Radio Consultative Committee (CCIR)

- 1932 – Merger of ITU and IRU to become the International *Telecommunication* Union

- 1945 – United Nations Charter

- 1947 – ITU became a specialized agency of the UN and its oldest

United Nations Specialized Agencies

- Autonomous international organizations working with the UN in accordance with agreements between each organization and UN
- Each has a process for admitting members and appointing its administrative head
- There are 15 UN specialized agencies, including:
  - International Maritime Organization (IMO)
  - International Civil Aviation Organization (ICAO)
  - International Telecommunication Union (ITU)
  - World Meteorological Organization (WMO)
  - International Monetary Fund (IMF)
  - World Health Organization (WHO)

  WTO is not a UN specialized agency, though it maintains strong relations with the UN

Membership in the ITU

Member States – These are administrations. They have all rights and privileges. Only member states hold the right to vote. There are 193 members states.

Sector members – Private organizations (carriers, equipment manufacturers, media), R&D bodies, Academia, etc. While non-voting, these members may still play a role in shaping the decisions of the ITU. There are nearly 900 sector members, including:

- 533 **Sector** members, may participate in the activities of a Sector
- 207 **Associate** members, may participate in a single Study Group
- 158 **Academia** members, may participate in the activities of a Study Group through a Memorandum Of Understanding (MOU) with the General Secretariat

ITU Funding

- ## The ITU 2020 budget is $350 million

- ## Member State and Sector Member contributions account for 75% of ITU funding

  - Member States commit to annual contributions at the Plenipotentiary Conference. One contributory unit is CHF 318,000 per year, with contributions varying from 1/16 unit to 40 units.

  - Contributory unit for Sector Members is CHF 63,600 for ITU-T and ITU-R with minimum of ½ unit. Reduced fees for ITU-D. Contributions for Sector Members, Associates and Academia vary according to location, size of entity and nature of their membership. (See [ITU Membership fees - ITU/ UN tech agency](#))

- ## The remaining 25% comes from cost recovery (satellite network filing fees, sales of ITU publications) and voluntary contributions

Top Contributors (2022)

- United States – 35 units
- Japan – 30 units
- Germany – 25 units
- France – 21 units
- China – 20 units
- Italy – 15 units
- Russian Federation – 15 units

- Australia – 13 units
- Saudi Arabia – 13 units
- Brazil – 11 units
- Canada – 11 units
- India – 10 units
- Republic of Korea – 10
- Switzerland – 10 units
- UK – 10 units

Note: Each contributory unit represents CHF 318,000.
Member States alone accounted for 66% of ITU's total revenue in 2021

ITU Governance

Plenipotentiary Conference (plenipot)

– The supreme organ of the ITU, composed of all 193 ITU member states
– Meets every four years
– Amends the Constitution and Convention
– Elects officers, sets budgets, establishes structure and operating rules and policies

Council

– Acts as the governing body in the interval between plenipots
– 48 members (25%) equitably distributed among 5 administrative regions
– Meets every year
– Sets the final agenda for the World Radiocommunication Conference

Secretariat

– Responsible for administrative and budgetary planning
– Publishes the results of the work of the ITU
– Monitoring compliance with ITU regulations

Legal Instruments of the ITU

- Constitution

- Convention

- Administrative Regulations
  - International Telecommunication Regulations (ITRs)
  - Radio Regulations (RR)

  The collection of the ITU Basic Texts is available at:
  www.itu.int/net/about/basic-texts

Three Technical Sectors

The **Telecommunication Standardization Sector (ITU-T)** sets standards in the form of ITU–T Recommendations with a focus on *wireline* communication issues, including the internet. The ITU-T works through,

- World telecommunication standardization assemblies (WTSA)
- Telecommunication standardization study groups
- The Telecommunication Standardization Advisory Group
- The Telecommunication Standardization Bureau

The **Development Sector (ITU-D)** promotes the development, expansion and operation of telecommunication networks and services, particularly in developing countries. This sector works in cooperation with the Radiocommunication and Telecommunication Standardization Sectors and does its work through,

- World and regional telecommunication development conferences (WTDC)
- Telecommunication development study groups
- The Telecommunication Development Bureau

