How to Organize a System of Healthcare Technology Management

WARWICK

Dr Leandro Pecchia
'HOW TO MANAGE' SERIES FOR HEALTHCARE TECHNOLOGY' series WHO

'How to Manage' Series for Healthcare Technology

- Guide 1:   How to Organize a System of Healthcare Technology Management
- Guide 2:   How to Plan and Budget for your Healthcare Technology
- Guide 3:   How to Procure and Commission your Healthcare Technology
- Guide 4:   How to Operate your Healthcare Technology Effectively and Safely
- Guide 5:   How to Organize the Maintenance of your Healthcare Technology
- Guide 6:   How to Manage the Finances of your Healthcare Technology Management Teams

- Link (23.02.2016): http://apps.who.int/medicinedocs/en/cl/CL3.1.1.4/clmd,50.html

What Do we Mean by Healthcare Technology?

The World Health Organization (WHO) uses the broader term 'health technology', which it defines as including:

'devices, drugs, medical and surgical procedures – and the knowledge associated with these – used in the prevention, diagnosis and treatment of disease as well as in rehabilitation, and the organizational and supportive systems within which care is provided'

(Source: Kwankam, Y, et al, 2001, 'Health care technology policy framework', WHO Regional Publications, Eastern Mediterranean Series 24: Health care technology management, No. 1)
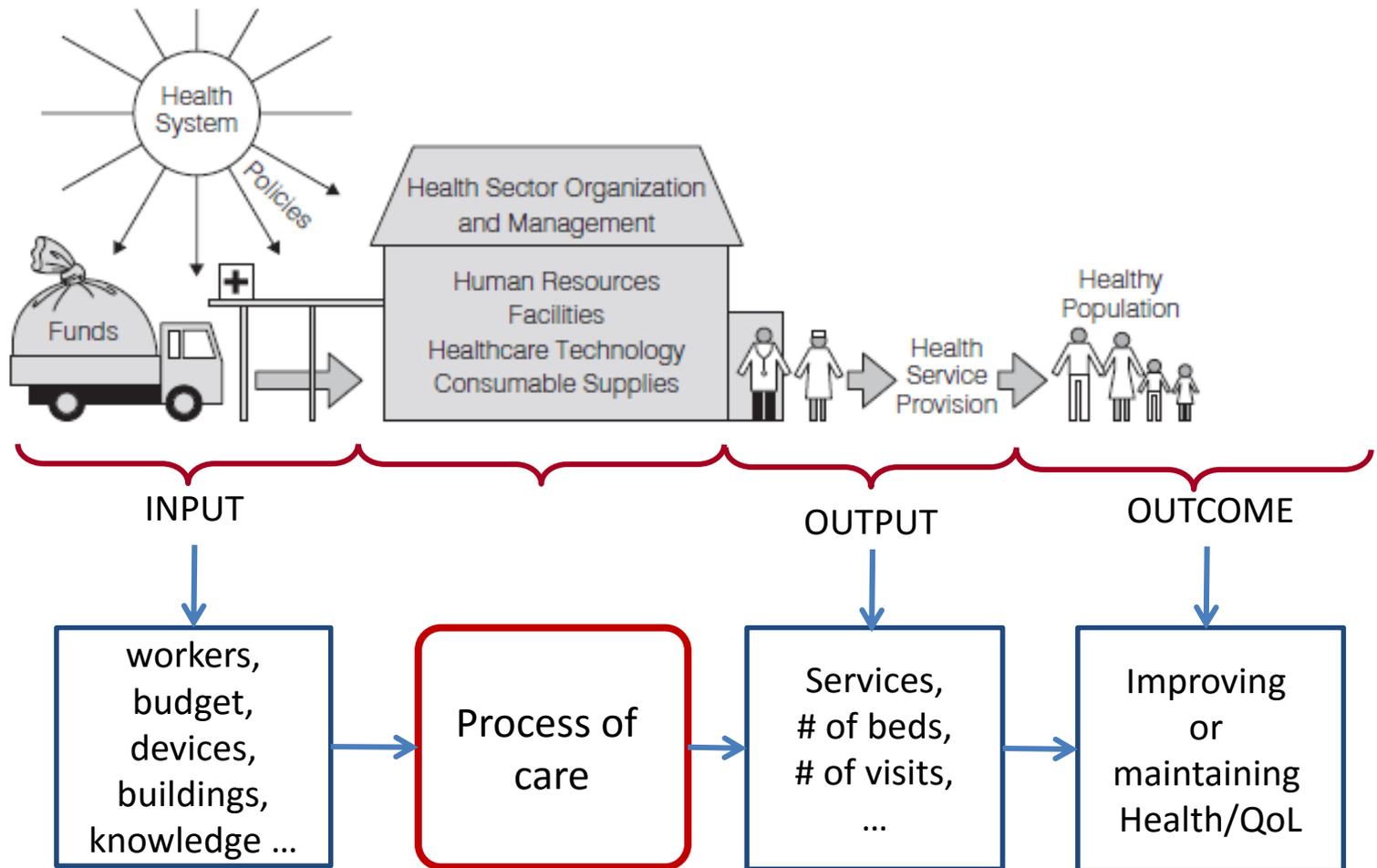
BOX 1: Categories of Equipment and Technologies Described as 'Healthcare Technology'

