



Uddannelses- og
Forskningsministeriet

European Spallation Source - reflections on the financial challenges

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Outline

Short introduction to the European Spallation Source

Timeline and governance

Two challenges:

I. Speeding up the road towards start of construction

II. Efficient road towards operations

Dimensions of ESS

A Next Generation Materials Research Infrastructure

PROJECT/FACILITY

A partnership of 17 European nations committed to the goal of collectively building and operating the world's leading facility for research using neutrons by the second quarter of the 21st century.



SCIENCE

The most powerful neutron spallation source with the highest flux and realtime data acquisition

- Life science
- Soft condensed matter
- Chemistry of materials
- Energy research
- Magnetism and superconductivity
- Engineering materials and geosciences
- Archaeology and heritage conservation
- Fundamental and particle physics

SOCIETY

Research directly related to societal challenges and benefits
Opportunity to benefit from the innovation capacity of industry.
Driver for job creation



Communicative challenge

- "Will it be like CERN?"

- User facility for a broad spectrum of science
- Mainly applied science
- ERIC not an IO

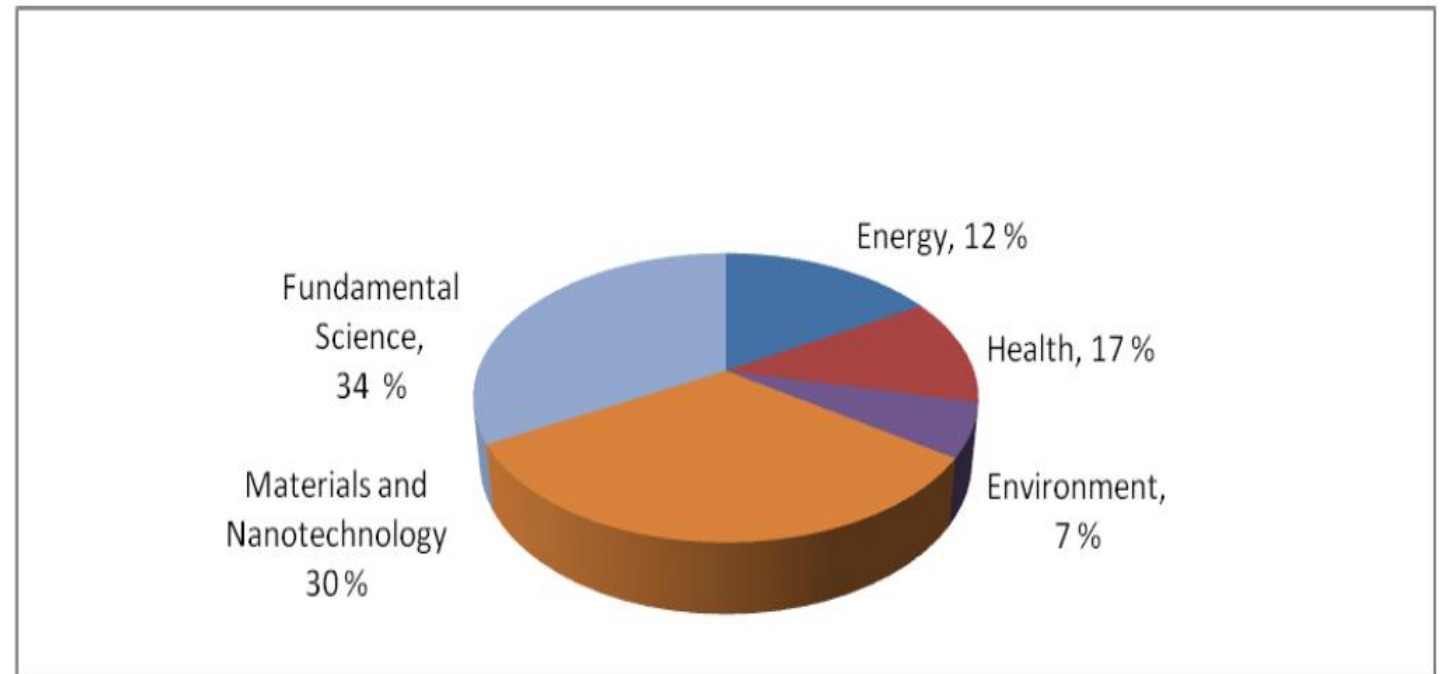


Figure 1. Recent requests for beam-time divided according to 'societal impact' averaged over ILL, ISIS and LLB.