The **Radiocommunication Sector (ITU-R)**

Radiocommunication Sector (ITU–R)

The **ITU-R** manages the international radio-frequency spectrum and satellite orbit resources and develops standards for radiocommunication systems with the objective of ensuring the effective use of the spectrum. The ITU-R does its work though,

- World Radiocommunication Conference (WRC)
- Radiocommunication Assembly (RA)
- Radiocommunication Study Groups (SG)
- Radio Regulation Board (RRB)
- The Radio Advisory Group (RAG)
- Radiocommunication Bureau (BR)

World Radiocommuncation Conference

– WRC meets every 3-4 years to review and revise the Radio Regulations, an international treaty

– All members participate

– Much of the work done in the ITU-R Study Groups, and all of the work of the Conference Preparatory Meetings (CPM) is done in support of the WRC

– WRC-23 will be held in Dubai, United Arab Emirates from November 20 to December 15, 2023

The Radiocommunication Assembly

The RA manages ITU-R Study Groups and their work by developing ITU-R Resolutions. The RA assigns conference preparatory work and other Questions to the Study Groups

- Some Resolutions of the RA can affect WRC agenda items
- An RA is usually held the week before a WRC
- The RA appoints Chairmen and Vice-Chairmen of Study Groups
- The RA approves ITU-R Recommendations and Questions developed by the Study Groups

Conference Preparatory Meeting

The CPM is one part of the family of ITU-R Study Groups

The CPM prepares a report detailing the technical basis for agenda items being considered by a WRC, including Methods to satisfy the agenda items

CPM XX-1 is held immediately following a WRC
- Attended by Chairmen and Vice Chairmen of ITU-R Study Groups
- Determines the structure of the CPM report and designates Chapter Rapporteurs
- Assigns work to Working Parties of the Study Groups, which will conduct studies and prepare the text to be compiled in the report

Conference Preparatory Meeting

CPM XX-2 is held 6 months prior to the WRC

- – This meeting is open to delegates from ITU member states
- – The meeting reviews and finalizes the CPM report
- – This meeting may lead to consensus on how to address some agenda items prior to the WRC, but the meeting could produce more options for some agenda items for the WRC to consider

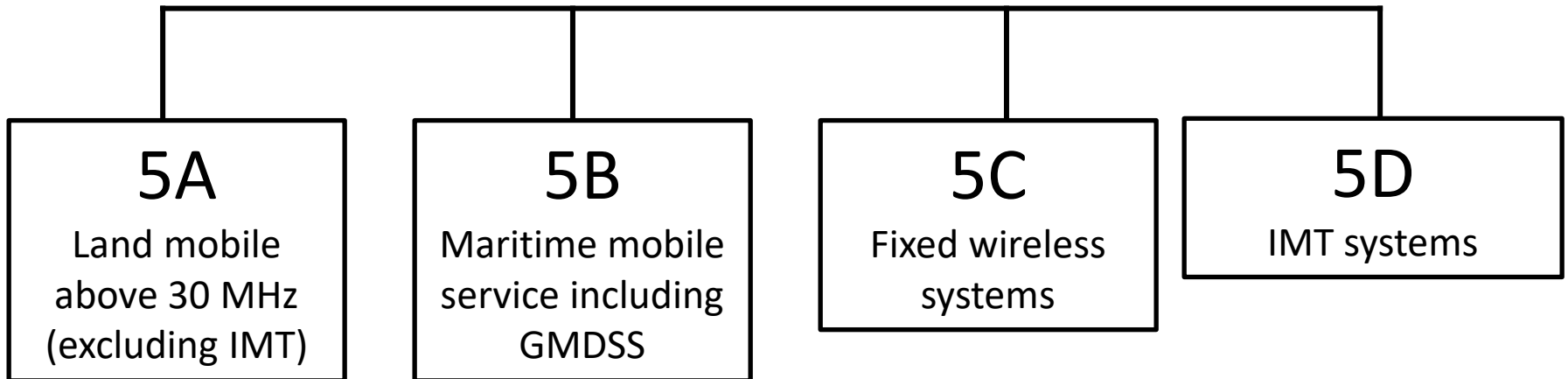The CPM Report is a contribution to the WRC

ITU-R Study Groups

The study groups carry out the technical work to support methods for addressing agenda items under a WRC as well as other work on *Reports, Recommendations*, and *Handbooks* for spectrum issues under their area of expertise and sharing and compatibility studies in cooperation with other study groups.

