



The German Roadmap for Research Infrastructures:

Proposal of German BioImaging





The German Roadmap for Research Infrastructures

- Issued by the German Federal Ministry for Education and Research BMBF
- National implementation of the ESFRI Roadmap

Research infrastructures refer to a wide range of high-quality instruments or service facilities which are available to cutting-edge research. They are of major importance for their particular scientific fields and serve to maintain and advance an excellent and sustainable research system in Germany.



Bundesministerium
für Bildung
und Forschung



Pilot Roadmap Project 2011-2013



- Proposal: German Euro-BioImaging
- National distributed infrastructure for open access to state-of-the art biological and medical imaging technologies
- Included the coordination of Euro-BioImaging (Hub)





Roadmap 2015 Call for Concepts



31.08.2015 [Pressemitteilung 111/2015]

Neue Infrastruktur für die Spitzenforschung

Nationaler Roadmap-Prozess bereitet Investitionen in große Forschungsbauten kommender Jahre vor / Wanka: "Wir planen heute für die Labore von morgen"



Roadmap 2015

Criteria for Participation

- New research infrastructure (or substantial upgrade)
- Running period of min. 10 years
- Investment costs min. 50 Mio. € (in the natural and medical sciences)
- Open access for the whole scientific community
- Running costs are sustained by responsible institutions



Roadmap 2015

Call for Concepts

Conceiving a new concept:

- Research infrastructure for biological imaging only
- National dimension only, no direct link to Euro-BioImaging
- Model: Janelia Advanced Imaging Center



Roadmap 2015

Call for Concepts

<https://www.janelia.org/open-science/advanced-imaging-center> :

The mission of the **Advanced Imaging Center (AIC)** is to make cutting-edge imaging technologies developed at Janelia widely accessible, and at no cost, to scientists **before the instruments are commercially available.**

Operating strategically at the interface of engineering and biological applications, the **AIC is positioned to drastically reduce the time between instrument development and widespread use in the increasingly technology-intensive field of biology....**



Roadmap 2015

September 2015: Consultations with members of the German imaging community (facility scientists & technology developers)

06. October 2015: Exploratory meeting in Konstanz

Participants: V. Haucke, Berlin

A. Sporbert, Berlin

J. Huisken, Dresden

J. Peychl, Dresden

P. Tomancak, Dresden

U. Nienhaus, Karlsruhe

U. Köthe, Heidelberg

S. Terjung, Heidelberg

A. Rohrbach, Freiburg

R. Nitschke, Freiburg

M. Spitaler, München

D. Merhof, Aachen

W. Zuschratter, Magdeburg

Minutes of this meeting
are available at the GerBI
homepage



Roadmap 2015

October 2015 – 15. January 2016: Preparation of proposal

Guidelines for outlining proposals

for the National Roadmap for Research Infrastructures, issued
by the German Federal Ministry of Education and Research (BMBF)

- Outline of scientific and financial concept
- Plan of construction and operation phase
- Planned duration of construction phase: ≤ 10 y
- Planned construction costs: ≥ 50 Mio €
- Planned operation time after construction: ≥ 10 y
- Operation costs cannot be included and must be sustained by responsible institutions



Roadmap 2015

Science-driven evaluation

- Scientific potential
- Utilisation
- Feasibility
- Relevance for Germany as location of science and reasearch

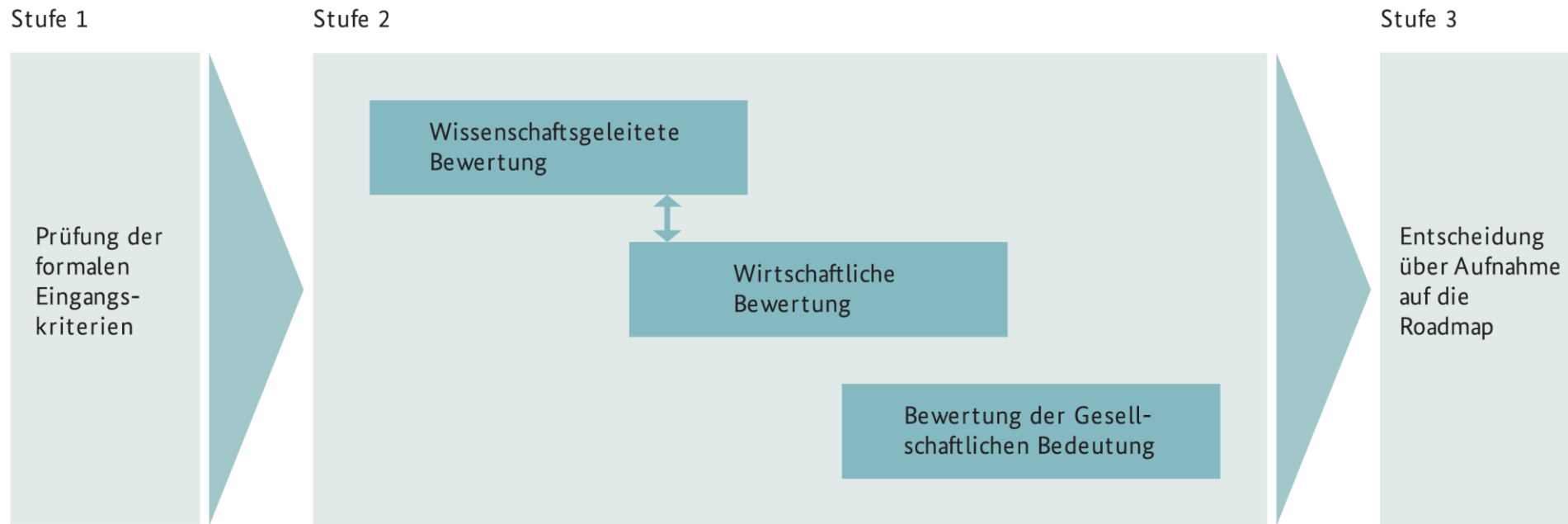
Economic evaluation

- Financing concept
- Risk assessment
- Implementation and realisation concept
- Utilisation concept



