



LEIDS UNIVERSITAIR MEDISCH CENTRUM

*Evaluation at the Leiden University Medical Center:
history, choices, problems and solutions*

***“New Fronteers in Evaluation of Impacts of Medical
Research”***

Sigtuna 7-8 May 2009

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Member of the Executive board



= Knowledge center with public tasks

- Patient care
- Research
- Education (Medicine & Biomedical Sciences)
- Training (Specialists and nurses)
- Postgraduate training and refresher courses



= Largest employer at Biosciences Park (\pm 7,000 employees)

Translational research: from bed to bench and vice versa

International cooperation

- International & EU grants



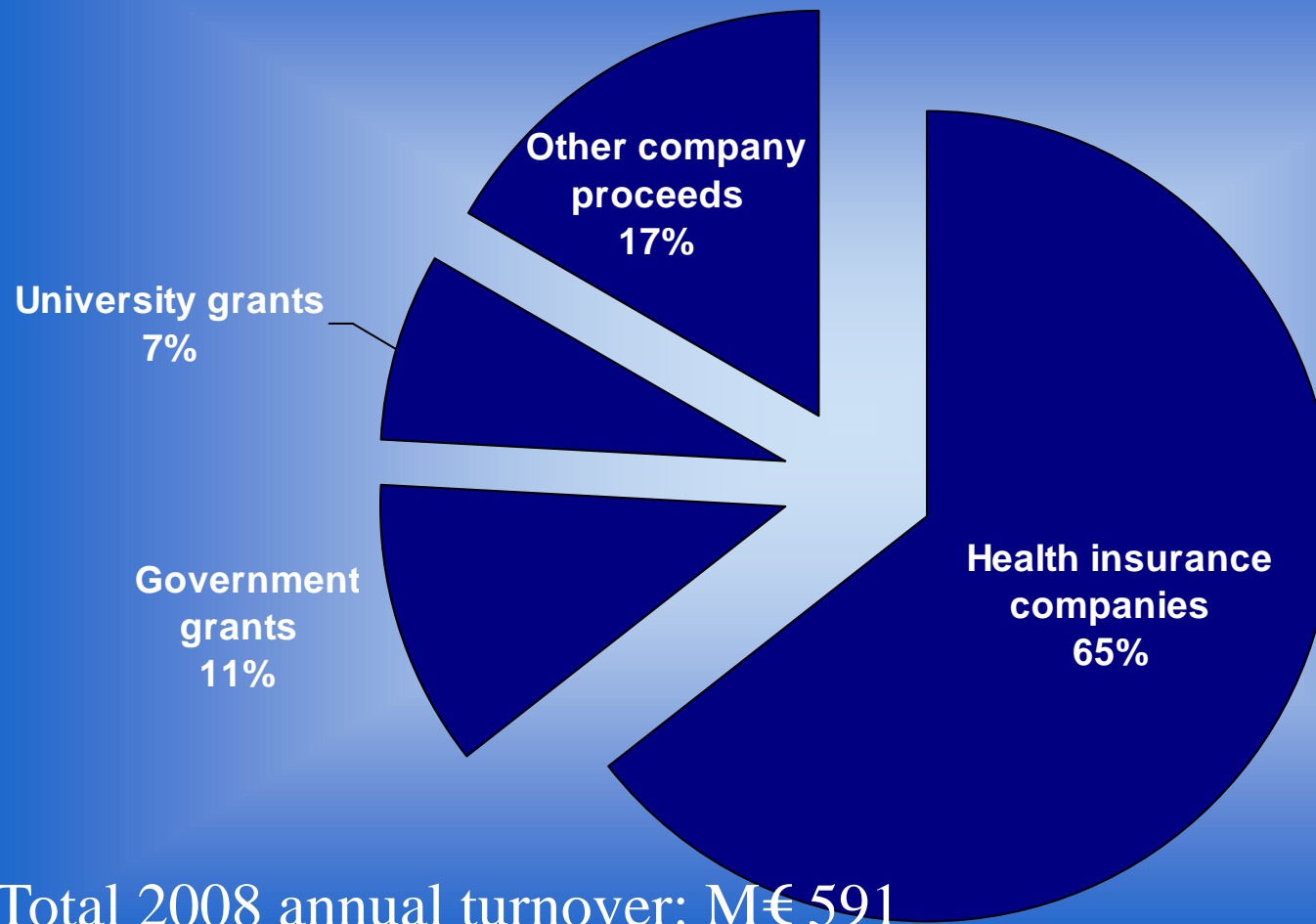
LUMC was established in 1997:

