

CONTENTS

I. Enabling Science with a next Generation Neutron Source	9
1 Science Drivers	9
2 European Neutron Eco System	10
3 German National User Community	12
4 High Current Accelerator-driven Neutron Sources (HiCANS)	14

II. Science and Industry	15
---------------------------------	-----------

III. The High Brilliance neutron Source (HBS)	19
1 Concept	19
2 Layout and main features	21
3 The accelerator	21
4 The target stations	23
5 Instrumentation	26
6 Infrastructure	29

A. Appendices	33
1 Radionuclide production with HBS	33
1.1 Radioisotopes by neutron capture	33
1.2 Radioisotopes by proton capture	34
1.3 Summary: Radionuclides at HBS	36
2 The HBS demonstrator: a first step to the realization of the HBS	37
2.1 The HBS demonstrator in the COSY hall	38
2.2 Proposed instrumentation of the HBS demonstrator	39
2.3 Summary: HBS demonstrator at the COSY Facility	40

B. Acknowledgements	41
----------------------------	-----------