The MAX IV Laboratory - We make the invisible visible

Search... [Search icon]

635	4	51	48
Days	Hours	Minutes	Seconds

until the inauguration of MAX IV

- ABOUT
- CAREERS
- MAX-LAB
- MAX IV
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- TECHNOLOGY
- USERS
- EDUCATION
- INDUSTRY
- SEMINARS & CONFERENCES

2014-09-22 | 11:30

UM14 - NORDIC X-RAY SCIENCE DAYS

The registration for UM14 - Nordic X-ray Science Days 29 September - 1 October is open until 24 September. Read more and register [here](#).



2014-09-12

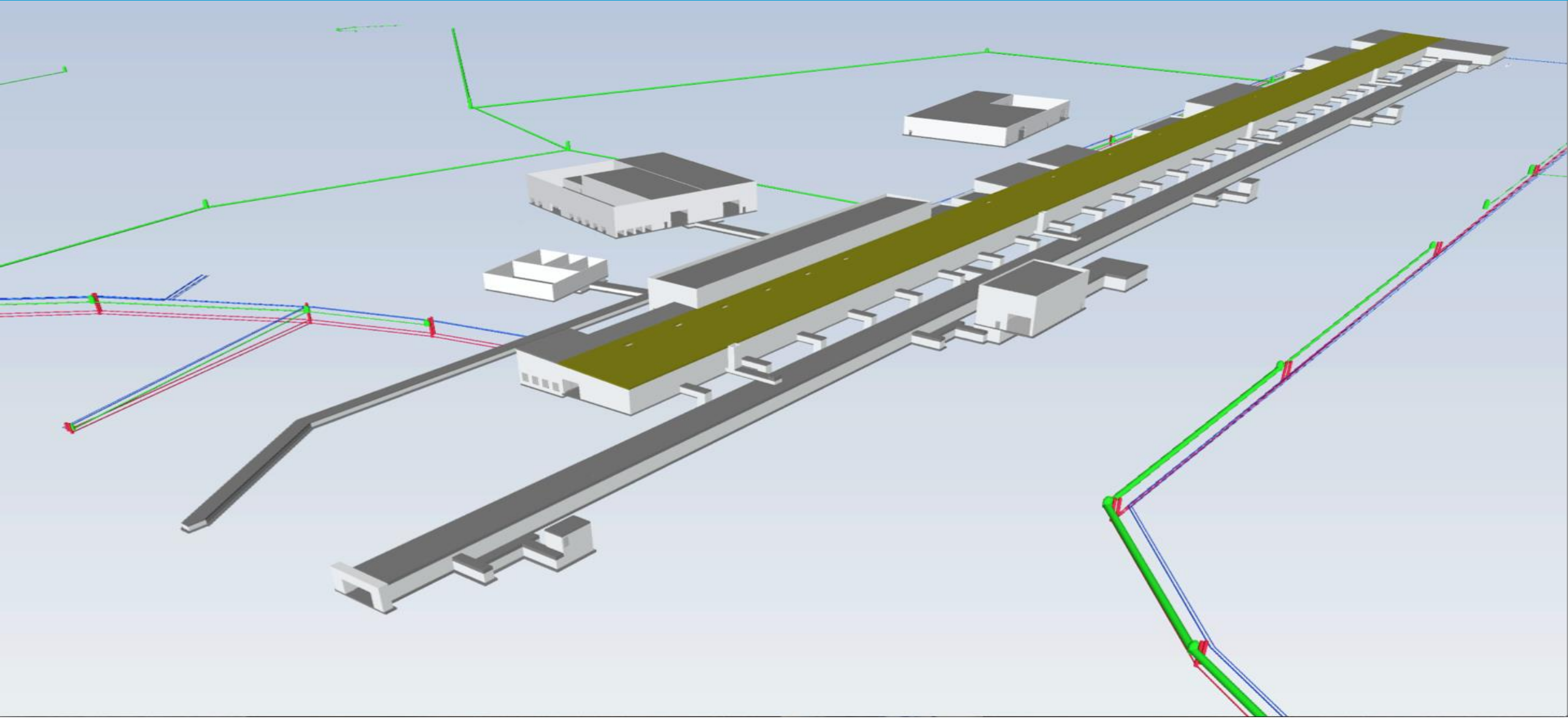
[Article about Diffraction-Limited Storage Rings](#)

