

Build on Best Practice

Video Workshop

JCNS-ESS Programme Management

Tania Claudio Weber

Central Hub / Forschungszentrum Jülich




27.08.2020, Remote



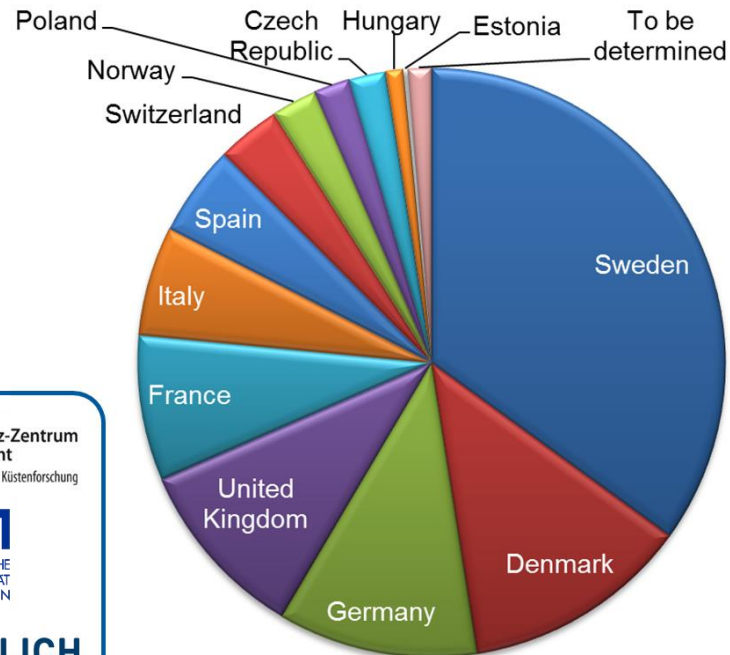
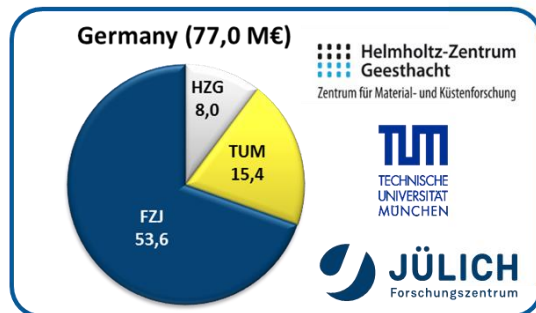
brightness²

This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement No 823867

German Contributions to the ESS

			Federal Ministry of Education and Research
Sweden	35.0%		
Denmark	12.5%		
Germany	11.0%		= 202.5 M€
United Kingdom	10.0%		
France	8.0%		
Italy	6.0%		
Spain	3.0%		
Switzerland	3.5%		
Norway	2.5%		
Poland	2.0%		
Czech Republic	2.0%		
Hungary	1.0%		
Estonia	0.3%		
Total	96.7%		
Belgium	tbd		
Netherlands	tbd		

Cash + In-Kind



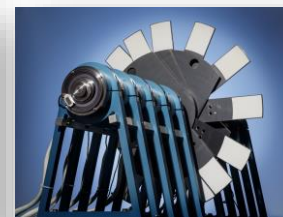
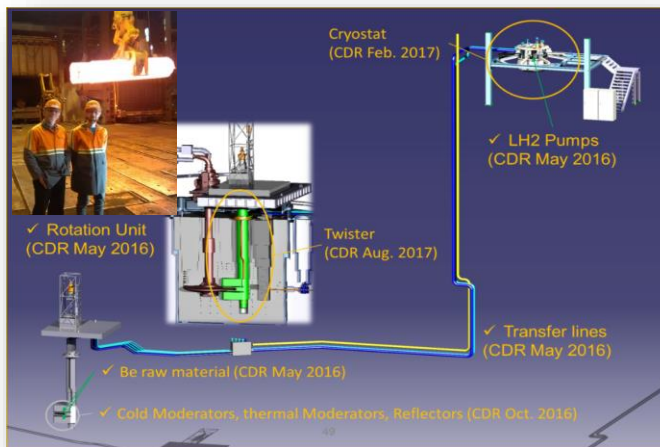
German Contributions to the ESS

Partner	ESS Division	Project	CBV (M€)
HZG	NSS	B10 Detectors	0,67
		BEER (50%)	7,33
		Total HZG	8,00

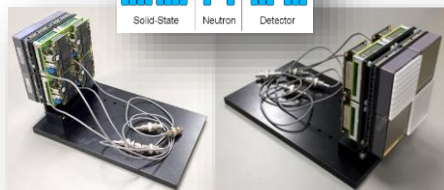
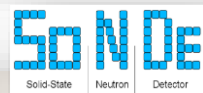
TUM	NSS	C-SPEC (50%)	8,25
		ODIN (60.6%)	7,03
Total TUM			15,28

FZJ	NSS	DREAM (75%)	10,43
		T-REX (75%)	12,69
		SKADI (50%)	5,75
		MAGIC (25%)	3,12
		Secondment	0,35
		Motion Control / Robotics	1,29
		Software Development	0,79
	Target	High Speed Choppers	0,76
		Moderator & Reflector Plugs	4,70
		Cryogenic Moderator System	4,27
		Target Monitoring Plug	1,10
	EU Projects	NBEX / NBPI	4,75
		SoNde	2,60
	Total FZJ		

Total Germany		76,69
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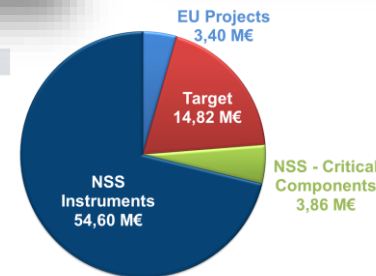


