

# School of Medical Physics and Engineering : university-managed training of health care professionals

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# Why technology in health care?

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- # introduction of new equipment: **medical `pull`** or **industrial `push`** (M\$'s by GE/Philips/Siemens)??
- # **CURRENT**: medical physicists with strong role in instrumentation/radiation safety/risk analysis
- # **NEW**: medical engineers with strong role in modeling support of MD's for diagnostics and treatment selection

TU/e: teach MD's and physicists/engineers a common language

# European landscape: EFOMP

## Qualified medical physicist = QMP:

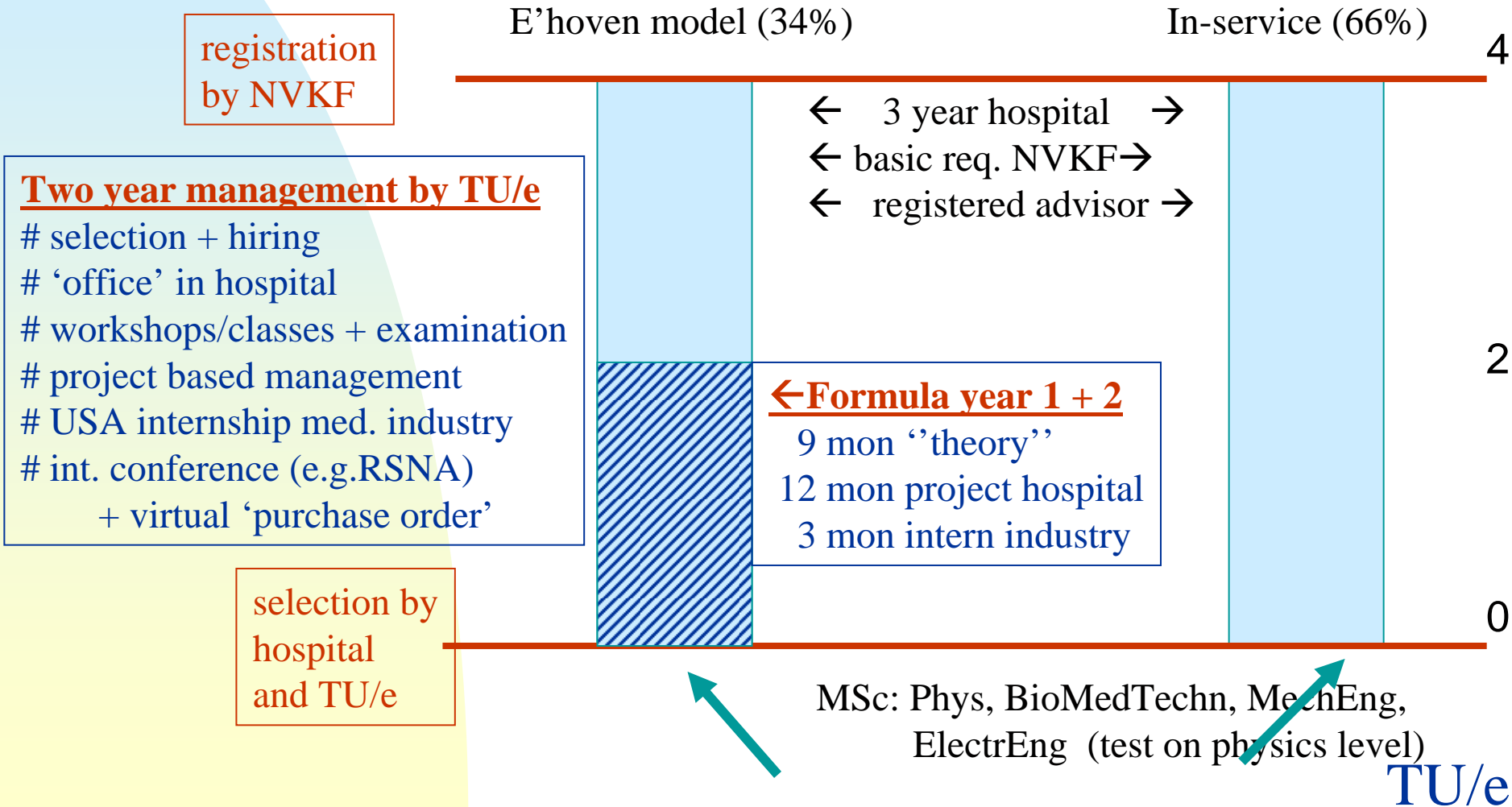
- # 5 year MSc + 2 year post-MSc
- # > half post-MSc in hospital
- # national diploma
- # registration by professional organisation