2014-09-04

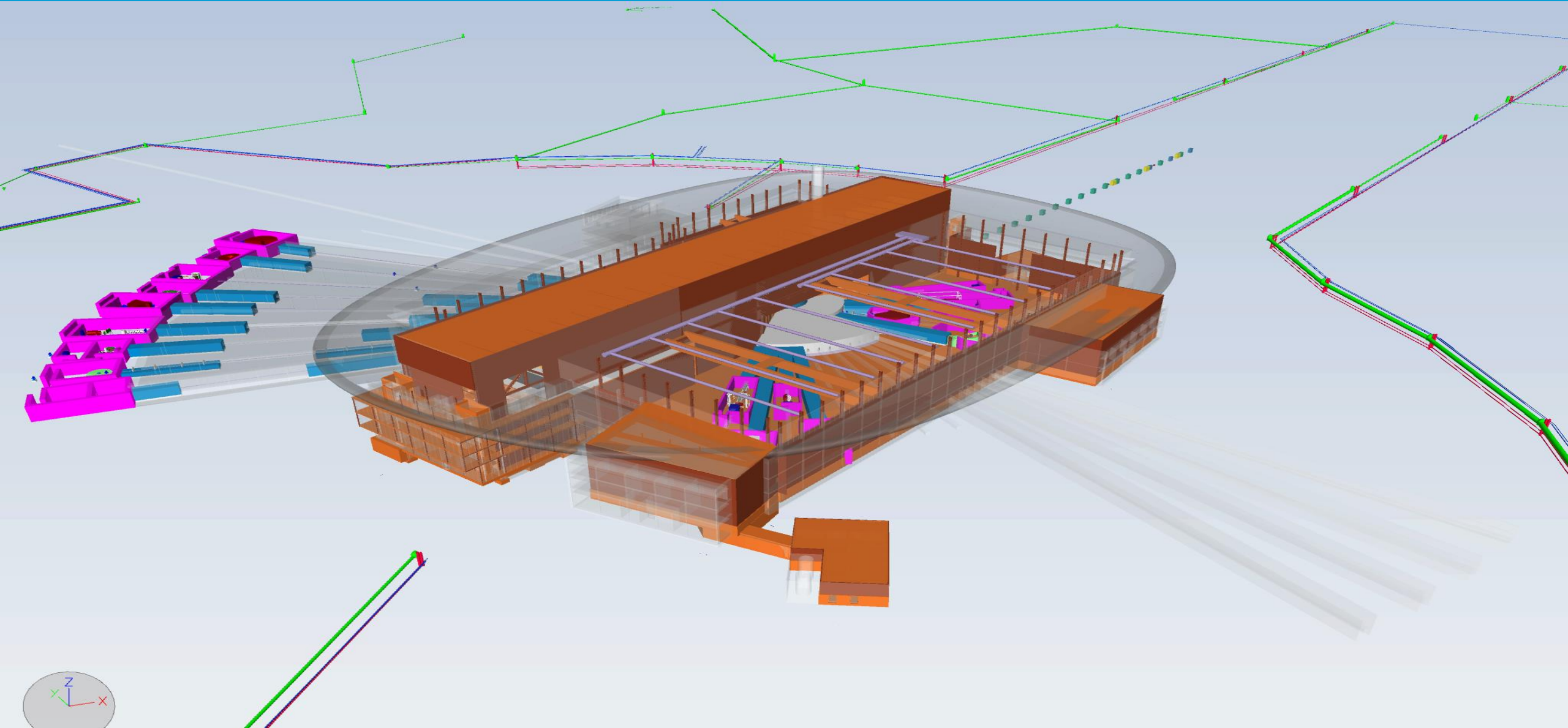
[Call for proposals is now open](#)

[News archive](#)