Central Hub



Germany
7 out of 15 instruments

FZJ
4 of those instruments



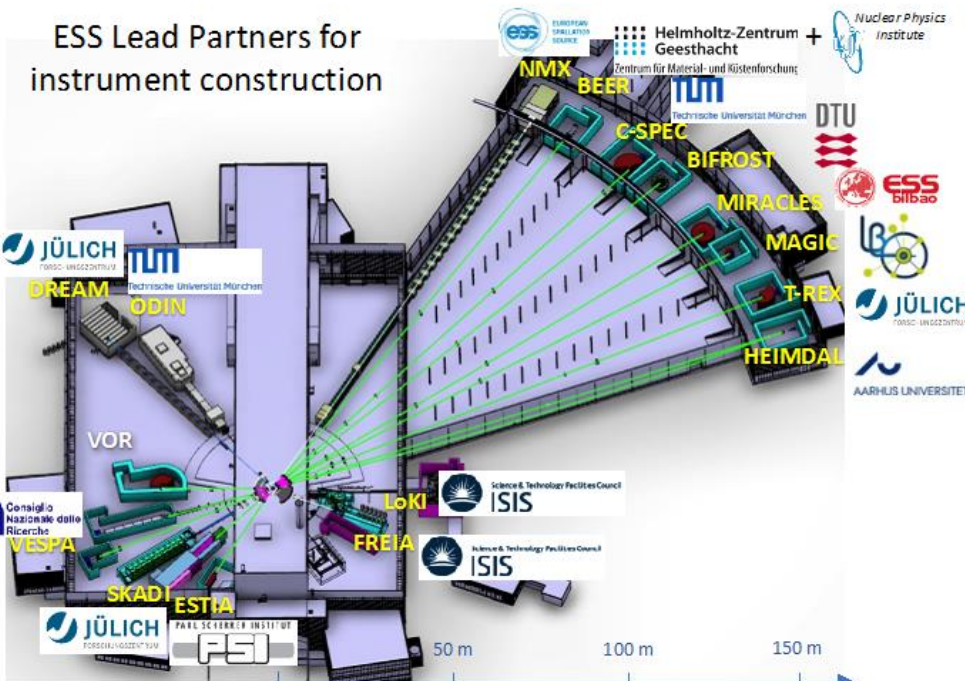
Focus on Instruments: FZJ

DREAM – 13.9 M€
Diffraction Resolved by Energy and Angle Measurements

FZJ (75%) LLB (25%)

SKADI – 11.6 M€
The Small-K Advanced Diffractometer

FZJ (50%) LLB (50%)



ESS Instrument Layout (June 2016)

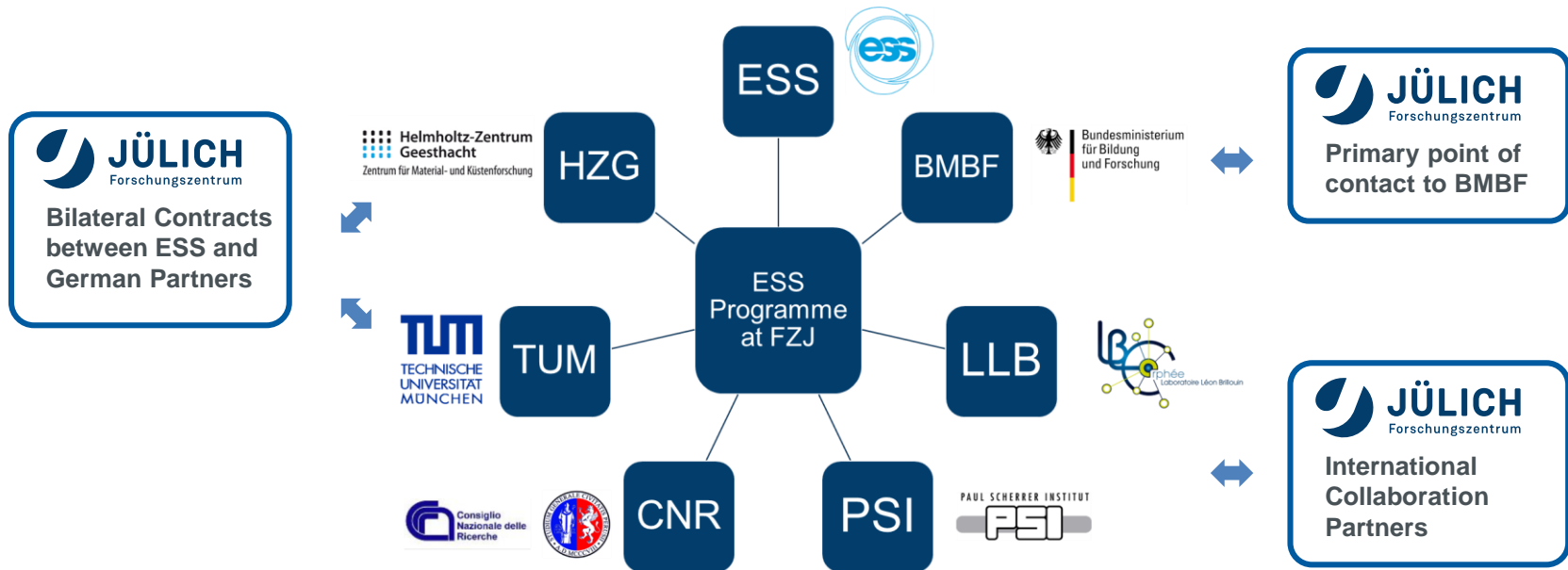
MAGIC – 13.1 M€
Magnetic single crystal diffraction

FZJ (25%) PSI (35%) LLB (60%)