medical equipment	walking aids	health facility furniture
communications equipment	training equipment	office equipment
office furniture	fixtures built into the building	plant for cooling, heating, etc
service supply installations	equipment-specific supplies	fire-fighting equipment
workshop equipment	fabric of the building	vehicles
laundry and kitchen equipment	waste treatment plant	energy sources

For examples of these different categories, see the Glossary in *Annex 1*.

Leandro Pecchia, l.pecchia@warwick.ac.uk

Figure 1: The Place of Healthcare Technology Management in the Health System

Healthcare Technology Management (HTM) refers to the organization and coordination of all of the activities that ensure the successful management of health technologies, including:

- Gathering reliable information

- Planning technology needs and allocating sufficient funds for them

- Purchasing suitable health technology models and installing them effectively

- Providing sufficient resources for their use

- Operating them effectively and safely

- Maintaining and repairing the equipment

- Decommissioning, disposing, and replacing unsafe and obsolete items

- Ensuring staff have the right skills regarding the equipment.

HTM is a multidisciplinary process requiring broad skills in a number of areas, including:

- technical problems

- finances

- purchasing procedures

- stores supply and control

- workshops

- staff development.

However, you also need skills to manage the place of healthcare technology in the health system. Therefore, HTM means managing how healthcare technology should interact and balance with your:
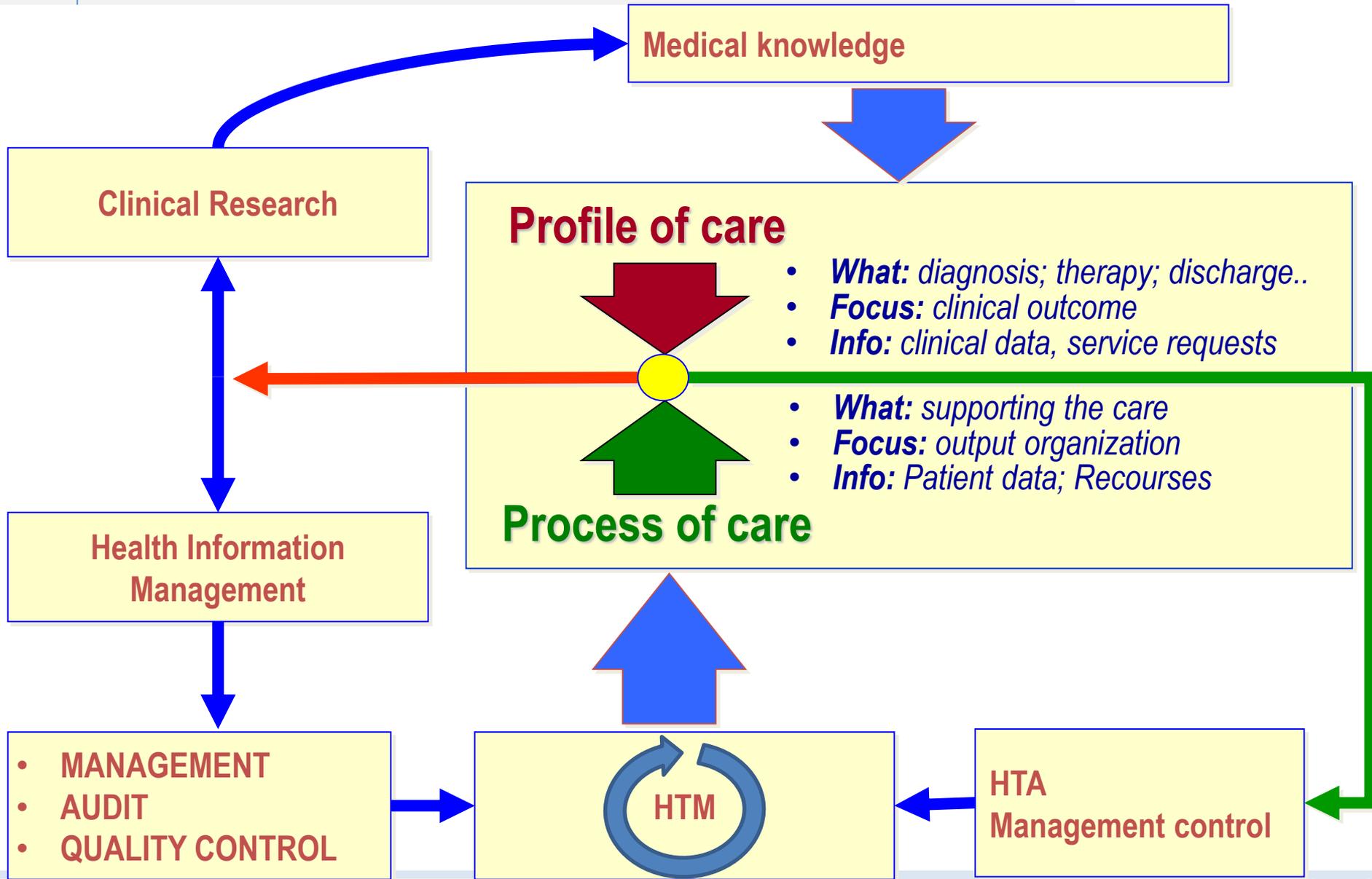
• medical and surgical procedures

