Concept of Use for the 3IT - Innovation Center for Immersive Imaging Technologies

The topic of immersion and the technologies it requires have increasingly gained importance in recent years. This is expressed to a large extent by the current high level of interest in virtual reality (VR) and augmented reality (AR). Rapid progress in the entertainment, media, and communication industry have made this development possible, for instance through high-resolution sensors, displays with a larger color range and improved color dynamics, more powerful processors, greater storage densities, and also continuously increasing transmission bandwidths to and from devices. However, this trend is by no means limited to the entertainment sector. Medicine and industry are increasingly included in this development as well. In particular, the aforementioned technologies include all types of 3D image and video processing, computer vision and 3D visualization, and related basic technologies such as depth-based image processing or machine learning.

The goal of the Innovation Center for Immersive Imaging Technologies (referred to as "3IT" in the following) is to pursue the further development of the aforementioned technologies and to jointly promote their application in the relevant markets (such as entertainment, medicine, industry, and automotive) by realizing synergies.

In its research projects, studies, Working Groups and other activities, the 3IT elucidates issues from all the sectors mentioned above. The 3IT will be used by its Partners as a:

- R&D lab for projects, innovations and standards
- Development platform and testbed
- Showroom for prototypes and products
- Showroom for applications and infrastructures
- Communication platform for providers, users and the general public
- Transfer platform for know-how and professional training
- Marketing instrument for advertising, sales and PR
- Resource pool for experts, know-how and marketing & target group data

1. Form of Organization

The 3IT is established and run by the Fraunhofer Heinrich Hertz Institute for Communication Technology. With each Partner of the 3IT, Fraunhofer HHI enters into a bilateral agreement which regulates HHI financing through a service package (bronze, silver, gold or platinum). More details are given below.
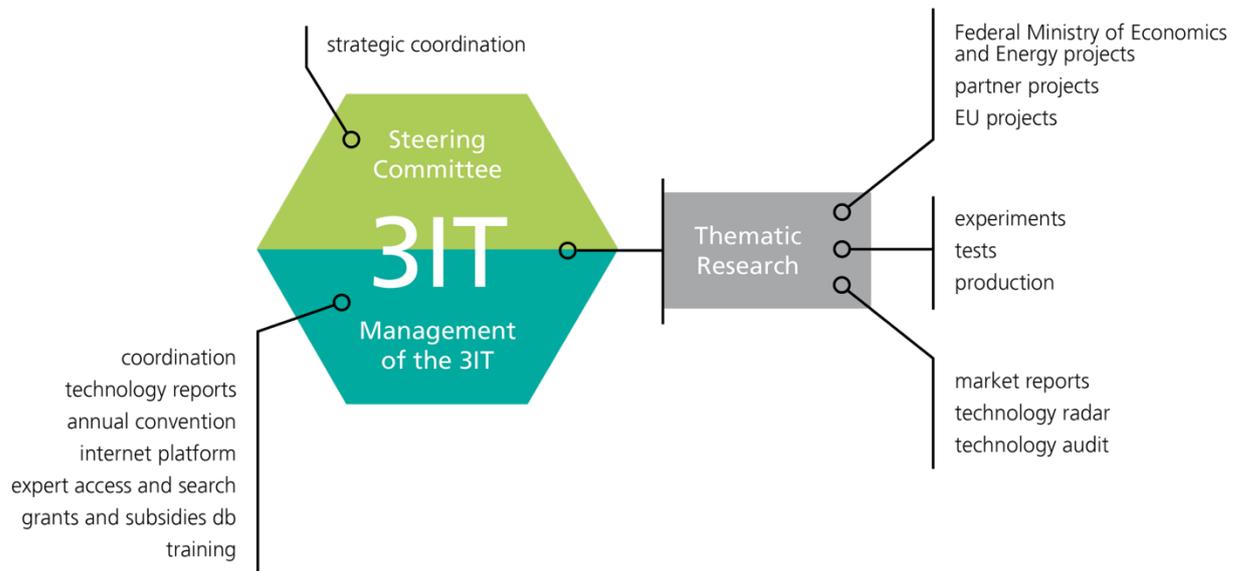

Figure 1: Organizational Structure of the 3IT

2.1. Plenary Assembly
The plenary assembly consists of one representative per Partner. It only meets in exceptional circumstances.