T-REX – 16.8 M€
The Time-of-Flight Reciprocal Space Explorer

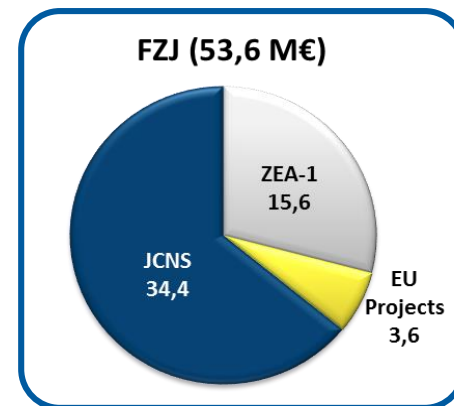
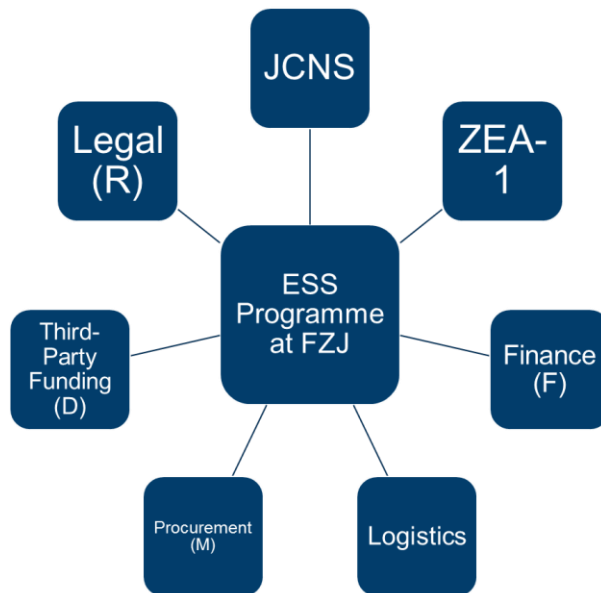
FZJ (75%) Uni Perugia (25%)

FZJ: External Interfaces



Bilateral Contracts:

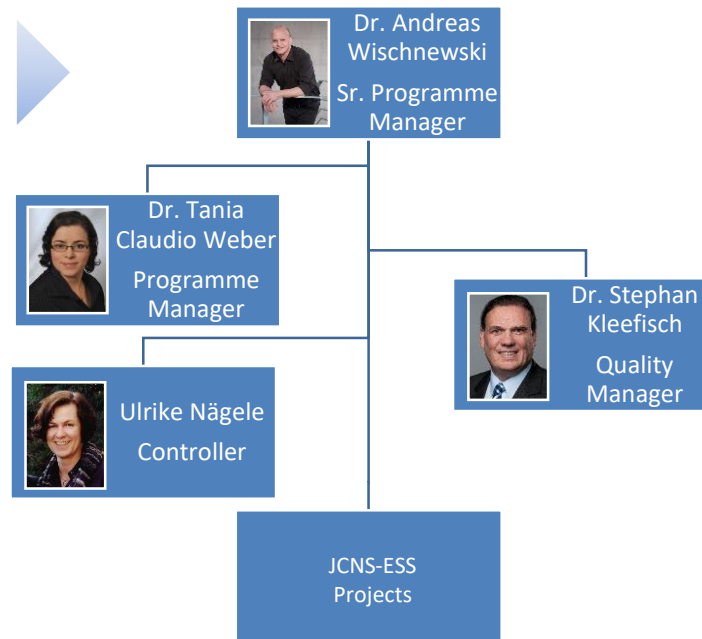
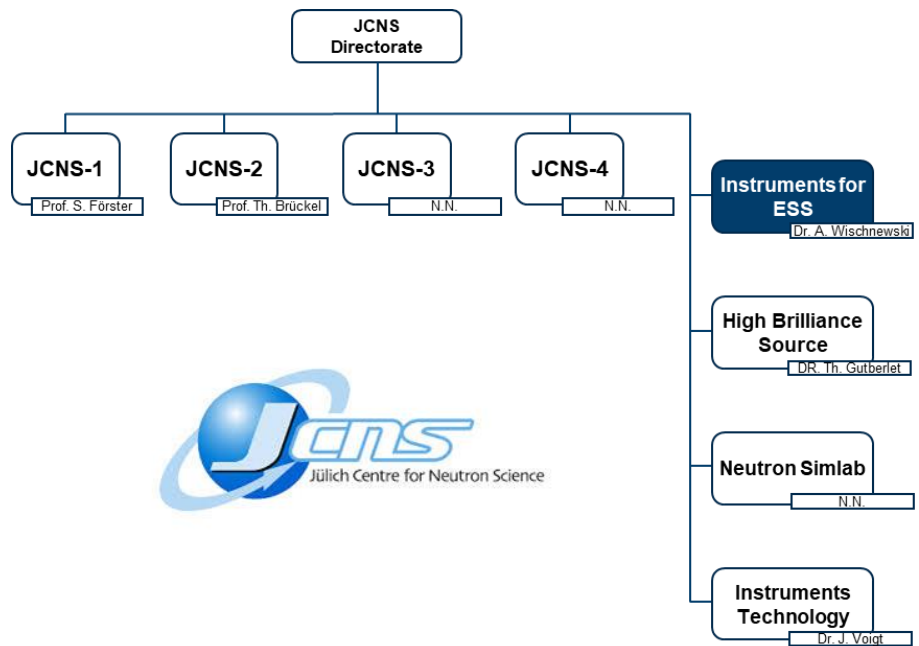
- VAT on Installation in Sweden
- Liabilities
- Warranties
- Quality / CE certification
- Logistics
- Evaluation of Project Results
- Personnel in Sweden





Establishment of a Programme Management Office (PMO)

- Embedded in the JCNS structure
- Merging both PM methodologies (ESS -> XLPM, FZJ -> PRIMA, MSP)
- Adapting to the environment



