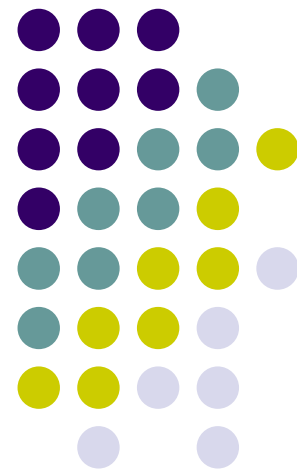


המועצה הלאומית למחקר ופיתוח

הוועדה לתשתיות מחקר
יו"ר – פרופ' דוד הורן

15/7/2008.



5.12.07 החלטות מיום

- הוועדה ממליצה שהוועדה בראשות משה אורון תדון בנושא יחסי הגומלין בין האקדמיה לבין התעשייה ותגבש המלצות שיועלו לדין במליאה.
- הוועדה החליטה להזמין סקר על תשתיות מחקר הקיימות בארץ כיום. עבודה מוזמנת זו תכיל גם דו"ח על הנעשה במדינות מערביות בעלות הגודל הכלכלי של ישראל. כמו כן ייעשה מאמץ לראיין מומחים שונים (כולל סגני נשיא למו"פ) על מנת לגבש תמונה של התשתיות החסרות. עבודה זו תושלם תוך כשנה ותשמש תשתית לעבודת הוועדה בעתיד
- בשנה הנוכחית תדון הוועדה בהצעות שונות שיקובצו על ידי היו"ר וחברי הוועדה מתוך רצון לקדם רעיון אחד או כמה מהם בקדנציה הנוכחית של המועצה.
- הוועדה ממליצה שיו"ר המועצה ינסה לגייס כספים לתשתיות מחקר ובכך ייתן לוועדה ולמועצה את האפשרות המעשית לקדם נושאים ראויים.

החלטות מיום 16.3.08 בנושא הסקר

- הסקר יורחב ויכלול גם את מדעי החברה ומדעי הרוח.
- "תשתיות מחקר לאומיות" - הכוונה למתקנים בסדר גודל של \$5M ומעלה, שמשמשים כמה מוסדות מחקר ועונים על צרכים חשובים באקדמיה ובתעשייה בישראל. המסגרת התקציבית הנ"ל מיועדת למתקנים פיסיקליים-הנדסיים וצריכה להיות מותאמת לרמה אחרת כאשר מדובר במדעי החברה והרוח.
- בגלל לוח הזמנים הדוחק (דו"ח ביניים של המולמו"פ עתיד להיות מוגש ביוני 2008) יתבקשו עורכי הסקר לתת דו"ח ביניים ראשוני, שכולל השוואה עם מדינות אחרות (כיצד נערכו למפת הדרכים, כיצד מתקבלות החלטות) וייתיחס גם לשאלות מבניות ותיאור הנעשה בארץ.
- הסקר צריך לכלול בסופו של דבר את כל האוניברסיטאות, התעשיות הגדולות ומוסדות מחקר ממשלתיים גדולים.

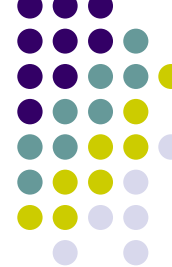
תשתיות מחקר לאומיות ובינלאומיות



- התכנית האירופית – מפת דרכים
- השאלון הפיני
- התכנית השבדית
- סקירת הקיים בישראל