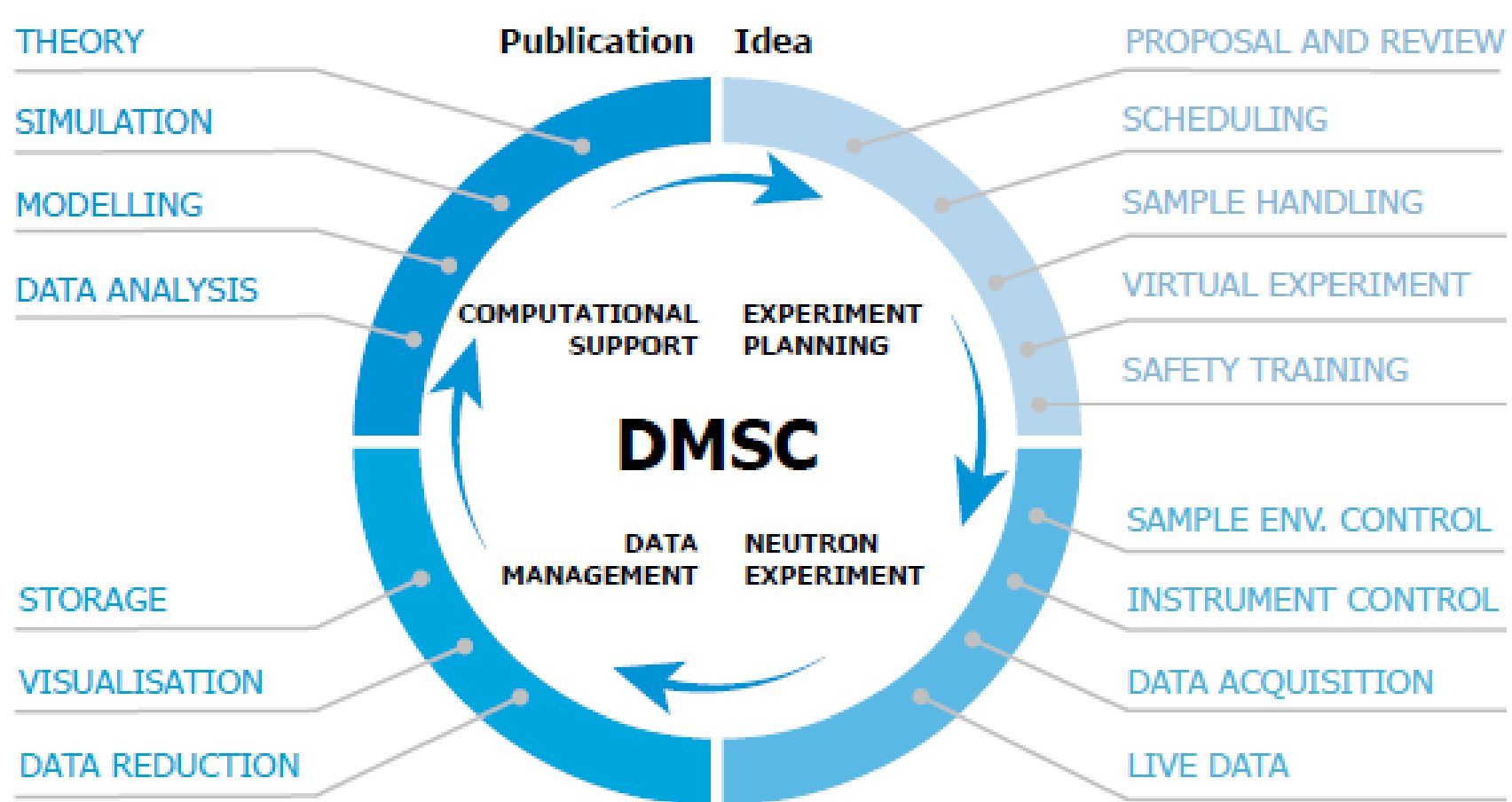
Accelerator (5 MW)