ESS Programme at Forschungszentrum Jülich

SRO: BMBF (A. Fischer)
Sponsor: S. M. Schmidt

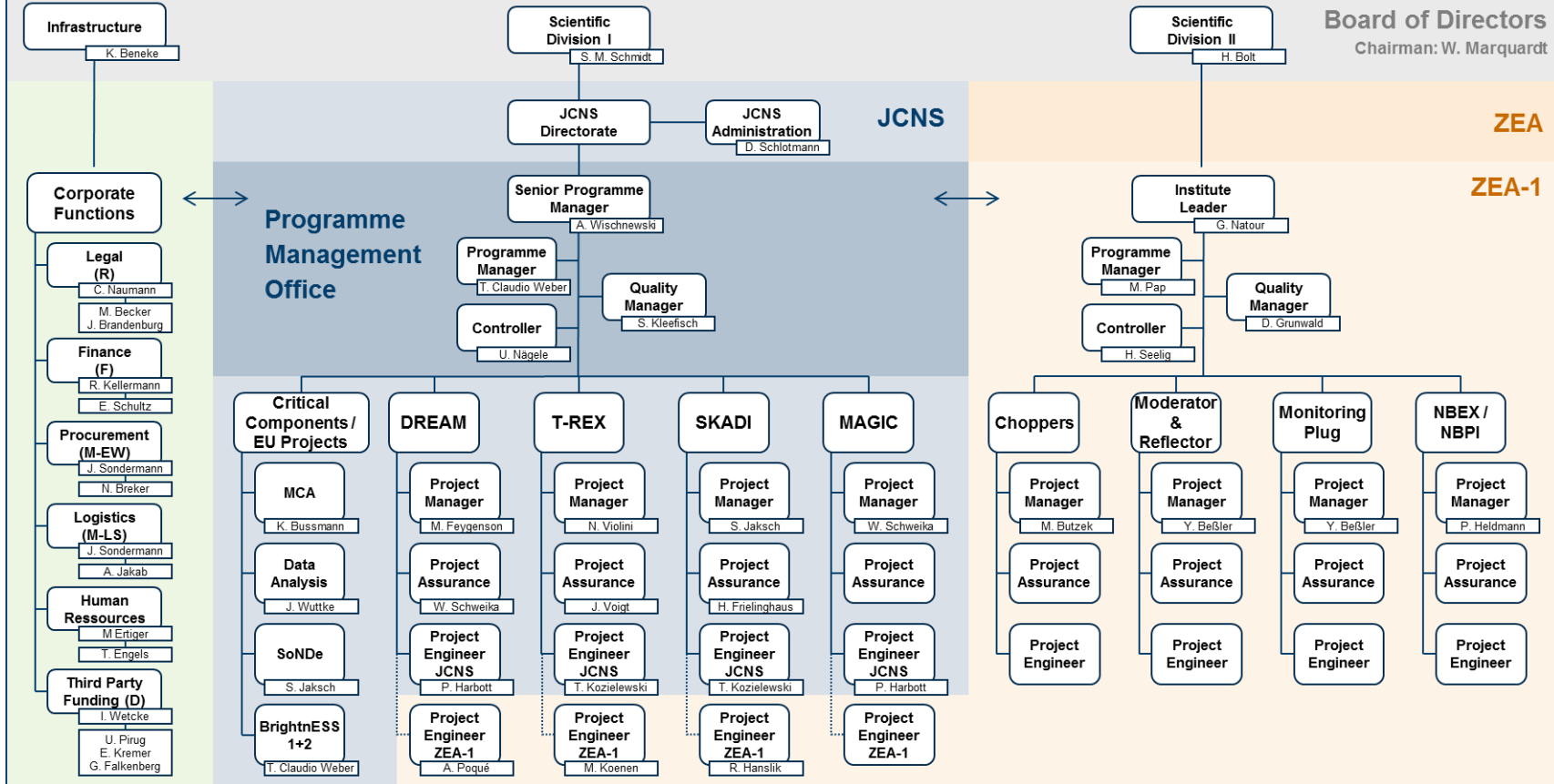


ZEA-1

Central Institute of Engineering,
Electronics and Analytics | ZEA
Engineering and Technology | ZEA-1
Technology for Excellent Science



Board of Directors
Chairman: W. Marquardt

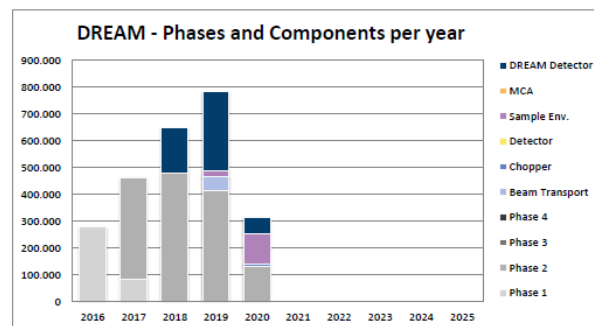
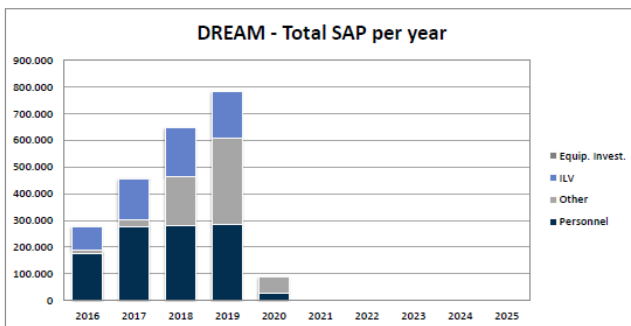
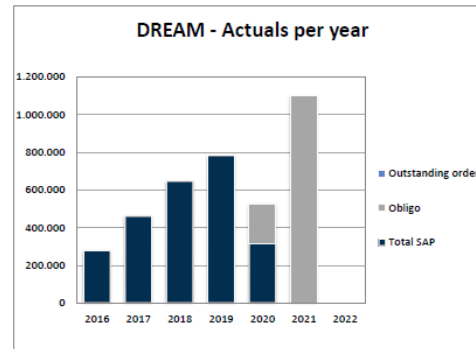
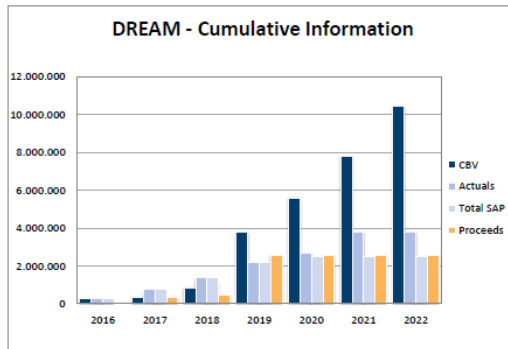


FZJ Contribution to ESS: Instrument DREAM

IK No	NIK 6.8	Report no:	2020/03	Institute:	JCNS-ESS	Start of project:	16.05.2016	Status as of:	31.03.2020
FE-No.:	E.23105.40	Senior Programme Manager:	Andreas Wischniewski	Cost Centre	65400	End of project:	30.11.2022	Last update:	15.05.2020

Total - Budget	
CBV	10.433.488,00
EAC	11.457.241,72
Budget Variance	1.023.753,72
Variance %	9,81%

Total - Costs and Proceeds	
Actuals	3.795.506,02
Obligo - Orders	1.309.080,26
Total SAP	2.486.425,76
Proceeds	2.532.823,00
Costs Variance	46.397,24
Variance %	1,87%