- SG1 – Spectrum Management
- SG3 – Radiowave Propagation
- SG4 – Satellite Services
- SG5 – Terrestrial Services
- SG6 – Broadcasting Service
- SG7 – Science Services
- Coordination Committee On Vocabulary (CCV)
- Conference Preparatory Meeting (CPM)

Example ITU-R Study Group Structure

Working Parties of
Study Group 5

5A
Land mobile above 30 MHz (excluding IMT)

5B
Maritime mobile service including GMDSS

5C
Fixed wireless systems

5D
IMT systems

ITU-R Study Group and Working Party Output

- **ITU-R QUESTION** - A statement of a technical, operational or procedural problem seeking a Recommendation, Handbook or Report

- **ITU-R RECOMMENDATION** - An answer to a Question or part(s) of a Question which, within the scope of existing knowledge and studies, gives specifications, data, or guidance

- **ITU-R REPORT** - A technical, operational or procedural statement

- **ITU-R HANDBOOK** - Practical information engineers, system planners, and operating officials

- **DRAFT CPM TEXT** - Provides the technical basis, summary of studies, and suggested Methods to address WRC agenda items

The Radio Regulation Board

- 12 elected members, meets 4 times a year
- Approves Rules of Procedure (RoP) used by the BR
- Addresses matters referred by the BR which cannot be resolved through application of the RR and RoP
  - clarifies the application of particular regulations
  - establishes the necessary practical procedures that may not be provided for in the RR and RoP
- Considers unresolved interference cases
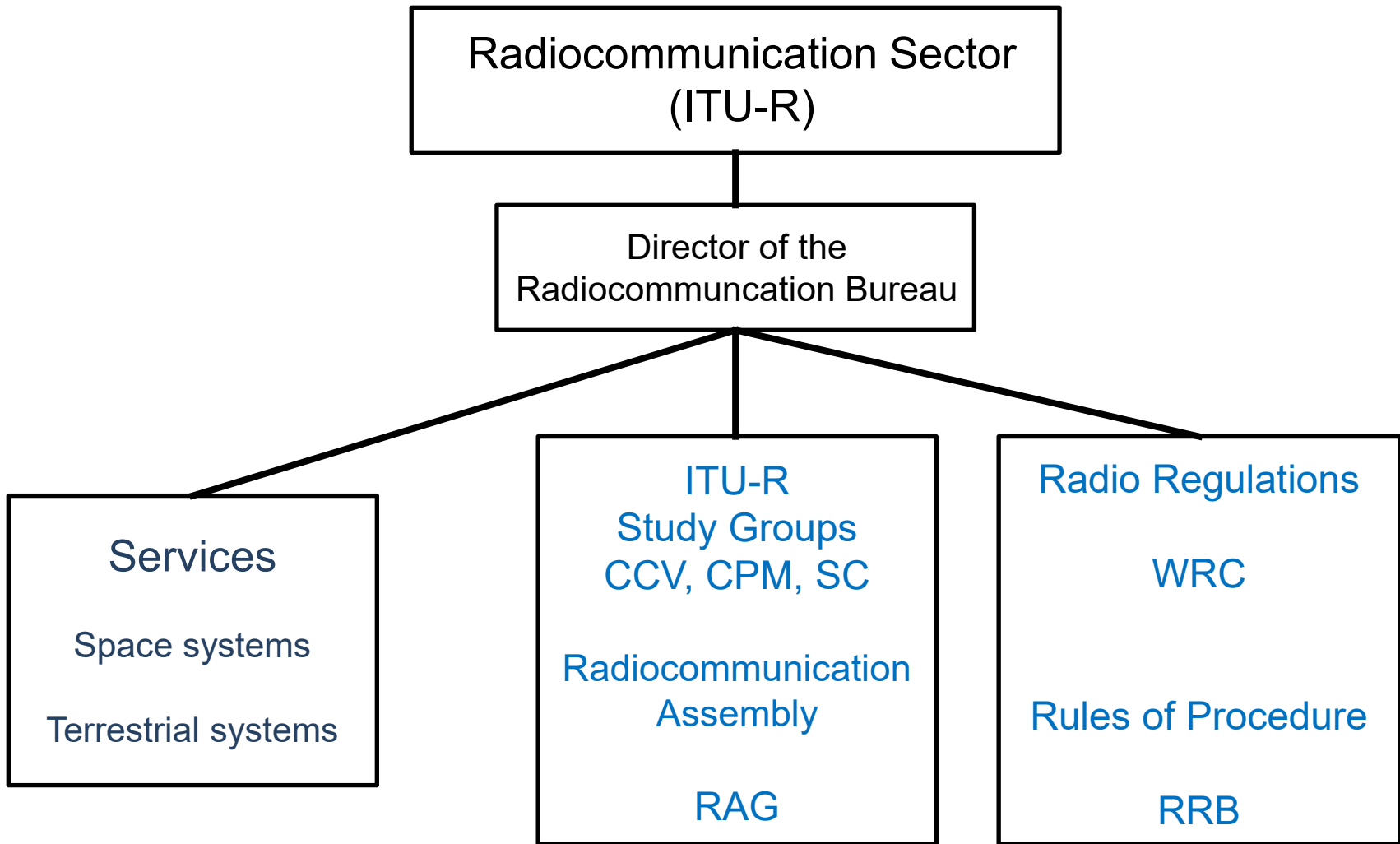- Considers appeals against decisions made by the BR