## Specialist medical physicist = SMP:

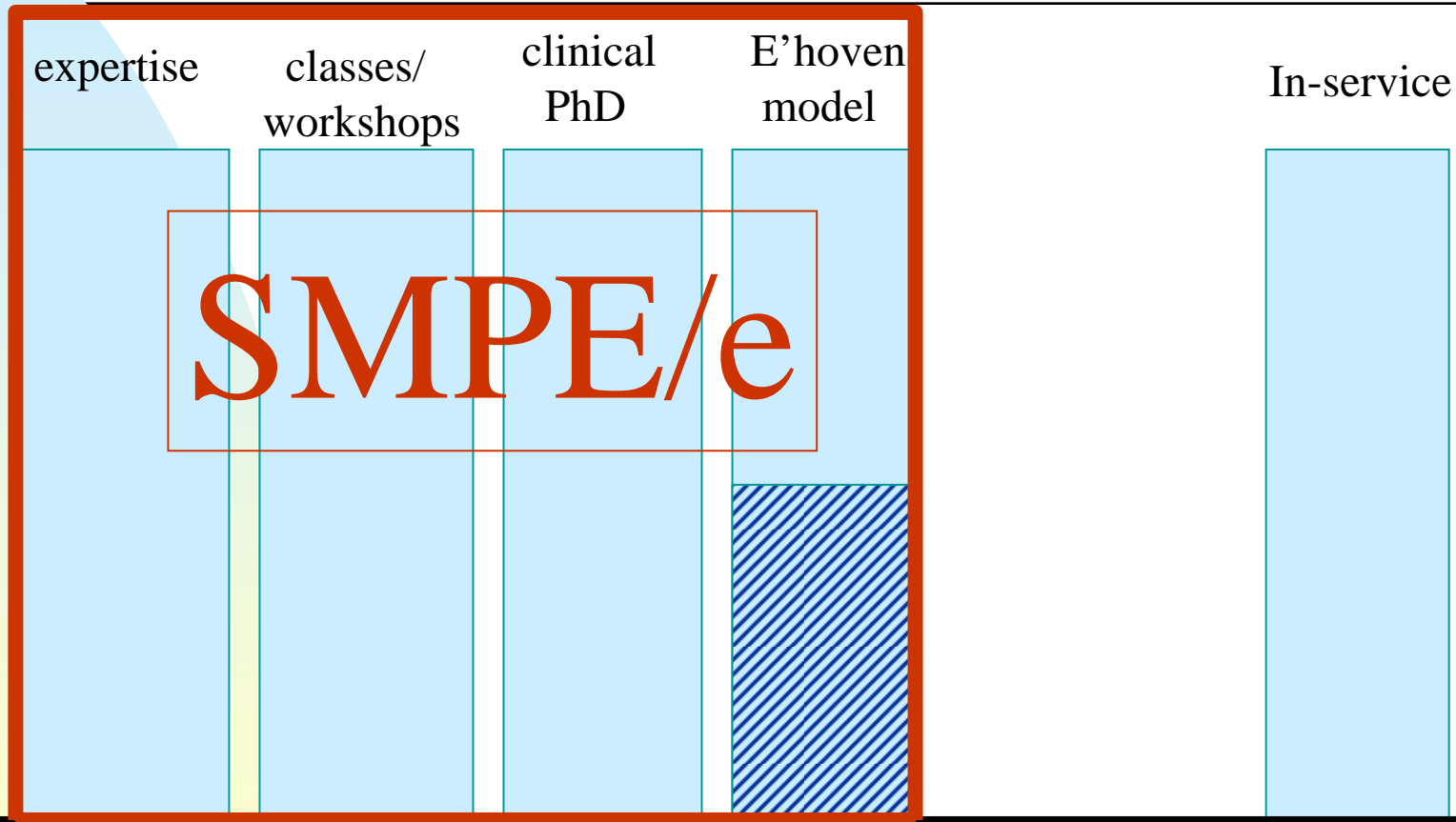
- # 5 year MSc + 4 year post-MSc
- # two year extra training in `sub-field`
- # diploma/registration etc