Target station and experimental halls



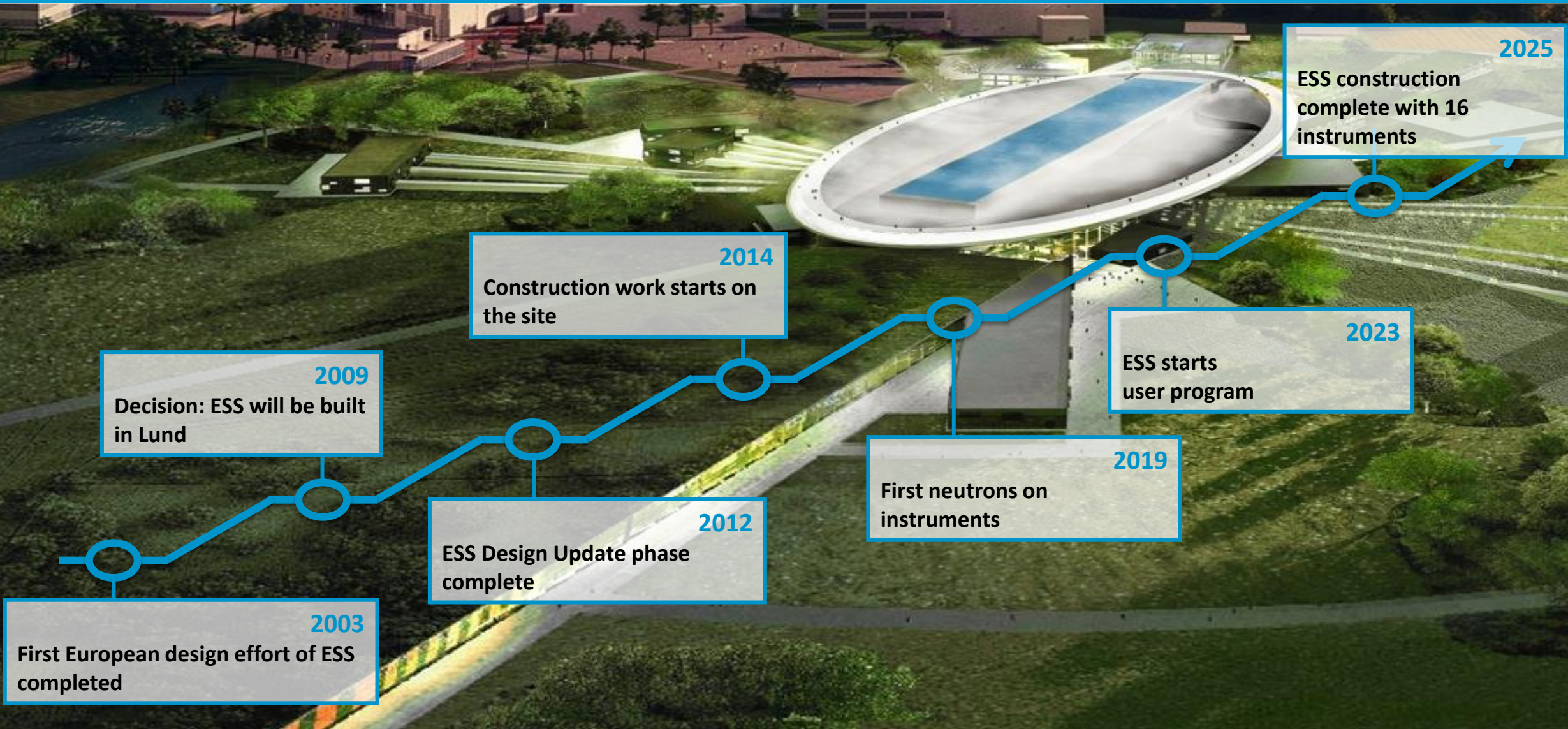
Data Management & Software Center



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Road to realizing the world's leading facility for research using neutrons