	Projects (in alphabetical order per discipline)	Estimated Construction Cost (M€) *	First possible operations for users	Estimated Operational/ Deployment/ Cost (M€/year)	Description
Social Sciences & Humanities	CESSDA	30	2008	6	Facility to provide and facilitate access of researchers to high quality data for social sciences
	CLARIN	108	2008	10	Research Infrastructure to make language resources and technology available and useful to scholars of all disciplines
	DARIAH	10	2008	4	Digital infrastructure to study the sources in cultural heritage institutions
	EROHS	43	2008	12	Central and distributed facility to promote and ensure cooperation and integration of data, technologies and policies
	ESS : European Social Survey	9	2007	9	Upgrade of the European Social Survey (set up in 2001 to monitor long term changes in social values)
	SHARE	50	2007	< 1	Data infrastructure for empiric economic and social science analysis of the on-going changes due to population ageing
Environmental Sciences	AURORA BOREALIS	360	2010	18	European Polar Research Icebreaker
	EMSO	150	2011	20	Multidisciplinary Seafloor Observatory (5 sites)
	EUFAR	50 - 100	2007	2-4	Long Range Tropospheric Aircraft (options: C130 or Airbus 400M)
	EURO ARGO (GLOBAL)	76	2010	6	Ocean Observing buoy system (deployment over 12 years)
	IAGOS-ERI (GLOBAL)	20	2008	6	Climate Change Observation from 20 commercial aircrafts (deployment)
	ICOS (GLOBAL)	255	2010	13	Integrated Carbon Observation System (deployment/operation over 20 years)
	LIFE WATCH	370	2014	70	Infrastructure for research on the protection, management and sustainable use of biodiversity
Energy	HIPER	850	2015	80	High Power long pulse Laser for "fast-ignition" fusion
	IFMIF (GLOBAL)	855	2017	80	International Fusion Materials Irradiation Facility
	JHR	500	2014	30	High flux reactor for Fusion Reactors Materials Testing
Biomedical and Life Sciences	EATRIS	255	2010	50	Network of new research centres to translate basic discoveries into clinical interventions in major diseases
	European Bio-banking and Biomolecular Resources	170	2009	15	Network of existing and new biobanks (samples and data from patients and healthy persons) and molecular resources
	INFRAFRONTIER	320	2007	36	Distributed infrastructure for the archiving and phenotyping of mice as models for studying human diseases
	Infrastructure for Clinical Trials and Biotherapy Facilities	36	2007	5	Network of clinical research centres, clinical trials and biotherapy facilities for therapeutic innovations
	Integrated Structural Biology Infrastructure	300	2007	25	Network of centres for integrated structural biology (protein production, NMR, crystallography, microscopy)
	Upgrade of European Bio-Informatics Infrastructure	550	2007	7	Shared platform for data resources in the Life Sciences (based on a major upgrade of EBI)
Material Sciences	ELI	150	2013	6	Extreme Light intensity short pulse Laser
	ESRF Upgrade	230	2007-2014	NA	Upgrade of the European Synchrotron Radiation Facility (in 7 years)
	ESS: The European Spallation Source	1050	2017	80	European Spallation Source for neutron spectroscopy
	European XFEL	986	2013	84	Hard X-ray Free Electron Laser in Hamburg
	ILL 20/20	160	2012-2017	NA	Upgrade of European Neutron Spectroscopy Facility (in 2 phases)
	IRUVX-FEL	760	2006-2015	70	Infrared to soft X-rays complementary Free Electron Lasers (in 5 users facilities)
	PRINS	1110	2008-2013	256	Pan-European Infrastructure for Nanostructures and Nanoelectronics
Astronomy, Astrophysics, Nuclear and Particle Physics **	ELT: The European Extremely Large Telescope	850	2018	40	European Extremely Large optical telescope
	FAIR	1186	2014	120	Facility for Antiproton and Ion Research
	KM3NET	220-250	2015	ND	Underwater Neutrino Observatory (in design phase)
	SKA: The Square Kilometre Array (GLOBAL)	1150	2014-2020	100	Square Kilometer Radiotelescope Array (in two phases)
	SPIRAL2	137	2011	7	Production and study of rare isotope Radioactive beams (toward the future facility EURISOL)
CDT	EU-HPC	200-400	2008	100-200	Integrated European High Power Computing Service (2 - 4 high-end centers)

Finnish RI survey and roadmap



INFORMATION 31.3.2008

The Finnish Research Infrastructure Survey and Roadmap project has started with online questionnaires

In response to the need for a more coordinated approach to policy making in the field of research infrastructures in Finland and following the work of the [European Strategy Forum on Research Infrastructures](#), the Research Infrastructure Committee of the Ministry of Education proposed a national review of research infrastructures in its [report](#) published in 2007. The First Finnish Research Infrastructure Survey and Roadmap project started in early 2008, soon after the Committee's report. The purpose of the project is to review the present state of national infrastructures and to assess the long-term needs for the next 10-15 years. In the future, the review process and the assessment of long term-needs are designed to be repeated at regular intervals.