• support services

• consumable supplies, and

• facilities

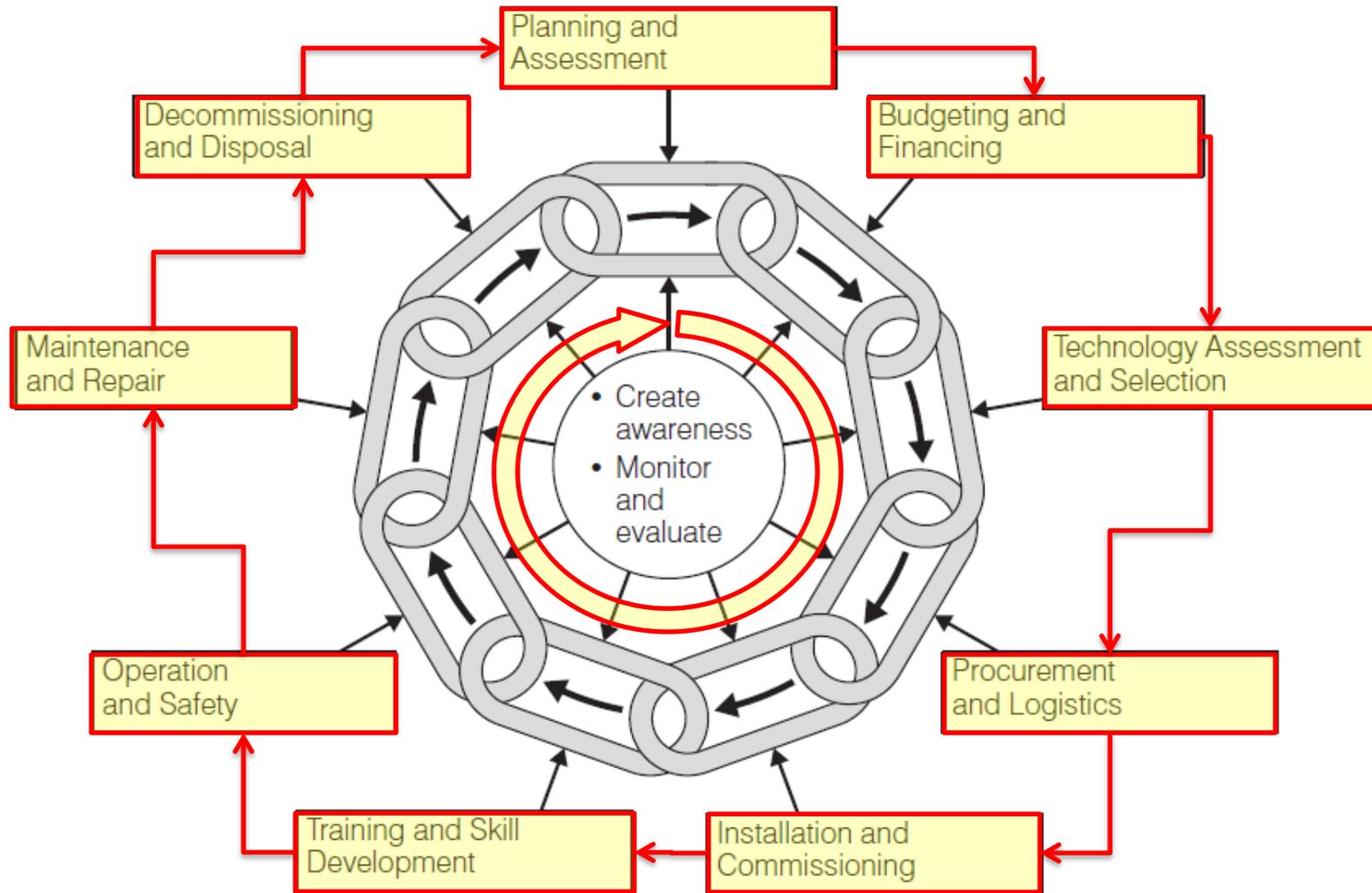so that the complex whole enables you to provide the health services required.

BOX 2: Benefits of Healthcare Technology Management (HTM)

♦ Health facilities can deliver a full service, unimpeded by non-functioning healthcare technology.

♦ Equipment is properly utilized, maintained, and safeguarded.

♦ Staff make maximum use of equipment, by following written procedures and good practice.

♦ Health service providers are given comprehensive, timely, and reliable information on:
  - the functional status of the equipment
  - the performance of the maintenance services
  - the operational skills and practice of equipment-user departments
  - the skills and practice of staff responsible for various equipment-related activities in a range of departments including finance, purchasing, stores, and human resources.