Schedule Management

Schedule defined in the Scope of Work (Baseline date)

Project Managers produce monthly reports and send to ESS after approval by PMO

PMO updates Programme file (MS-project) and produce Programme reports

SCHEDULE 4.7 #3 "INSTRUMENT SKADI CONSTRUCTION PROJECT" TO THE CONTRIBUTION AGREEMENT SIGNED BETWEEN EUROPEAN SPALLATION SOURCE ERIC AND FORSCHUNGSZENTRUM JÜLICH GMBH (FZJ) ON 03/04/2019

Milestone	PBS	Description	Date	CBV MS (k€)	CBV WP (k€)	EV MS (%)	EV WP (%)
TG3		Tollgate 3	Dec-21	273,33	273,33	5,00	5,00
TG4		Tollgate 4	Jul-24	273,33	273,33	5,00	5,00
CC		Ready for Cold Commissioning	Sep-24	0,00	0,00	0,00	0,00
DTG5		Documentation for TG5 submitted	May-25	184,00	184,00		
TG5		Tollgate 5	Jul-25	109,33	109,33	5,00	5,00
WP01	13.6.7.1.1	NBOA			133,39		2,44
WP01.1		Design Reviewed (DR/CTV)	Jul-18	33,35		0,61	
WP01.2		Procured	Mar-19	26,68		0,49	
WP01.3		Design Accepted (Sub-TG3)	Aug-19	26,68		0,49	
WP01.4		Manufactured	Jan-20	20,01		0,37	
WP01.5		FAT	Feb-20	13,34		0,24	
WP01.6		Delivered (ESS)	Feb-20	13,34		0,24	
WP02	13.6.7.1.1 13.6.7.1.8.2 13.6.7.1.7 13.6.7.1.10.1	In Bunker Components			1,152,36		21,08
WP02.1		CTV - Documentation Submitted	Nov-18	172,85		3,16	
WP02.1		Design Reviewed (CTV)	Feb-20	115,24		2,11	
WP02.1		Procured	Sep-20	172,85		3,16	
WP02.3		Design Reviewed (DR)	Feb-21	115,24		2,11	
WP02.4		Design Accepted (Sub-TG3.1)	Sep-21	172,85		3,16	
WP02.5		Manufactured	Sep-22	172,85		3,16	
WP02.6		FAT	Sep-23	115,24		2,11	
WP02.7		Delivered (ESS) / Sub-TG4.6	Apr-24	57,62		1,05	
WP02.8		Installed	Aug-24	57,62		1,05	



SKADI Milestones Report 2020-Q2



SKADI

FZJ Milestones	Baseline	Expected	Comment	% Complete
SKADI-Start of Phase 1	16/05/16	16/05/16	Complete	100%
SKADI-TG2	10/03/17	26/06/18	Complete	100%
SKADI-WP01.1-NBOA: Design Reviewed (DR/CTV)	01/07/18	26/07/18	Complete	100%
SKADI-WP02.1-in Bunker Components: CTV - Documentation Submitted	01/11/18	01/11/18	Complete	100%
SKADI-WP07.3-Sample Area, SES: Design Reviewed (DR)	01/12/18	21/12/18	Complete	100%
SKADI-WP01.2-NBOA: Procured	01/03/19	01/03/19	Complete	100%
SKADI-WP04.1-Choppers: Design Reviewed (CTV)	01/04/19	01/04/19	Complete	100%
SKADI-WP05.1-SCS (Detector Frame and Housing): Conceptual Design	01/07/19	01/07/19	Complete	100%
SKADI-WP01.3-NBOA: Design Accepted (Sub-TG3)	01/08/19	07/08/19	Input from S.N. needed	0%
SKADI-WP05.3-SCS (Detector Frame and Housing): Integration with SuNe	01/11/19	01/11/19	Complete	100%
SKADI-WP05.4-SCS (Detector Frame and Housing): Manufacturing Cycle 1	01/02/20	01/02/20	Complete	100%
SKADI-WP05.4-SCS (Detector Frame and Housing): FAT	01/03/20	01/03/20	EU Documentation Accepted	100%
SKADI-WP04.2-Choppers: Procured	01/02/20	15/03/20	Complete	100%

FZJ-ESS Programme Last Update: Jul/2020

ESS Logistics: Jürgen Larsson (jorgen.larsson@ess.eu) +46 72 179 2098
ESS Logistics Insurance (CPI): Cassandra Waad (cassandra.waad@ess.eu)
FZJ Logistics: Andreas Jakob (ajakob@fzjuelich.de) +49 2463 03 2094
FZJ Programme Management: Tania Claudio Weber (t.claudio.weber@fzjuelich.de) +49 171 553 4932



Logistics CPT 2020

Deliverable	Baseline	Expected	Weight (kg)	Volume (m ³)	Value	WP Leader FZJ	WP Leader ESS	Delivery Address
Target - Beryllium Square Flat	15/03/19	11/06/19	200	1x1x0,5	600,000.00 €	Yannick Bellier		
Target - Control Cabinet 2	15/10/20	15/06/20	100	3x2x1	50,000.00 €	Yannick Bellier		RATs, Måsvägen 42, 22783 Lund, Sweden
MCA - ESS defined connector assortment palletized	31/07/20	31/08/20	30	0.8x1.2x0.5	20,000.00 €	Klaus Bussmann	Thomas Gahl	
MCA - Cabinet 16-axis Control Cabinet to PSI palletized	31/08/20	31/08/20	150	0.8x1.2x1.5	35,000.00 €	Klaus Bussmann	Thomas Gahl	
MCA - 19" Control Crates packed on pallets	31/08/20	31/08/20	150	0.8x1.2x1.0	40,000.00 €	Klaus Bussmann	Thomas Gahl	
Target - Monitoring Plug	15/06/20	15/08/20	12000	4x3x2	600,000.00 €	Yannick Bellier	Jens Hornbom	RATs, Måsvägen 42, 22783 Lund, Sweden
Choppers - High Speed Choppers	30/06/19	30/09/20	100x1000	1.5x1.5x1.5	560,000.00 €	Michael Buzsek		
Target - Cryostat	15/10/20	15/10/20	5000	5x5x4	2,000,000.00 €	Yannick Bellier	Hideki Tatumoto	RATs, Måsvägen 42, 22783 Lund, Sweden
Target - Platform	15/10/20	15/10/20	200	5x1x1	10,000.00 €	Yannick Bellier		RATs, Måsvägen 42, 22783 Lund, Sweden