→ Netherlands (<2006): SMP only, no QMP's

# TU/e medical physics: 1990 - now



# School of Medical Physics and Engineering Eindhoven (since 1/1'06)



**Goal:** enhance visibility TU/e activities in health care and technology

# 2004: 'Sminia' report in Netherlands

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## Technology, Health Care and Education:

# growth of technology in health care: factor 6 in 20 years

# graduate training in medical physics (>MSc)

→ faster (=cheaper)?

→ early start in MSc phase (=gain 1 year)?

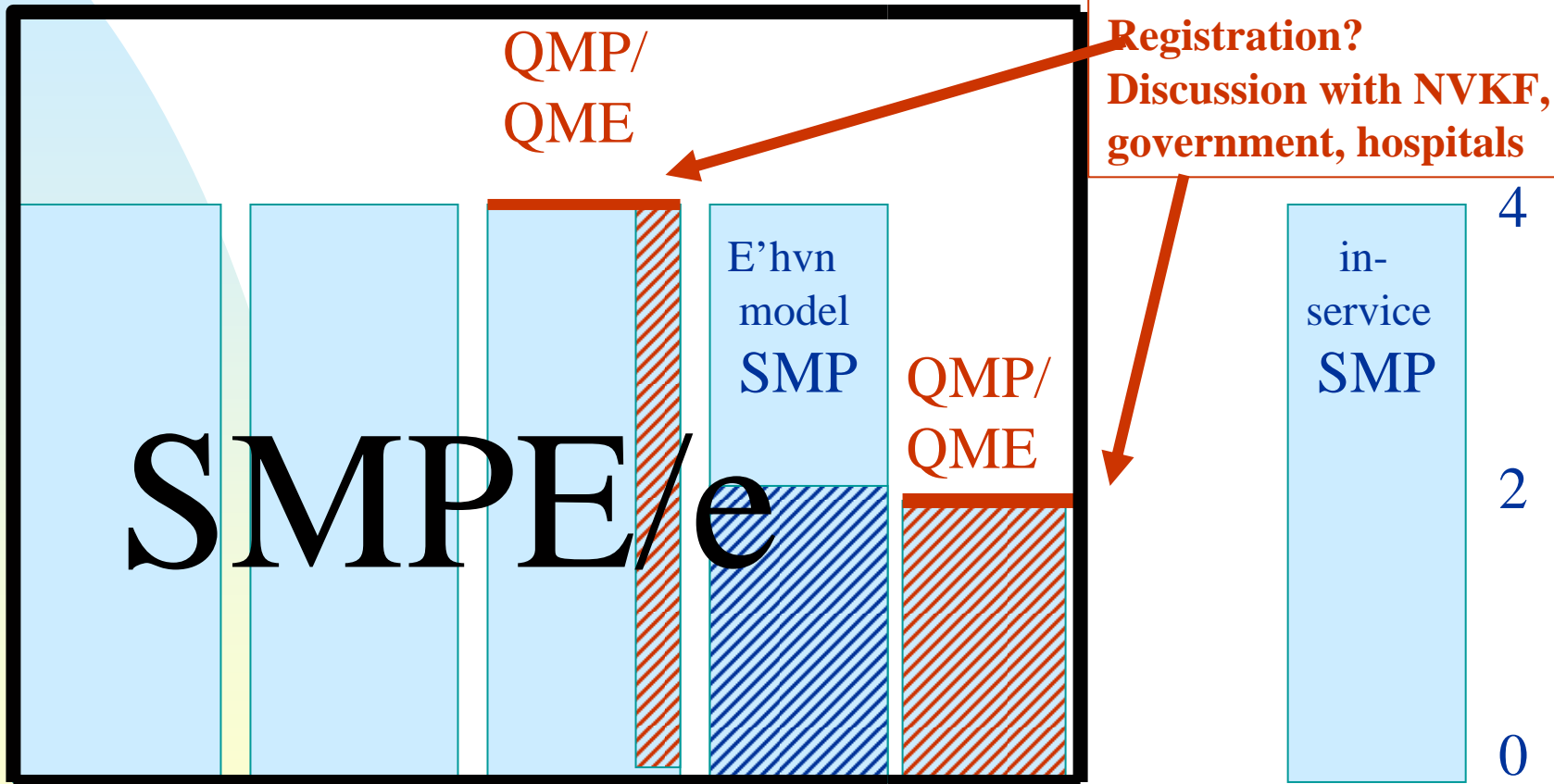
→ international setting

# structure of training:

→ 80% technology & 20% health care (mirror image for MD)

→ boundary conditions for government-based financing of training

# QMP/QME: new in The Netherlands



MSc Med.Phys. (Physics Dept)  
MSc Med. Engineer (BioMedTechn)

# Training for SMP(50%)/QMP/QME

- 2 year:** # 'office' in hospital + 9/12/3 formula
- 9 mon:** # workshops/classes/self study  
# exam by position paper/presentation/test  
# content: medical/physics/technology/skills  
# NVKF basic requirements + 'local coloring'
- 12 mon:** # project in hospital  
# hospital: SMP-advisor (1x/w)  
# TU/e: professor (1x/3w) + evaluation  
by committee (1x/3m)  
# conference + virtual 'purchase order'
- 3 mon:** # internship in med. app. industry (USA, EU)