♦ Staff control the huge financial investment in equipment, and this can lead to a more effective and efficient healthcare service.
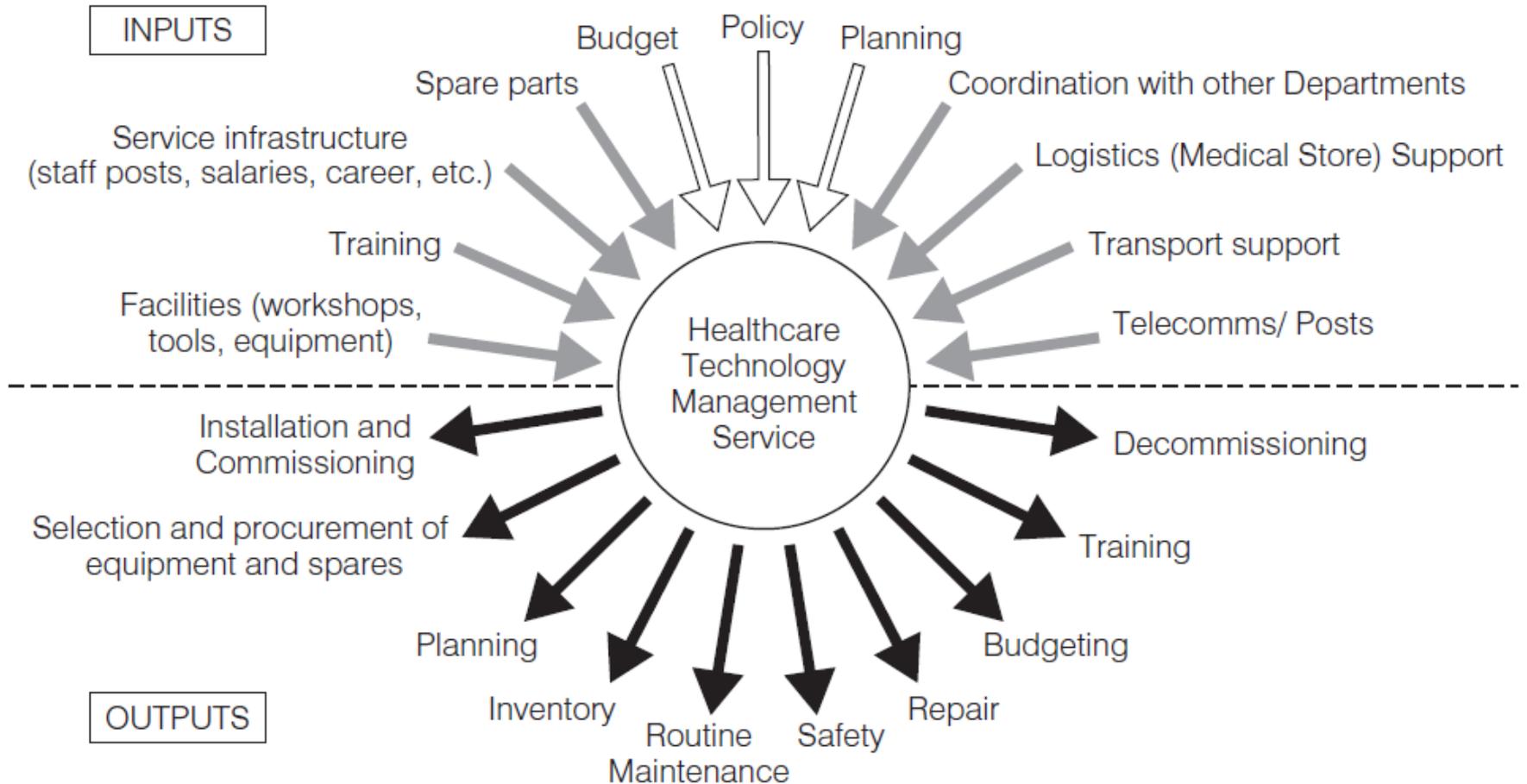
'HTM"- Profile and process of care

Medical knowledge

Clinical Research

Profile of care

- **What:** diagnosis; therapy; discharge..
- **Focus:** clinical outcome
- **Info:** clinical data, service requests

- **What:** supporting the care
- **Focus:** output organization
- **Info:** Patient data; Recourses

Process of care

Health Information Management

- **MANAGEMENT**
- **AUDIT**
- **QUALITY CONTROL**

HTM

HTA Management control

Leandro Pecchia, l.pecchia@warwick.ac.uk

'HTM' Service inputs and Outputs

'HTM' WHO guide key concepts:

- How to manage change
- How to determine technical requirements (a summary of)
- Skill requirements at different levels (skill levels)
- Workload requirements
- Different HTM models
- HTM and healthcare management
- Hot to create an HTM service
- Human resources for HTM
- Employment terms and conditions
- Monitoring and progresses

Leandro Pecchia, l.pecchia@warwick.ac.uk

- How to determine technical requirements (a summary of)