ESS Groundbreaking Ceremony



Ceremony
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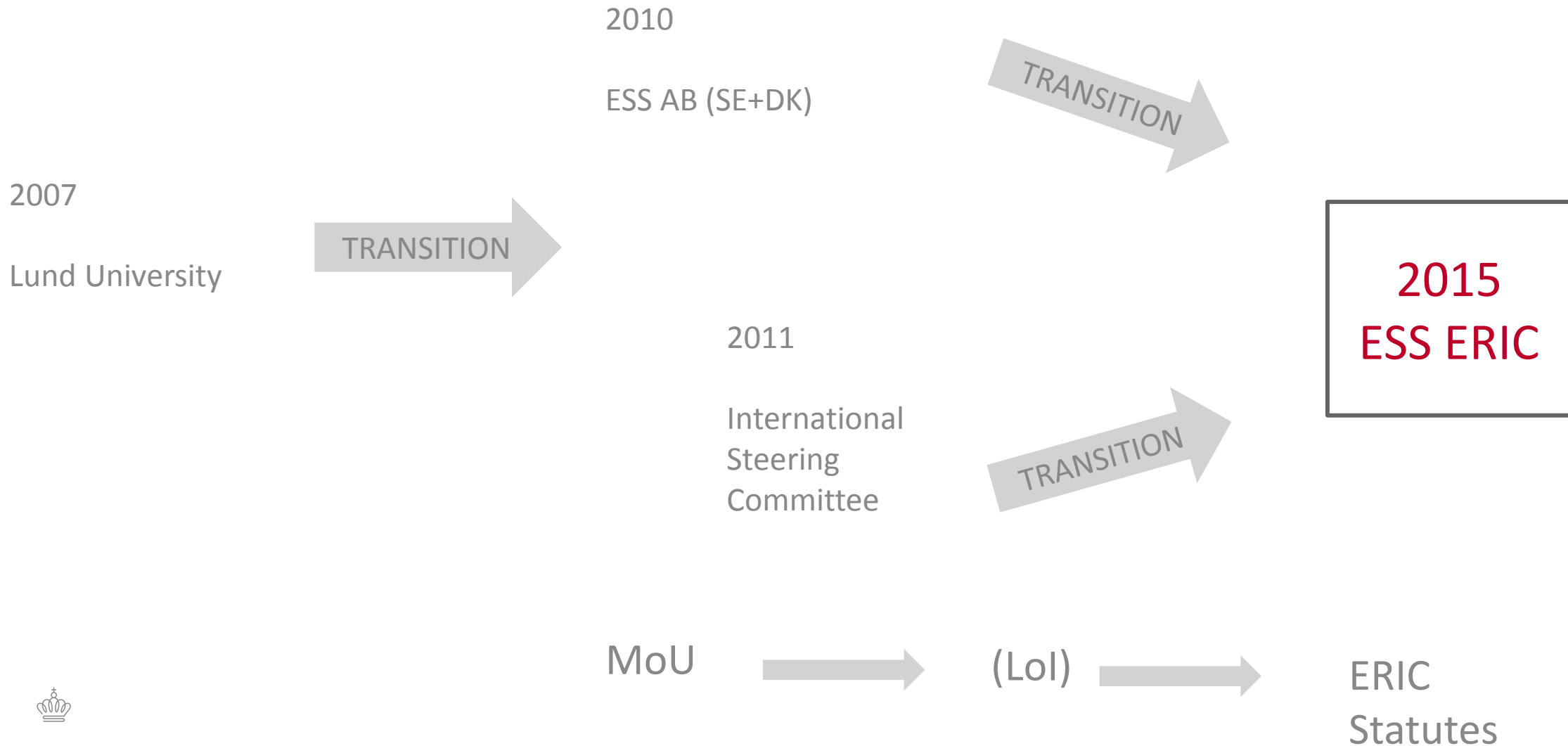
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Site preparations and earth moving underway – from green to brown field...



Long term governace evolution: ESS as a moving target



ESS transition from ESS AB to an ERIC



- ESS member countries will submit application this autumn to establish a European Research Infrastructure Consortium (ERIC) for ESS. ERIC will be in place in early 2015.
- Transition of all advisory groups

Transition to ESS ERIC

Huge effort including more than 100 concrete deliverables regarding:

- Finance
- Governance
- HR (ESS today more than 250 staff in two countries)
- Legal and tax issues (ERIC vs national regulations)
- Communication



Two challenges relating to the financial framework

- Speeding up the path towards 100 percent funding commitment
- Efficient road towards operations: efficient matching of construction costs and budget profile of MS contributions



I. Construction funding – need for a European Investment bank

Success for Europe!

Collaborating mechanisms :

MoU > Lol > Negotiations summaries in Host State Conclusions

Negotiation challenges:

- Respect for different national processes:
 - a. Tempo (political changes, road maps)
 - b. Division of responsibility (ministry, funders, agencies etc)
 - c. Need for coordination within governments
 - d. Level of possible commitments (details)

Consequences:

- Takes time to reach a 100 % commitment
- Political risk for HS
- Delays are expensive



ESS construction funding status		
Country	Share (%)	M Euro
Sweden	35,0	645

Autl	Year	2008	2009	2010	2011	2012	2013	2014, jan	SUM 2009-2013
Den	Denmark	34 (14)	35 (28)	34 (21)	56 (30)	41 (18)	39 (18)	15 (3)	205 (115)
Nor	Norway	23 (3)	20 (6)	10 (4)	25 (9)	22 (5)	15 (7)	1 (0)	92 (31)
Swe	Sweden	48 (24)	45 (24)	51 (29)	59 (20)	58 (29)	57 (29)	2 (0)	270 (131)
Swe	Finland	11 (2)	7 (1)	7 (5)	10 (5)	11 (4)	6 (3)	1 (0)	41 (18)
Finl	Iceland	0	0	0	1 (0)	0	1 (0)	0	2 (0)
Icel	- double count	7 (2)	8 (5)	9 (5)	27 (10)	14 (4)	13 (4)	2 (0)	71 (28)
SUM	SUM	109 (41)	99 (54)	93 (54)	124 (54)	118 (52)	105 (53)	17 (3)	539 (267)