# QMP/QME: buyers market

## Qualified Medical Physicist/Engineer

- # academic, clinical experience in MSc phase
- # 2 year beyond MSc
- # registration: TU/e  $\leftrightarrow$  Min. of Health Care/NVKF

## TU/e influx:

- # MSc medical physics in Dept. of Physics
- # MSc medical engineering Dept. of BioMed.Techn.

## →Hospitals: buyers market

- # formal interview for entry in program (<20% acceptance)
- # **no** training without job
- # active contacts with Board of Directors of hospital

# Dutch landscape in 2025 ??

**2005:** 250 active SMP (registration NVKF)

**2025:** `modest` Sminia prediction: 3 - 4x increase

→ 900 academical SMP/QMP(E)/Med.Eng. (MSc)

→ ratio 1 : 1 : 1

## **Demand in health care:**

SMP : 50 +140 (→retirement)

QMP/QME: 300

ME : 300

## **Demand in medical instrumentation industry:**

QMP/QME/ME: ?????

# Concluding remarks

- # Sminia report: guide line for growth of MPE in health care until 2025
- # SMPE/e: challenge for TU/e in health care
- # QME: new class of professionals in hospital
- # TU/e certification for SMP (50%)/QMP/QME
- # dialog with EFOMP, Dept. of Health Care (NL) and NVKF (Dutch Society of Med. Phys.) on registration of QMP/QME professionals

# Mission statement

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``To advance health care through technology  
by training academic professionals  
in medical physics and engineering``