3.1 A SUMMARY OF TECHNICAL REQUIREMENTS FOR HTM

As *Figures 3 and 5* show, healthcare technology management covers a wide range of activities. Here are just some of them:
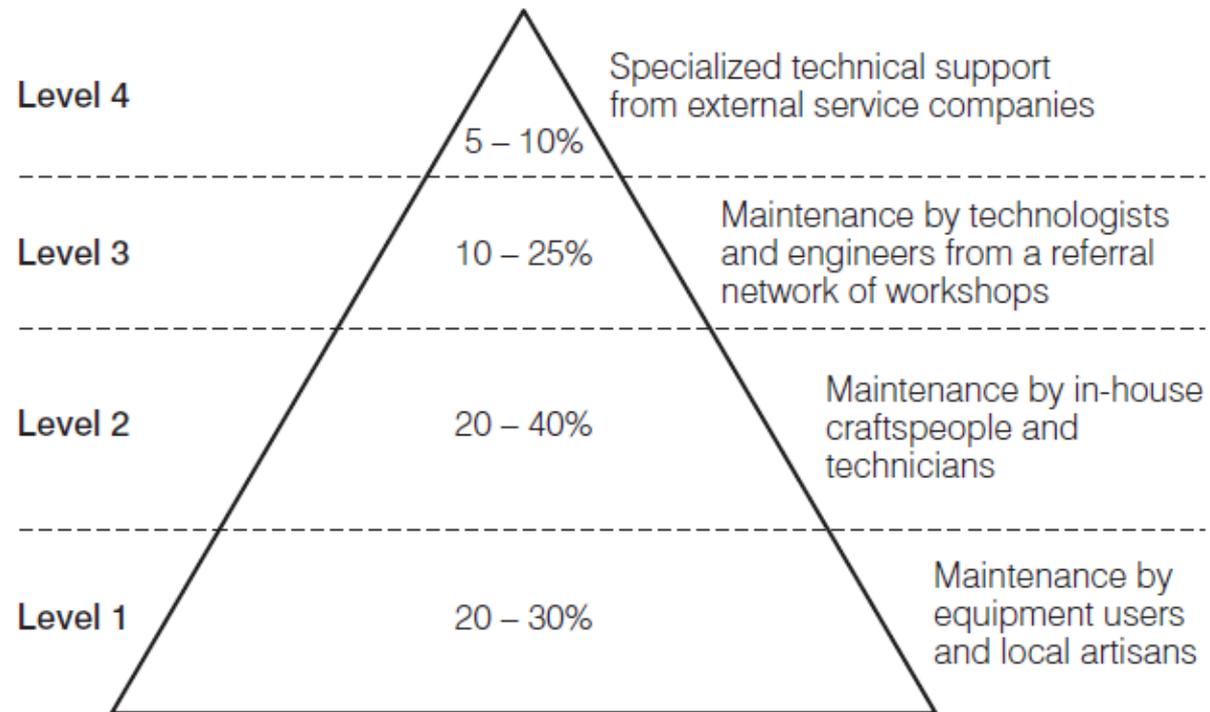
- providing technical advice
- selection and procurement
- training users and maintainers
- maintenance and repair work
- decommissioning and disposal
- managing staff
- managing the inventory
- managing waste

- planning and costing work
- installation and commissioning
- operating equipment
- monitoring contracts
- managing workshop facilities
- record-keeping
- stock control of parts, consumables, etc
- implementing safety protocols.

All these activities require different technical skills. It is important, first, to determine the particular skills required for the various different activities, at each level of healthcare delivery. Next, you need to consider the workload required for different skill levels. This will help you to decide how to provide the HTM services required (*Section 4*).

- Workload requirements

Figure 6: Division of Maintenance Work by Skill Level in the Health Service

Level 4 — 5 – 10% — Specialized technical support from external service companies

Level 3 — 10 – 25% — Maintenance by technologists and engineers from a referral network of workshops

Level 2 — 20 – 40% — Maintenance by in-house craftspeople and technicians

Level 1 — 20 – 30% — Maintenance by equipment users and local artisans

Adapted from: Raab, M, 1999, 'Maintenance strategies', Swiss Center for International Health, Basel, Switzerland, August 1999

Leandro Pecchia, l.pecchia@warwick.ac.uk