Leiden University
Hospital

Faculty of Medicine
Leiden University

Leiden University Medical Center

LUMC income



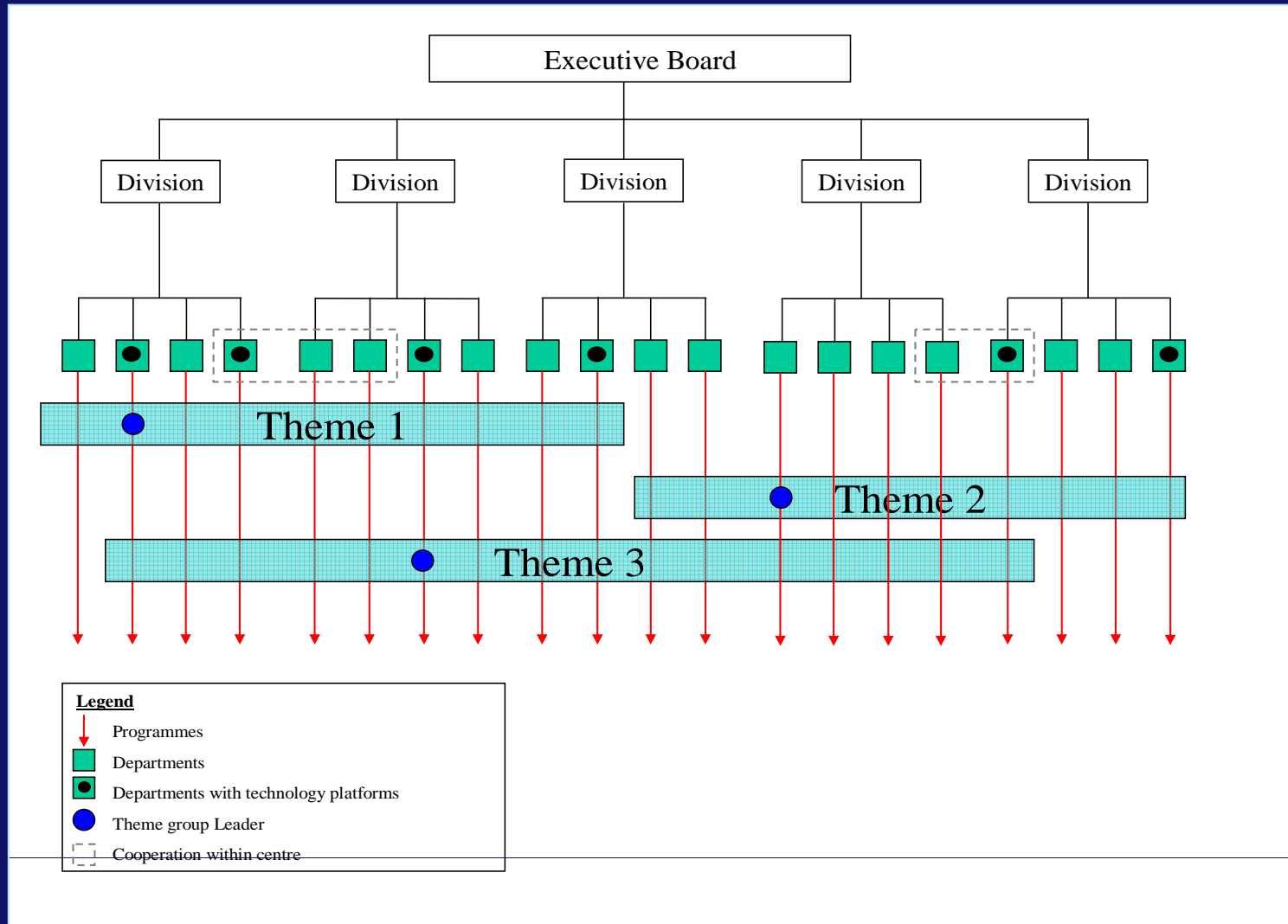
Scientific* publications 2008: 1.554

(*WOS: article, letter, review editorial)