2.2 Steering Committee
The Steering Committee consists of a maximum of 11 members and is composed as follows:

- One representative of Fraunhofer HHI
- All Platinum Partners
- N Gold Partners (at least 4)
- One elected representative of the Silver Partners
- One elected representative of the Bronze Partners

N = 11 – (3 + number of platinum partners)
In case that there are more than N Gold Partners, N of them are selected among these Partners.

In the event that there should be more than 4 Platinum Partners, the number of Steering Committee members will become number of Platinum Partners + 7.

The Steering Committee will appoint a CHAIRMAN from its members each year.
The representative of the Silver and Bronze Partners will be elected once a year. All 3IT Partners have one vote each and can appoint themselves for election.

2.3 Management
The management of the 3IT consists of the Executive Manager who is appointed by Fraunhofer HHI as well as further employees of Fraunhofer HHI. The Management is responsible for the operation of the 3IT and its technical installations for the organization of events, for the preparation, moderation and follow-up of the Steering Committee meetings and for the execution of services which the partners of the 3IT have agreed on in their Partnership Agreements.

2.4 Working Groups
The Working Groups of the 3IT are composed of partners who have come together with the aim of collaborating in particular areas.
Each publically financed research project concluded within the 3IT will automatically become a 3IT Working Group. Other projects which do not receive public financing (such as projects between partners) and publically financed projects involving external partners and at least two 3IT Partners (such as EU-financed projects) may also be deemed as 3IT Working Groups. Applications to set up a Working Group may be made by each Partner. However, the application must first be approved by the Steering Committee before the Working Group can be set up.

2. Financing

The 3IT is financed by contributions from its Partners. To this end, Fraunhofer HHI concludes bilateral agreements with each of the Partners which regulate the amount of the annual subscription and the duration of the partnership as well as the services to which the Partner is authorized to benefit from. Apart from this, there are no further financial obligations to which Partners are due.

3. Partnership Program

The partners of the 3IT enter into bilateral agreements with Fraunhofer HHI to become members of the 3IT. These agreements fully specify the rights of the Partners and the services to be performed by Fraunhofer HHI. Membership of the 3IT is given in the following categories:

	Bronze	Silver	Gold	Platinum
Membership Subscription	€ 3,000 p.a.	€ 6,000 p.a.	€ 10,000 p.a.	€ > 12,000 p.a. (special arrangements & according fee to be negotiated)
Minimum Duration	One year	2 years	2 years	2 years
Presentation in the 3IT with logo, brochures & on the 3IT website	✓	✓	✓	✓ in the most prominent places
Participation in Working Groups	✓	✓	✓	✓
Free of charge participation in all internal events of the 3IT (except "closed" events of other partners)	✓	✓	✓	✓
Provision of representative rooms in the 3IT for own events in connection with 3IT e.g. PR events, training programs etc. after prior consultation (excluding catering costs) *	Limited to only ONCE per year of contribution	✓	✓	✓
Option of exhibiting own demonstrators	X	One in the 3IT exhibition area	More than one in prominent places	More than one in the most prominent places; from several industry sectors
Having a **representative included in the Steering Committee** and thus contribute in shaping the strategy of the 3IT	**By election only	**By election only	✓	✓
Being named as a member of the Steering Committee in any publication (e.g. brochures, 3IT web page etc.)	✓	✓	✓	✓ permanently

* Upon additional use of existing technical equipment, a separate agreement is required and fees may apply, except for Platinum Partnership.

** The representative of the Silver and Bronze Partners will be elected once a year. All 3IT Partners have one vote each and can appoint there self for election.