The questionnaires will produce two data archives

The questionnaires are divided into two separate divisions. **The review division** will produce a data set concerning current national research infrastructures and international research infrastructures where Finland is a member or is attached to it via a treaty. All research infrastructures that will be included in the report have to fill the criteria of national research infrastructures outlined by the Steering Committee. With regard to Finland, the final review report will help complement the overall picture of European research infrastructures.

The second division consists of proposals for the long-term national plan or "roadmap". The roadmap report will be a 10-20 year plan for national needs or possible emerging national needs of different research fields in terms of research infrastructure. In the roadmap part, the need for new national research infrastructures, upgrading the existing national research infrastructures, joining in existing/new international research infrastructures or participating in upgrading processes of the existing international research infrastructures will be analyzed.

Swedish research infrastructures



	Type of infrastructure			Estimated cost		Comments
	Central or distributed	Geographic coverage	Type of collaboration (Category A-F)	Annual cost (million SEK)	Sweden's share of annual cost (million SEK)	
Astronomy, Astro-, Nuclear-, and Particle Physics						
ALMA (Radiotelescope)	Centr.	International	Cat. A			Financed within the ESO budget. Under construction.
CERN (Particle physics lab, incl. & COLDE for subatomic physics)	Centr.	European	Cat. A	6 000	155	LHC is financed within the CERN budget.
ESO (Optical telescope)	Centr.	European	Cat. A	1 800	32	
IceCube (Neutrino telescope under constr.)	Centr.	International	Cat. B	1 800	1	
NOT (Optical telescope)	Centr.	Nordic	Cat. B	16	4	
Onsala (Radiotelescope)	Centr.	Swedish	Cat. C	34	34	Co-financed by VR and Chalmers
Energy						
ITER (Fusion research facility under construction)	Centr.	International	Cat. A	2 000	0.5	Mostly financed by EU's framework programme
JET (Fusion research facility)	Centr.	European	Cat. A	650	1.7	Mostly financed by EU's framework programme
Information Science						
ESF (Infrastructure for databases)	Distr.	Swedish	Cat. C	60	60	
EGG (Data grid facility)	Distr.	Nordic	Cat. B	18	4.5	
ERDFUNET (Computer network)	Distr.	Nordic	Cat. B	100	27	Swedish share included in cost for SUNET
ENID (Swedish National Data Service)	Centr.	Swedish	Cat. C	4.8	4.8	
ERIC (Metacentre for high-performance computing)	Distr.	Swedish	Cat. C	48	63	
ESUNET (Computer network)	Distr.	Swedish	Cat. C	160	160	Mostly financed through fees



Earth and Environmental Sciences

IODP/IODP (Collaboration on ocean drilling)	Distr.	International	Cat. B	100	3.6	
IRIS (Radar system)	Distr.	International	Cat. B	22	5.4	Headquarter in Kiruna
BIODIVERSITY (Database on biodiversity)	Distr.	International	Cat. B	30	2.4	
IONSIM (Ion spectrometry for geological material)	Centr.	Nordic	Cat. B	1.38	0.65	Co-financed by Swed. Museum of Natural History

Humanities and Social Sciences

SVENSK (Survey of social values) &	Distr.	European	Cat. B	80	6.5	Co-financed by VR, RJ, FAS
RES (Research institute for humanities and social sciences)	Centr.	European	Cat. B	350	6	

Mathematics

MITTAG-LEFFLER (Institute for mathematics research)	Centr.	Swedish	Cat. C	10	1.1	
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Materials Science

MAX-IV (Synchrotron radiation facility)* &	Centr.	European	Cat. A	700	13	Sweden participates via Nordic consortium
FRM II (Neutron source reactor)	Centr.	European	Cat. A	600	13	
ESS (Spallation neutron source)	Centr.	European	Cat. B	500	4	
MAX-LAB (Synchrotron radiation facility)	Centr.	Swedish	Cat. C	75	75	Co-financed by VR and Lund University
MIKRO (Fab (Network, microfabrication lab.))	Distr.	Swedish	Cat. D	20	20	Co-financed by VR, KAW, SSE, VINNOVA