PhD theses 2008: 113

- Programmes
- Themes
- Technology Platforms
- Centers





Examples of cooperation with industry and institutes

- Important position on BioSciences Park Leiden; 60 bio-med companies over 2300 staff
- Leeuwenhoek starters Program (M€2.7 for biotech starters)
- Bio-Generation Ventures (M€ 13 seed fund for spin offs)
- BioPartner Center: incubation building for starters
- 2008: 12 patents filed and 10 new licence deals; total portfolio = 67 patents

- Strategic cooperation within South-Holland region
 - Medical Delta / Business to Science Portal

- 6.741 co-publications in 2002-2006 (top 9)
 1. NIH; USA
 2. University College of London; GB
 3. Catholic University Leuven; Belgium
 4. University of London; GB
 5. University of Milano; Italy
 6. University of Cambridge; GB
 7. Harvard University; USA
 8. University of Antwerp; Belgium
 9. Karolinska Institute Stockholm; Sweden

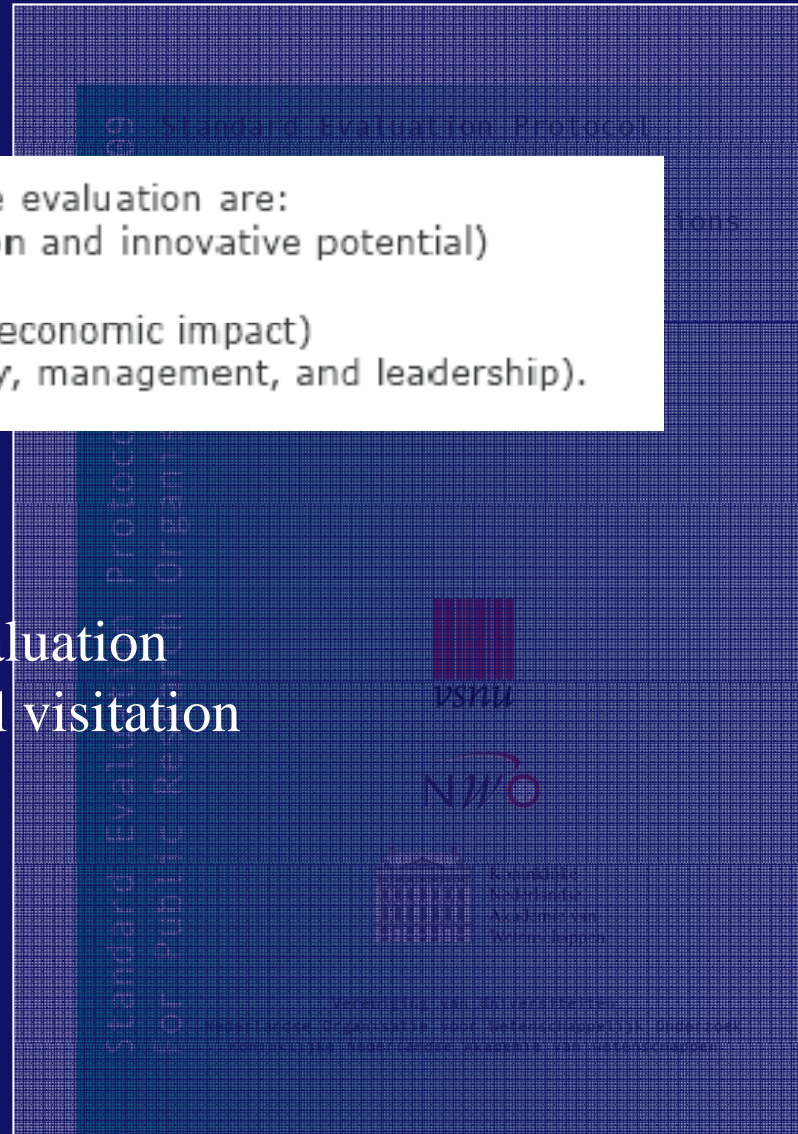
Research evaluation in LUMC

- Adherence to the SEP

The main criteria to be used in the evaluation are:

- Quality (international recognition and innovative potential)
- Productivity (scientific output)
- Relevance (scientific and socio-economic impact)
- Vitality and feasibility (flexibility, management, and leadership).