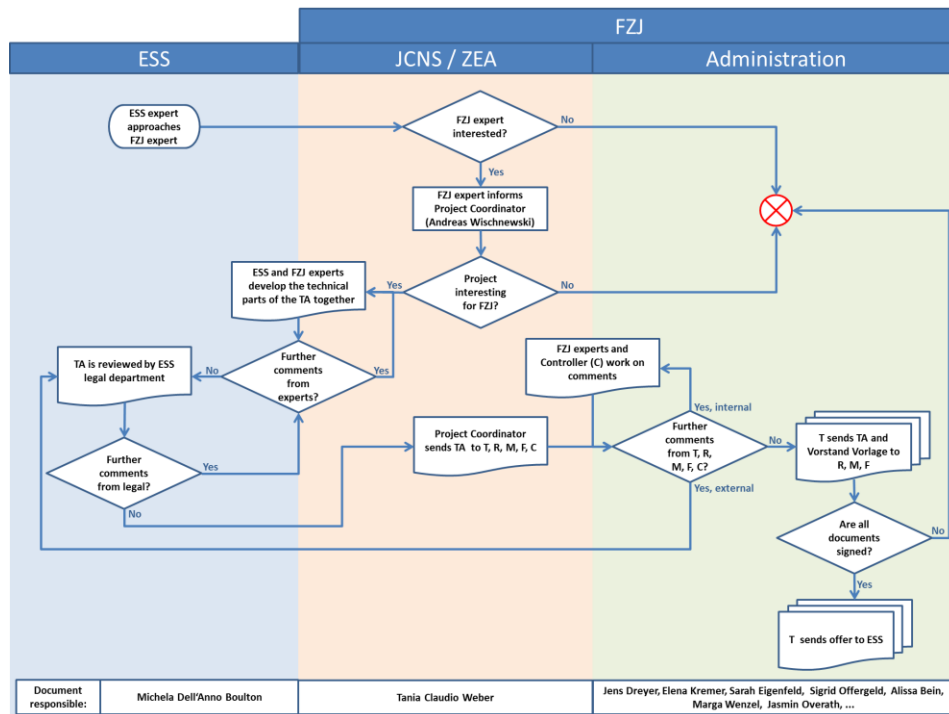
Risk Register

- Ref No.
- Risk Title
- Risk Description: Cause, Risk, Effect
- Risk to
- Risk Owner
- Risk Manager
- Status
- Pre-controls Impact
- Pre-controls Probability
- Pre-controls Rating
- Actions completed and current controls in place
- Post-controls Impact
- Post-controls Probability
- Post-controls rating
- Planned risk treatment
- Next planned action
- Action owner
- Action due date
- Previous Rating
- Risk trend
- Date last reviewed
- Impact quantification

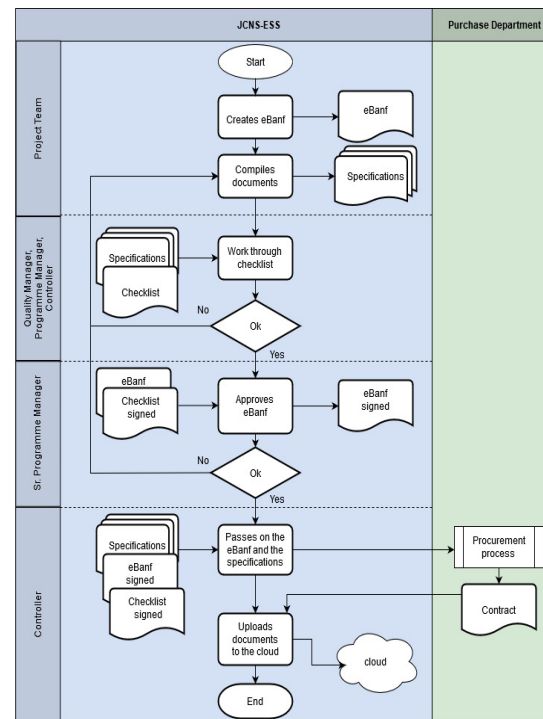
		Impact				
		Very low	Low	Moderate	High	Very high
Probability	Score	1	2	3	4	5
	Very likely	5	10	15	20	25
	Likely	4	8	12	16	20
	Moderate	3	6	9	12	15
	Unlikely	2	4	6	8	10
	Very unlikely	1	2	3	4	5

Active Risks (Top 3-5)		
Risk Category	Treatment ¹	Responsible Partner (Person) ³
Risk Description	Trend ²	Action taken/proposed (until date)
Schedule	Observe	ESS
Delays on NBOA milestones (ESS input needed)	Steady	ESS input to manufacturer
Schedule	Reduce	ESS
Delay of procurement of in-bunker components (put on hold by ESS)	Rising	Coordinate with ESS to allow procurement or negotiate new milestones dates.
Schedule	Reduce	ESS
Delay of SCS SubTG3, due to lack of DAQ chain (supposed to be provided by ESS to perform hardware tests)	Rising	Delivery of DAQ chain by ESS by Feb 2020, or permission to go on with in-house development
Schedule	Observe	LLB
Limited resources at CNRS (LLB) Purchase Office	Falling	As discussed during the ICEB in December, LLB management is working on improving the procurement process
Schedule	Observe	FZJ
Covid-19 situation	New	Delays are being monitored, measures taken as necessary

Contract (Scope of Work)