Estonia	0,25	4,0
Netherlands, Lithuania, Latvia (to be confirmed @ ~3%)		
Total	97,55	1,798

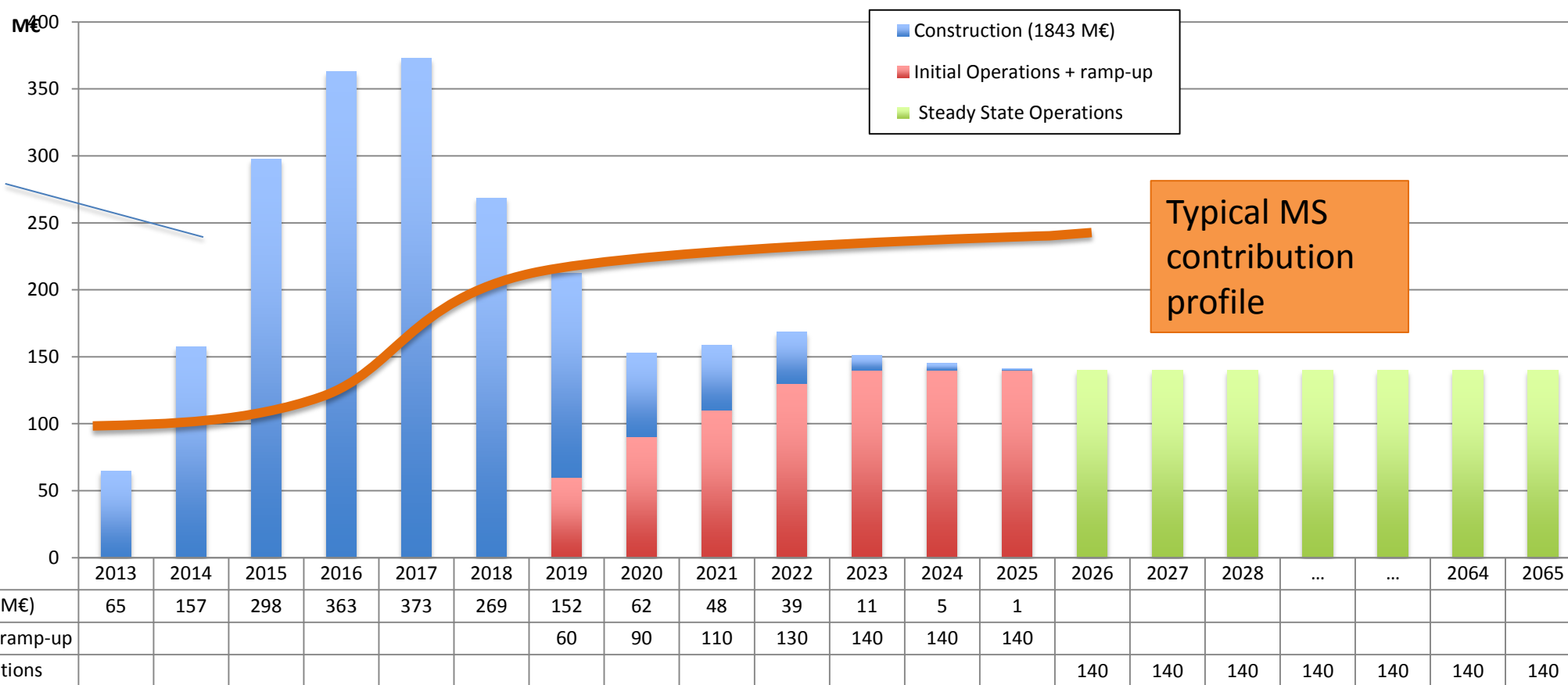
Could the start of construction for RIs be speeded up?

- EU-mechanism for real risk-sharing and investments? Could the EIB act as an investor as well as a lender?