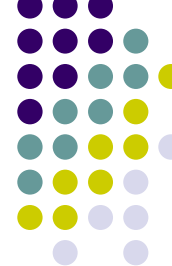
Medicine and Life Sciences

SCIENCE FOR LIFE (Molecular biology laboratory) &	Distr.	European	Cat. A	1 000	25	
SCIENCE FOR LIFE (Institut för cancerforskning)	Centr.	International	Cat. A	100	7	
SCIENCE FOR LIFE (Molecular medicine laboratory construction)	Centr.	Swedish	Cat. C	100	15	

also used extensively in Medicine och Life Sciences

* = Swedish Krona. 100 SEK = 10.60 EUR, 7.90 GBP, 15.60 USD. (January 2008)

תמונת מצב בישראל



	Project Name	Central or Distributed	Geographic coverage	Type of collaboration	cost \$ (annual or construction)	IL Govt share \$	comments
Astronomy, Astro-, Nuclear-, and Particle Physics							
{	CERN	Central	Europe	observer	Ann=1000M	Ann=2.2M	GOV since1991
	ATLAS@CERN	Central	Europe	member		Ann=600K	VATAT
Proton accelerator, Soreq Also biomedicine applications	SARAF	Central	Israel		Const=25M	Const=25M	TELEM 2000
Proposed WIS/Soreq rare isotopes	SPIRAL II		Europe	FP7 -RI			
Proposed by Hagai Netzer (TAU)	Telescope	central			Const=50M		VATAT under consideration
Material Sciences							
Also biomedicine applications	ESRF	Central	Europe			Ann=1M	TELEM Since 1999
Also biomedicine applications	Nanoscience	6 univ. centers	Israel	Inter-university INNI	Const=220M	Const=70M	TELEM 5 years
e-Science							
Internet infrastructure	GEANT	Dist	Europe			(32M 99-02)	TELEM 99-02
{	ISRAGRID	Dist	Israel		Ann=600K	Ann=600K	MACHBA TELEM 2008-2011
	EGEE	Dist	Europe	FP7- partner	Ann=28M	0	Ends 2010
Grid infrastructure							

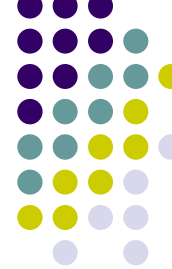
תמונת מצב בישראל (המשך)



	Project Name	Central or Distributed	Geographic coverage	Type of collaboration	cost \$ (annual or construction)	IL Govt share \$	comments
Medicine and Life Sciences							
	EMBL (Molecular Biology Laboratory)	Dist	Europe	member	Ann=100M	1M	MoS
EBI upgrade - MoS	ELIXIR	Central	Europe	FP7-RI			MoS
Proposed by Tamar Dayan (TAU)	LIFEWATCH	Dist	Europe	FP7-RI			
Proposed by Tamar Dayan (TAU)	National Biodiversity Collection	Central	Israel	Research museum at TAU	Const=30M	400K	GOV
Proposed by Joel Sussman (WIS) Structural proteomics	INSTRUCT (Integrated Structural Biology)	Dist		FP7-RI partner			
Humanities and Social Sciences							
Proposed by Harry Litwin (HUJI) Survey of elderly population	SHARE	Dist		FP7-RI partner			

Levin-Epstein (TAU) ESS dist FP7 200K*2yr vatat

מאפיינים של תשתיות מחקר לאומיות



- קידום חזית המחקר בישראל
- עניין לקבוצות מחקר שונות
- עלות גבוהה
- פתיחות לשיתוף פעולה ונגישות לכל החוקרים הרלוונטיים
- שתופי פעולה בינלאומיים

מה התפקידים הביצועיים שות"מ יכולה למלא? הצעות:



- בחירה הצהרתית של תשתית מחקר לאומית
 - המלצה לתל"מ
 - המלצה לות"ת או לגופים אחרים (כולל תעשיות)
- פטור ממע"מ(?)
- בחירה ומימון
 - ע"י קרן ייעודית שתנוהל במשרד ממשלתי
 - ע"י איגוד קרנות תומכות מו"פ