



Science and  
Technology  
Facilities Council

# **C2 Instrumentation & Control and CODAC**

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**Moderator**

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# Introduction to C2

- Overview of Instrumentation & Control and CODAC
- Volume and value of tenders
- Links to ESS information
- Speakers

# Overview of Instrumentation & Control and CODAC

- I&C (Instrumentation and Control) and CODAC (Control, Data Access and Communication)
- Used for the scientific exploitation of the facility for the data acquisition and processing of the data
- Also used for the essential control systems for e.g. safety, machine protection, robotic systems etc
- Technical areas of relevance include: real-time systems, SCADA (Supervisory Control and Data Acquisition, for example EPICS), electronics and FPGA design, automation, and network infrastructure

# Value of tenders for Instrumentation & Control and CODAC

Value (€M)	2022	2023	2024	2025	2026	2027	Total	Comment
<b>CERN*</b>								
<b>ESA</b>	9.0	9.0	9.0	9.0	9.0	9.0	<b>54.0</b>	
<b>ESO</b>	0.8	0.8	0.8	0.8	0.8	0.8	<b>5.0</b>	
<b>ESS</b>	10.9	16.1	13.4	10.8	9.8	3.4	<b>64.4</b>	
<b>XFEL</b>	0.7	0.7	0.7	0.7	0.7	0.7	<b>4.2</b>	
<b>F4E</b>	6.5	6.5	6.5	6.5	6.5	6.5	<b>39.0</b>	5M to 8M /yr Total 30M-48M
<b>ITER</b>	4.5	24.1	12.9	2.1	8.4		<b>52.0</b>	
<b>Grand total</b>	<b>32.4</b>	<b>57.3</b>	<b>43.3</b>	<b>29.9</b>	<b>35.2</b>	<b>20.4</b>	<b>218.6</b>	

\* See CERN presentation for tenders and ranges

# Volume of tenders for Instrumentation & Control and CODAC

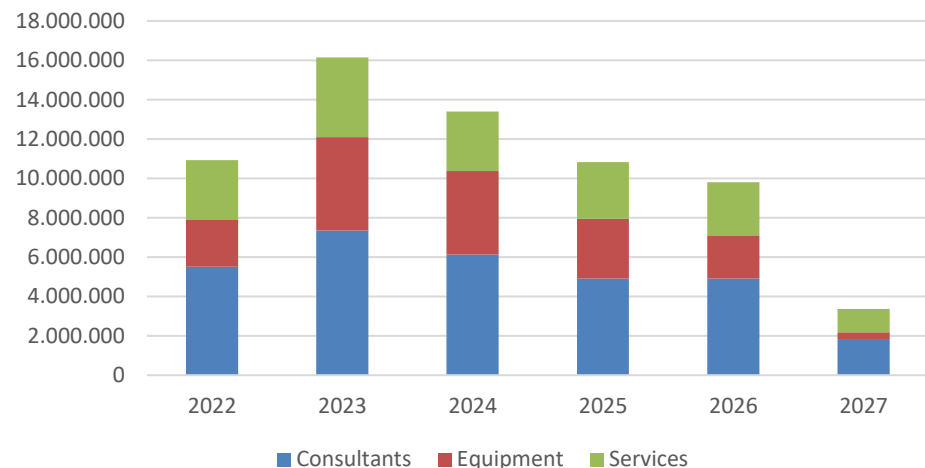
No. of major tenders	2022	2023	2024	2025	2026	2027	Total
<b>CERN</b>	1	5	5	1			<b>12</b>
<b>ESA</b>	12	12	12	12	12	12	<b>104</b>
<b>ESO*</b>							<b>0</b>
<b>ESS</b>	9	13	11	9	8	3	<b>53</b>
<b>XFEL*</b>							<b>0</b>
<b>F4E*</b>							<b>0</b>
<b>ITER*</b>							<b>0</b>
<b>Grand total</b>	<b>22</b>	<b>30</b>	<b>28</b>	<b>22</b>	<b>20</b>	<b>15</b>	<b>169</b>

*\*missing info*

# Overview of ESS Integrated Control Systems (ICS)

- The Integrated Control System (ICS) for the European Spallation Source is a complex network of hardware, software and configuration databases that integrates the operations of all facility infrastructures. It is based on the EPICS framework.
- The control system at ESS is essential for the synchronisation and day-to-day running of all the equipment responsible for the production of neutrons for the experimental programs.
- Includes control systems for accelerator, target, neutron scattering systems and conventional facilities.

ESS ICS tender breakdown



# Agenda

Organisation	Speaker	Title
UKRI STFC	Carol Watts <i>UK ESS &amp; SKAO Industrial Liaison Officer at STFC</i>	Introduction to the session
CERN	Alessandro Masi <i>Group leader, Controls, Electronics and Mechatronics (CEM), BE department</i>	Future procurements at CERN in Instrumentation & Control and CODAC
ESA	Agustín Fernández León <i>Lead Microelectronic Engineer in Electrical Department</i>	Data Handling and Control systems and Microelectronics building blocks for Space - Opportunities to work for ESA projects and technology programs
ESO	Jochen Haucke <i>Head of Control Software and Engineering</i>	Control Systems in ESO's Telescopes and Instruments
European XFEL	Steve Aplin <i>Department Head, Science Support Data</i>	Instrument and Data Systems Control at European XFEL
F4E	Filippo Sartori <i>I&amp;C group leader</i>	
ITER	Mikyung Park <i>CODAC Section Leader</i>	The progress of ITER Instrumentation and Control, and business opportunity