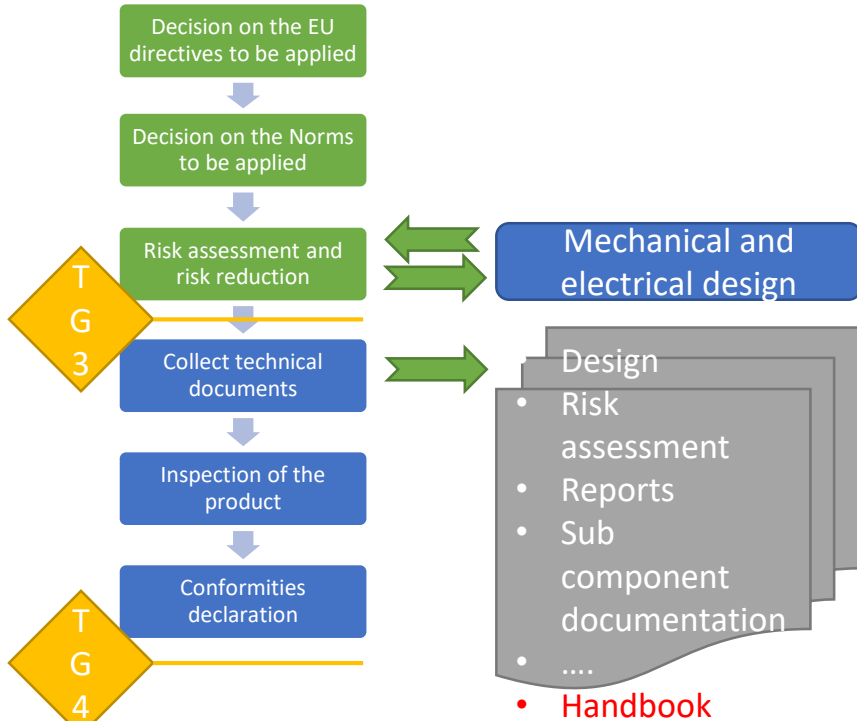


Procurement

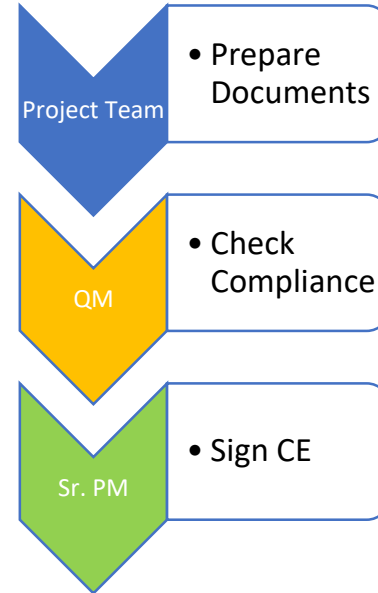


Quality Management

CE Process



CE Roles & Responsibilities



CE Software

S
A
F
E
X
P
E
R
T

The screenshot displays a file management interface with a left sidebar and a main content area. The sidebar lists various folders, including '10_DREAM'. A blue arrow points from '10_DREAM' to a detailed view of its contents in the main pane. The main pane shows a list of folders with columns for Name, Size, and Modified. A blue box highlights the detailed view of the '10_DREAM' folder contents.

Name	Size	Modified
00_Templates	971 KB	3 months ago
01_Programme_Managment	406.7 MB	3 days ago
02_Administration	929.4 MB	4 days ago
05_Common Projects	5.6 MB	4 days ago
10_DREAM	3.5 GB	19 hours ago
15_DREAM Detector	31.9 MB	23 days ago
20_T-REX	1.4 GB	2 days ago
30_SKADI	368.4 MB	4 days ago
40_MAGIC	55.1 MB	23 days ago
50_MCA Linear	65.6 MB	16 days ago
55_MCA Robotics	33.3 MB	23 days ago
10_PM	3.5 GB	19 hours ago
19_Scope Setting Meeting	31.9 MB	23 days ago
20_TG2	1.4 GB	2 days ago
30_TG3	368.4 MB	4 days ago
40_TG4	55.1 MB	23 days ago
50_TG5	65.6 MB	16 days ago
60_CTV	33.3 MB	23 days ago
100_Procurement		
110_Internal orders		
200_ePLAN		



JCNS-ESS Programme Management Document

1. Programme Description
2. Programme Organisation and Governance
3. Financial Management
4. Non-Financial Resource Management
5. Schedule Management
6. Procurement Management
7. Risk Management
8. Stakeholder and Communication Management
9. Quality & Assurance
10. Change Management

JCNS-ESS
PROGRAMME
MANAGEMENT

Main Risk Identified in In-Kind Management



THE PROJECT CONSTRUCTION CYCLE – THE TREE SWING



HOW THE CLIENT DESCRIBED IT



HOW THE ARCHITECT ENVISIONED IT



HOW THE ENGINEER DESIGNED IT



WHAT THE BUDGET ALLOWED



HOW THE LIABILITY INSURANCE AGENT DESCRIBED IT



HOW THE ESTIMATOR BID IT



HOW THE MANUFACTURER MADE IT



WHAT THE BUILDING INSPECTOR EXPECTED



HOW THE CONTRACTOR INSTALLED IT



WHAT THE CUSTOMER REALLY WANTED



HOW THE PROJECT WAS DOCUMENTED



HOW THE CUSTOMER WAS BILLED



- Over 6000 employees
- Campus area of 2.2 km²
- 3 years ago FZJ celebrated 60 years of the Research Center Jülich, which was founded in 1956. It was by then called Kernforschungsanlage KFA -> “atomic research establishment”.
- Merlin -> Decommissioned in 1985
- DIDO -> Decommissioned in 2006:
 - JCNS founded
 - Instruments sent to Munich
 - New business model -> outstations



• 450 users per year
@FRMII

SNS

FZJ
ESS
FRM II
ILL

ESS: Most powerful spallation source in the world!