1. Once per 3 years self-evaluation
2. Once per 6 years external visitation

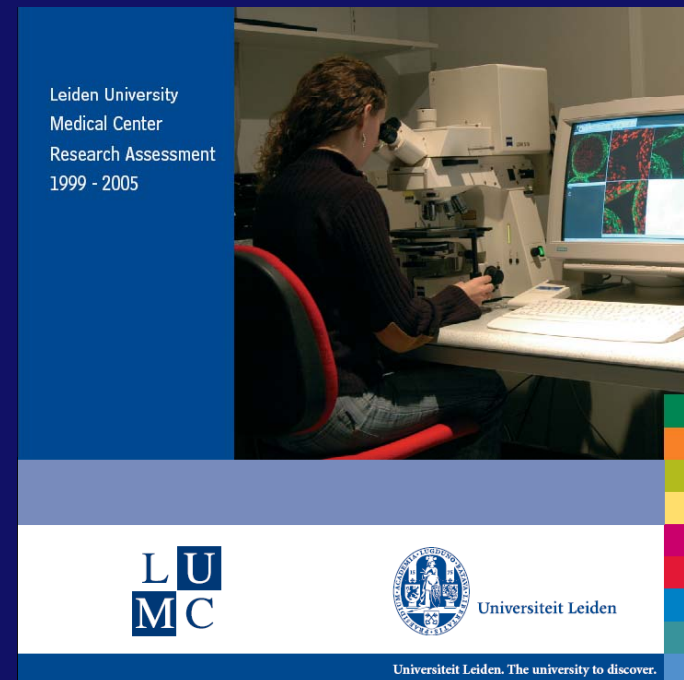


Practical set-up of Research evaluation in LUMC 1/2

- Annual analysis of LUMC research programs (~80)
 - Mainly retrospective (nr. of theses, earning power, etc.)
 - By LUMC Science committee
 - On the basis of an integral CWTS study of bibliometrics of all (WOS) articles
 - Descriptions of programs and themes
- Tri-annual Self-evaluation
 - All of the above
 - Retrospective (production, bibliometry and other indicators of quality) AND prospective (plans, vitality)
 - Coupled to input (funding and fte)
 - By LUMC Science committee

Practical set-up of Research evaluation in LUMC 2/2

- 6-Yearly external visitation
 - All of the previous data
 - Site visits and interviews with all departments
 - External committee, independent Dutch Chair, vice-chair and secretary; foreign peers



Key drivers to research evaluation in LUMC

- Need and wish to adhere to a functional national standard
 - Transparency, Comparability and Accountability
- Own management information
 - Important in order to be able to make relevant budget choices
- The need not to “bureaucratize” the process
 - Only those indicators have to be used that learn us things that we feel are important for our mission

- But: something was still missing!

Societal impact – approach LUMC (1/2)

- Start of discussions: 2002
 - The Royal Netherlands Academy of Arts and Sciences' publication: "Societal impact of applied health research" was key
- National and local discussions
- Internal and external Motivations
 - Fair for disciplines / departments with less research, therefore a better reflection of our mission
 - We expect to be obliged to report national



Societal impact – approach LUMC (2/2)

- Pilot in 2005; Results were analyzed by The Directorate of Research and Van Ark
- Organization-wide roll-out in 2006/7
 - Based upon the Van Ark – Klasen system
 - Parallel to standardized Scientific impact measurements



Which indicators were measured?