The Radio Advisory Group

The RAG provides advice to the Director of the BR on Study Group issues

- Reviews the priorities and strategies adopted in the R-Sector
- Reviews processes and procedures used by the Study Groups and the Radiocommunication Assembly upon request
- Reviews the R-Sector budget and operational plan
- Recommends measures for fostering cooperation and coordination between Study Groups, with the other ITU Sectors, and with other organizations

The Radiocommunication Bureau

- Organizes and coordinates the work of the R Sector
- Supports ongoing work of the ITU-R Study Groups
- Maintains the Radio Regulations
- Organizes meetings and conferences, including WRC and SG meetings
- Maintains the Master International Frequency Register (MIFR) for terrestrial and space Services
- Provides satellite coordination services

Radiocommunication Sector (ITU-R)

Director of the Radiocommuncation Bureau

Services

Space systems

Terrestrial systems

ITU-R Study Groups CCV, CPM, SC

Radiocommunication Assembly

RAG

Radio Regulations

WRC

Rules of Procedure

RRB

The Business of ITU-R

SPACE SERVICES >

TERRESTRIAL SERVICES >

RADIOCOMMUNICATION STUDY GROUPS >

RADIO REGULATIONS >

Rules of Procedure

approved by the Radio Regulations Board

for the application, by the Radiocommunication Bureau of the provisions of the Radio Regulations, Regional Agreements, Resolutions and Recommendations of World and Regional Radiocommunication Conferences

