Flintstone2020 aims to provide a perspective for the replacement of two important CRMs – tungsten (W) and cobalt (Co) – which are the main constituents for two important classes of hard materials (cemented carbides/WC-Co, and PCD/diamond-Co), by developing innovative alternative solutions for tooling operating under extreme conditions.

Fundamental knowledge on mechanical properties and wear of different tools, gained in machining tests and dedicated experiments from WP1 is passed onto the respective WPs. WP2 will experiment on small samples with 3-9 mm Ø for testing the fundamental behavior of new B-X phases and particularly as a feedback for binder matrix improvement. In WP3 samples (12 mm Ø) will be investigated from individual HPHT runs for characterization and testing to guide high pressure sintering process optimization. The HPHT process and the samples produced are then upscaled to the industrial mass production level in WP4. In WP5, demonstrator cutting tools from full size HPHT synthesis test runs will be prepared via laser cutting and consecutive macro- and microshaping of tool geometry within WP5. In WP6 aspects of
environmental benefits in the total life cycle of the superhard materials will be investigated, including health and safety aspects. WP7 will focus on exploitation and dissemination.

**Field of science**

/natural sciences/chemical sciences/inorganic chemistry/inorganic compounds
/natural sciences/mathematics/pure mathematics/geometry
/natural sciences/physical sciences/optics/laser physics

**Programme(s)**

**Topic(s)**

**Call for proposal**

H2020-SC5-2015-one-stage

**Funding Scheme**

RIA - Research and Innovation action

**Coordinator**

LUNDS UNIVERSITET

Address
Paradisgatan 5C
22100 Lund
Sweden

Activity type: Higher or Secondary Education Establishments
EU contribution: € 1 142 625

Contact the organisation

**Participants (8)**

TECHNISCHE UNIVERSITAET BERGAKADEMIE FREIBERG

Germany
EU contribution: € 741 875
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<td>Higher or Secondary Education Establishments</td>
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V.N. BAKUL INSTITUTE FOR SUPERHARD MATERIALS OF THE NATIONAL ACADEMY OF SCIENCES

- **Ukraine**
- **EU contribution**: € 324 375
- **Address**: 2, Avtozavodskaya Str. 04074 Kiev
- Website [link]
- Contact the organisation [link]

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CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

- **France**
- **EU contribution**: € 695 375
- **Address**: Rue Michel Ange 3 75794 Paris
- Website [link]
- Contact the organisation [link]

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BIFA UMWELTINSTITUT GMBH

- **Germany**
- **EU contribution**: € 491 555
- **Address**: Am Mittleren Moss 46 86167 Augsburg
- Contact the organisation [link]

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SECO TOOLS AB

- **Sweden**
- **EU contribution**: € 324 375
- Contact the organisation [link]

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</table>
**ELEMENT SIX (UK) LIMITED**

United Kingdom

EU contribution

€ 653 750

Address

Global Innovation Centre
Fermi Avenue
OX11 0QR Harwell
Oxfordshire Didcot

Activity type

Private for-profit entities
(excluding Higher or Secondary Education Establishments)

Contact the organisation

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**BOUKJE.COM CONSULTING BV**

Netherlands

EU contribution

€ 308 000

Address

Bulkemstraat 4A
6369 XW Simpelveld

Activity type

Private for-profit entities
(excluding Higher or Secondary Education Establishments)

Website

Contact the organisation

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**SANDVIK MINING AND CONSTRUCTION TOOLS AB**

Sweden

EU contribution

€ 314 250

Address

811 81 Sandviken

Activity type

Private for-profit entities
(excluding Higher or Secondary Education Establishments)

Contact the organisation