	General public	Health community	Private sector
<i>Knowledge production</i>	<ul style="list-style-type: none"> •Contributions to television programmes •Contributions to radio programmes •Contributions to newspapers or journals (non peer reviewed) •Contributions to public websites •Contributions to public news forums •Contributions to schoolbooks or study material 	<ul style="list-style-type: none"> •Publications in medical journals (non peer reviewed) •Contributions to professional websites •Contributions to medical charters or protocols 	<ul style="list-style-type: none"> •Patents
<i>Knowledge exchange</i>	<ul style="list-style-type: none"> •Memberships of public funding agencies or patient organizations •Speeches for general public or contributions to public forums •Information for scholars 	<ul style="list-style-type: none"> •Memberships of advisory committees or professional associations •Speeches at medical conferences 	<ul style="list-style-type: none"> •Speeches for companies •Cooperation with companies
<i>Knowledge use</i>	<ul style="list-style-type: none"> • Use of schoolbooks or study material in medical education programmes 	<ul style="list-style-type: none"> • Use of new medical charters or protocols in medical practice for diagnosis or therapy 	<ul style="list-style-type: none"> • Use of technology by companies to produce new products or therapies
<i>Earning capacity</i>	<ul style="list-style-type: none"> •Charity funding (3rd money stream) 	<ul style="list-style-type: none"> •Indirect funding (2nd money stream) 	<ul style="list-style-type: none"> •Contract funding (4th money stream)

Societal impact – results LUMC

- Results: 19/43 departments responded
 - Majority of absentees were clinical departments
 - 55~65% of LUMC research population was covered

- Not one of the departments fully understood the methodology
 - An extensive follow-up analysis was necessary



Societal impact – New methodology LUMC

- The difference between output, esteem and citations was too unpractical
 - by weighing the different indicators ('citations' heaviest and output lowest) a comparable result could be achieved
- By plotting societal impact to scientific impact interesting hypotheses could be posed

- We believe it is possible to measure our qualitative societal impact in a quantitative manner
 - Benchmarking possible in theory
 - Real quantification impossible
- We use many process indicators and just a few outcome indicators ('citations')
 - This includes economic value
 - All indicators are chosen on practical measurability
 - Otherwise, it isn't measurable on an institutional level
 - Only other option is to follow-up old projects
 - Impossible to perform organization-wide

Societal impact – Coupling to Scientific impact

- Technopolis (inc.): Ingeborg Meijer and Bastian Mostert provided the means for this diagram

Societal Impact (Own classification and methodology; arbitrary axis)	> 2,5 (ver boven LUMC gemiddelde)			503 (8)	402 (12)	
	1,8 – 2,5 (boven LUMC gemiddelde)			307 (5)	309 (5), 501 (12)	
	1,2 – 1,8 (rond LUMC gemiddelde)			403 (1)	401 (3), 312 (2)	406 (5)
	0,5 – 1,2 (onder LUMC gemiddelde)			102 (5)	506 (9), 209 (3), 208 (1), 304 (1), 206 (2)	210 (0), 504 (5), 502 (1)
	< 0,5 (ver onder LUMC gemiddelde)		104 (0), 305 (0)	106 (0), 107 (0), 306 (1), 105 (0), 310 (0), 313 (8), 201 (15)	505 (0), 405 (0), 203 (1), 301 (5), 308 (1)	205 (1), 101 (2), 404 (1), 207 (9), 204 (0)
		< 0,5 (ver onder wereldgemiddelde)	0,5 – 0,8 (onder wereldgemiddelde)	0,8 – 1,2 (rond wereldgemiddelde)	1,2 – 1,5 (boven wereldgemiddelde)	> 1,5 (ver boven wereldgemiddelde)
Scientific Quality (CWTS methodology)						

Scientific impact – conclusions LUMC

- Based upon our experiences we really need a good administrative system
 - This should be the 1st step for all those wanting to perform whatever annual impact measurement
 - Bibliometry AND societal impact
 - The Converis system from Avedas AG seems to offer these specifics
 - Good and clear indicators
 - As much as possible coupling with existing databases (patents, turnover, press activity, etc.)
 - Continue developing our means to measure / weigh
- Indicators must be agreed upon nationally
 - First: Federation of the Dutch UMC's (NFU)
 - Secondly: government advisory bodies

LUMC, Center of Medical Innovation