Edition of 2022

Radio Regulations

Articles

Edition of xxxx
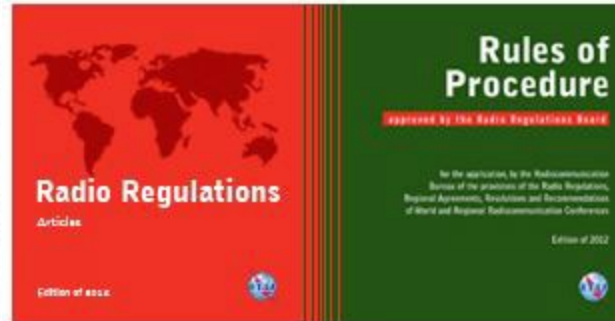
- World Radiocommunication Conferences (WRC)
- Radiocommunication Assemblies (RA)
- Regional Radiocommunication Conferences (RRC)
- Radio Regulations Board (RRB)
- Radiocommunication Study Groups
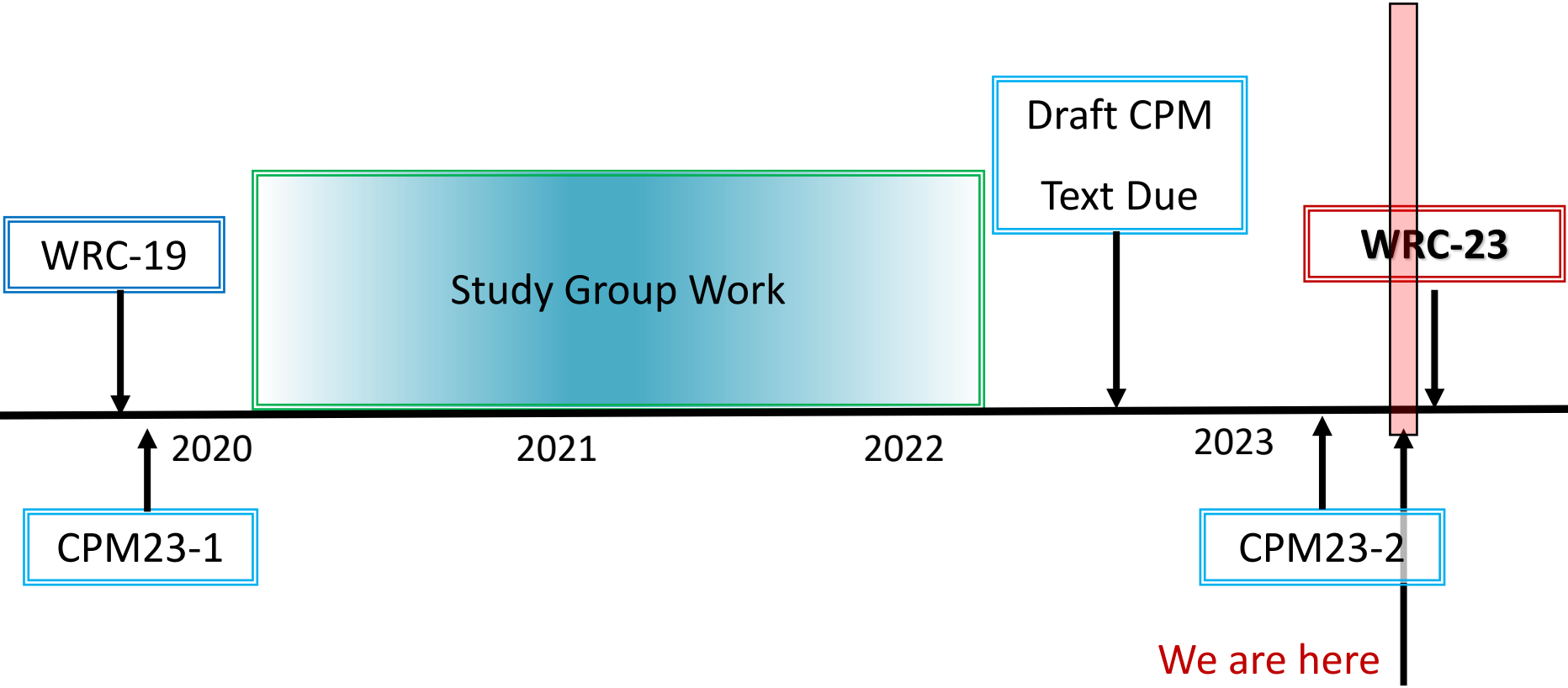- Radiocommunication Advisory Group (RAG)

ITU Meeting Cycle

Plenipot is held every 4 years. Between Plenipots there will be:

- One Council meeting per year

- One or more WRC and RA (ITU-R)

- At least one WTSA (ITU-T)

- One WTDC (ITU-D)

The frequency of these meetings is specified in the Constitution of the ITU, in Article 13 (for ITU-R), Article 18 (for ITU-T), and Article 22 (for ITU-D)

WRC Study Cycle

WRC-19

Study Group Work

Draft CPM Text Due

WRC-23

2020 2021 2022 2023

CPM23-1

CPM23-2

We are here

Much of the work that is done to prepare for a WRC is done in a period called a *study cycle*

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