1(+2) Instruments



4(+1) Instruments



14 Instruments



The JCNS operates world-class instruments at the world's leading Neutron sources **FRM II**, **HFR@ILL**, **SNS**

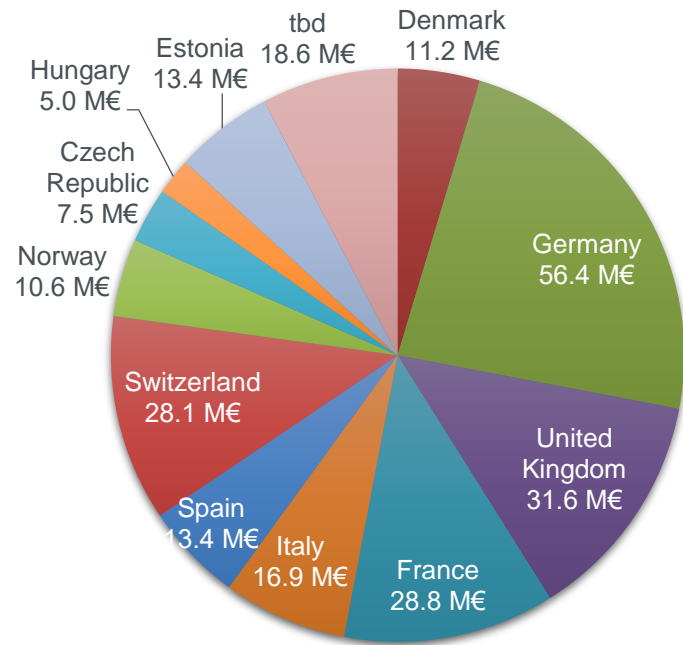
Focus on Neutron Scattering Systems (NSS)



MLZ
Heinz Maier-Leibnitz Zentrum

All partners have a long tradition collaborating in:

- instrumentation
- user operation
- research
- infrastructure



Germany: 7 out of 15 instruments
FZJ: 4 of those instruments



FZJ: Decades of Experience in Neutron Techniques

80's

Feasibility Study on Spallation Neutron Sources
Günter Bauer “invented” the target wheel (ZEA-1)

90's

ESS Technical Design:

- JCNS
- ZEA-1
- IKP

2000's

FZJ hosting the ESS management team
ESS Science Director: Dieter Richter (FZJ)

2010 – 2014

Project Management: ESS Design-Update
7 German Partners: Accelerator, Target, Instruments
20.5 M€ of 40 M€ in-kind to the pre-construction

Why do German Partners Contribute?

Strategy Paper
on
Neutron Research in Germany:
2015–2045

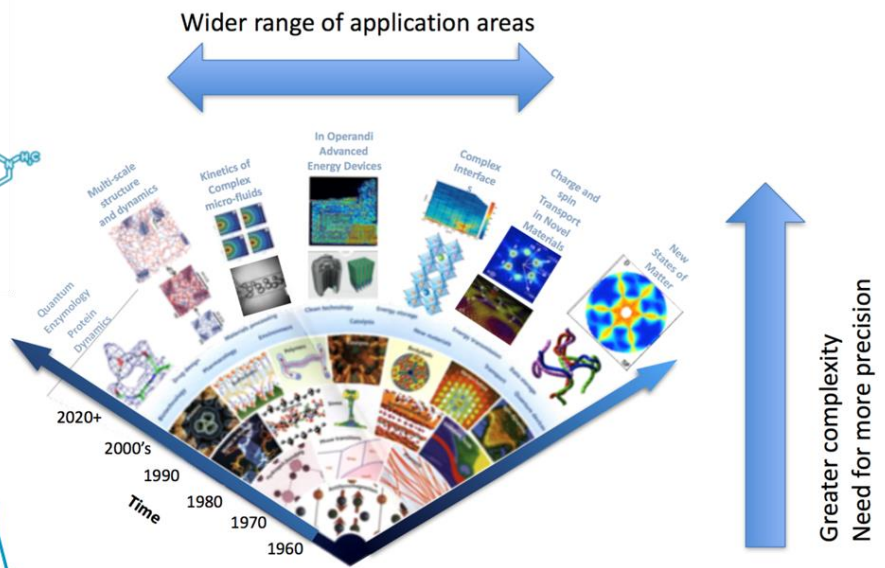
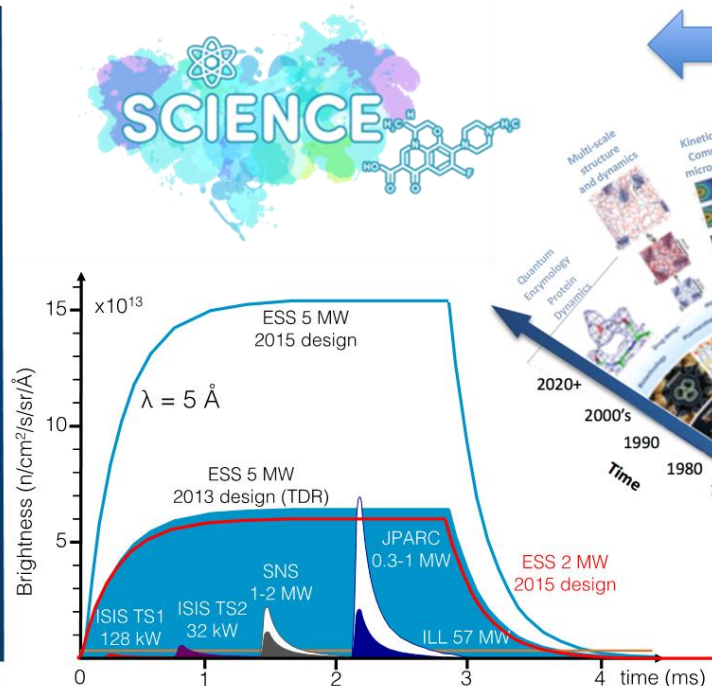
Update 2017 together with
Sebastian Schmidt, Thomas Brückel and Stephan Förster (FZJ)
Martin Müller (HZG)

Original Version 2015 by
Sebastian Schmidt¹
Forschungszentrum Jülich (FZJ)

Andreas Schreyer
Helmholtz-Zentrum Geesthacht (HZG)

Helmut Dosch
Deutsches Elektronen-Synchrotron (DESY)

¹ in cooperation with T. Brückel and D. Richter (FZJ)



Construction

- ERIC did not fulfill all expectations
- Due to VAT issues the entire funding scheme had to be revised and is not optimal for IKC
- Exhausting negotiations on the Contribution Agreement and Technical Annexes
- As a consequence, money (which is available at the Ministry) is not accessible by partners
- Many instruments done in partnership between different countries, which have their own Challenges

Operations

- Unclear VAT situation in Lund
- Crediting (CBV) is significantly lower than the „real“ costs -> unacceptable discrepancy
- Too many administrative issues

No balance between challenges/costs and benefits



Suggestion for Improvements

- Better (combined) Stakeholder Management



stakeholder



steakholder

Thank you!

Tania Claudio Weber, FZJ
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brightness²

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