II. Shorten the road to operations (in a fully funded project)

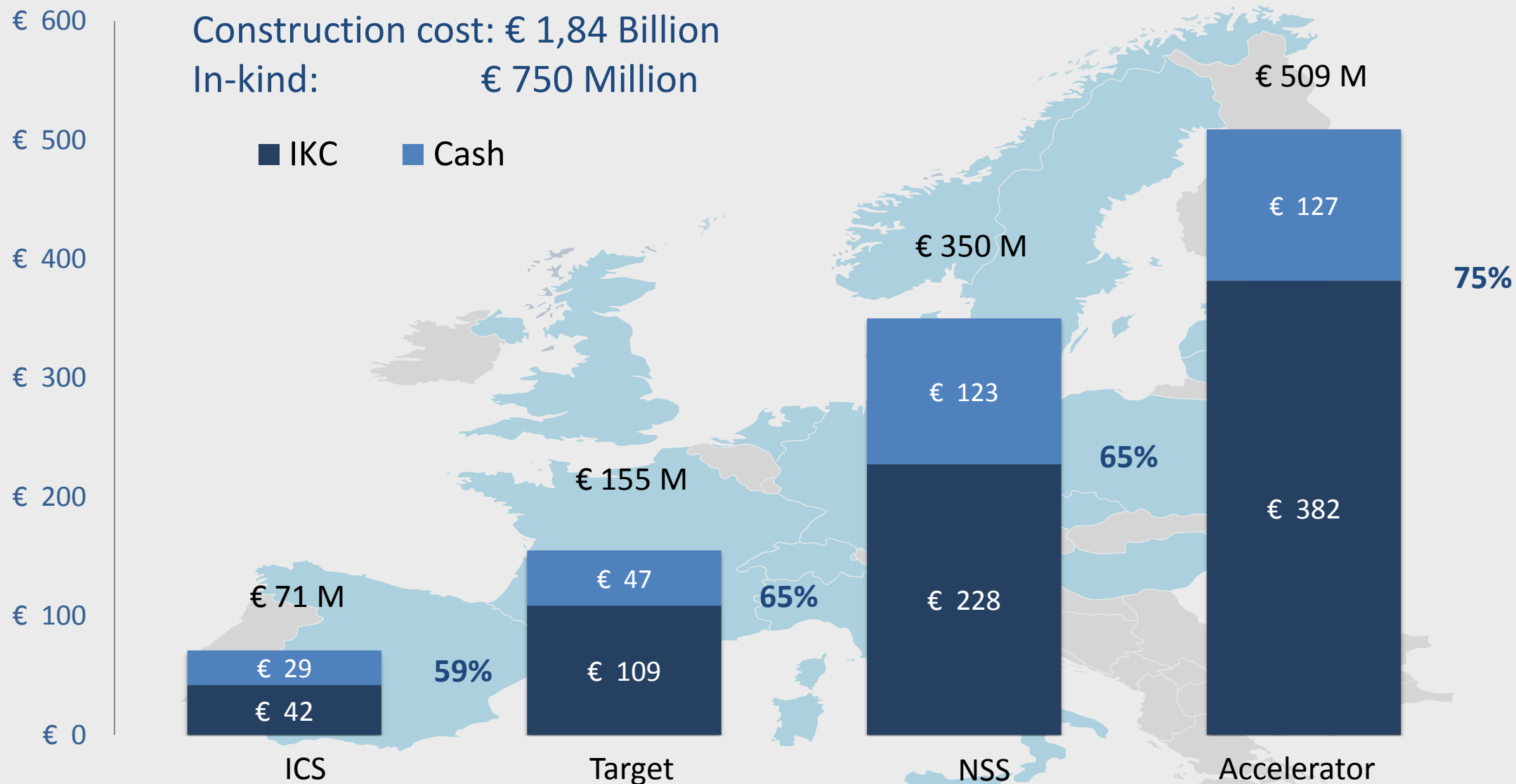
Green field projects with cash needs for CF more exposed



Typical MS contribution profile

Large in-kind shares enhances the challenge!

ESS In-kind Goals (Hosts 100 % cash – Partners 30/70 split)



Cash flow challenge to reach OPS as soon as possible



- European and national/regional lending institutions are available as we heard yesterday from EIB...
- ...but, no clear political consensus on the basis of using of lending solutions to facilitate an efficient construction of European RI:s among EU-countries

Thank you!



ESS DMSC IN COPENHAGEN –
FUTURE FACILITY FROM 2017/18