Roadmap 2015

Roadmap-Prozess Durchführung



- Scientific evaluation performed by the German Council of Science and Humanities (**Wissenschaftsrat**)
- Economic evaluation performed by **DLR Projektträger** (Deutsche Luft- und Raumfahrt)



Roadmap 2015

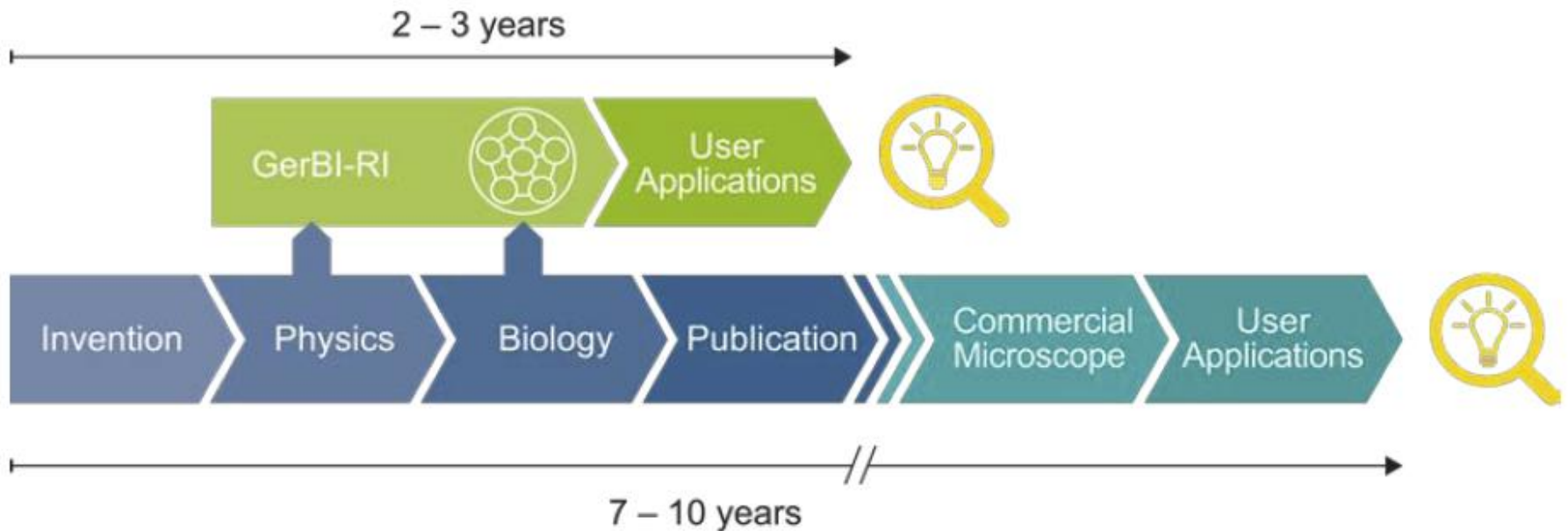
Priorisierungsprozess



Final decision on submitted concepts is expected in Spring 2018
Successful concepts will be funded „in principle“.
The allocation of funds is subject to budget availability.

The concept of GerBI-RI

GerBI-RI is an infrastructure for highly advanced biological imaging that will give access to the most innovative imaging technologies prior to their implementation in commercial instruments.





The “perfect” GerBI-RI Node



- is a core facility experienced in offering service in light microscopy to a large number of users.
- has a track record in developing and testing novel imaging technologies / methods on its own or in collaboration with associated research groups.
- has experience in delivering robust and customized support in image data analysis to its users.
- is well established and acknowledged within its hosting institution.



Services to be offered by GerBI-RI

IMAGING NODES:

Access to most advanced and unique imaging technologies well before they become commercially

available:

Super-resolution microscopy

High-Throughput microscopy

Light Sheet microscopy

Photonic Force microscopy

Imaging Biomechanics

Correlative Light-Electron microscopy

Functional imaging

Automated image-content guided microscopy

Label-free imaging

Intravital microscopy

Single-Molecule imaging

Neuronal imaging in behaving animals



Services to be offered by GerBI-RI

VIRTUAL NODE: Integrated, assisted access to most advanced tools for image data processing and analysis:

Fiji

Ilastik

KNIME

Web-based portal

Cloud compute services

Repositories of benchmark datasets

HUB: Access, Data, Training and Transfer



Implementation of GerBI-RI

Construction phase of five years

Includes ~ three years set-up and ~ two years pilot phase

Total budget of construction phase ~ 100 Mio EUR

Contribution of BMBF ~

Utilisation phase > ten years

Total budget of utilisation phase ~

Financed through user fees and institutional contributions.

Responsible institutions have committed to sustain GerBI-RI during utilisation.

Where we are now...

Roadmap-Prozess Durchführung

Stufe 1

Prüfung der formalen Eingangskriterien



Stufe 2

Wissenschaftsgeleitete Bewertung

Wirtschaftliche Bewertung

Bewertung der Gesellschaftlichen Bedeutung

Stufe 3

Entscheidung über Aufnahme auf die Roadmap

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Thank you!