4. Forms of Use of the 3IT

Even though the wishes for the forms of use of the 3IT expressed by its Partners are wide and varied, four main points of usage can be identified:

- Organization of collaborative projects
- Production of video content
- Testing of developments in connection with Partners and/or by using the technical infrastructure of the 3IT
- Internal and external communication of the 3IT mission

Such a wide variety of possibilities to use the 3IT requires a flexible concept, i.e. provision should be made for the most flexible use of the 3IT's available space.

Moreover, the 3IT shall also provide a knowledge and partnership platform which will offer the following services:

- **Generation of Technological Knowledge**

For active support of projects and research groups with web-based collaboration and innovation tools

- **Enrichment of Technological Knowledge**

Creating an additional value through bundling and target-group-specific processing and synthesizing: e.g. patent analysis; level of technological maturity; trend reports and studies; research findings

- **Networking Technological Knowledge**

Networking and providing know-how and content

- **Retrieving Technological Knowledge**

Intelligent assisted searches and active + passive information retrieval

5. Floor Plan for the 3IT

A total area of some 600 m^2 of floor space is available for the 3IT.

The available space offers the following installations:

- A preponderantly flexible form of usage secures the mid- and long term development and theme-based extensions of the Center
- Fixed functions are:
  - A flexible presentation/exhibition space
  - An utility room for storage of presentation equipment

- A green screen studio, 3D capable
- A 3D movie theatre
- A meeting area
- A portioned free surface areas serves for:
  - Temporary exhibitions of individual partner presentations (eventually with corporate branding)
  - Temporary dynamic presentations of specific themes in the form of installations etc.

The division of space is shown in Fig.2.

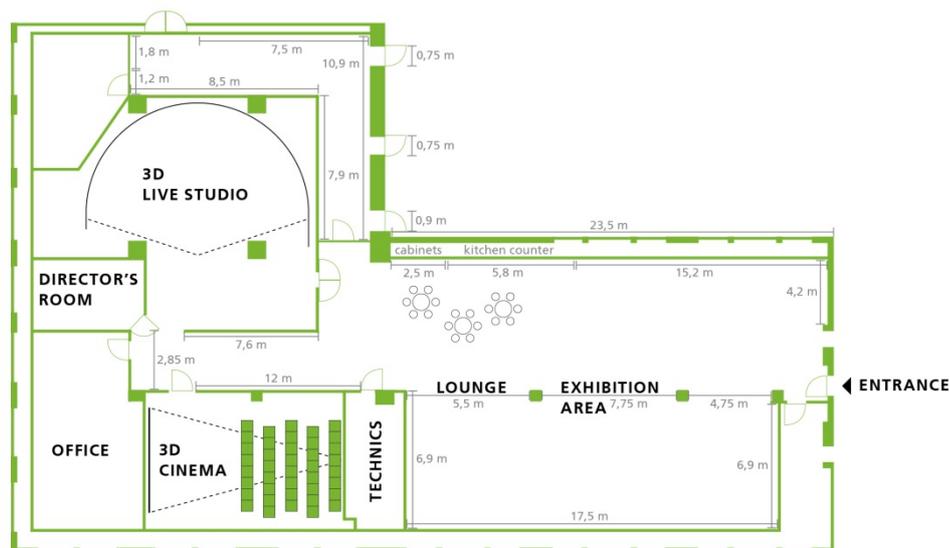# 3IT – Innovation Center for Immersive Imaging Technologies

Figure 2: Floor Plan for the 3IT

The 3D Live Studio

Equipped with state-of-the-art facilities, partially using Partner's technologies,
this studio is an experimental environment for any kind of TV/film production. In addition
this area can be used for live events such as talk shows or music events.
Visitors may experience 3D production live in action.

- ca. 110 m^2
- Green screen with channeling and floor for virtual content
- 18 LED spots
- 12 LED spots red, green, blue, white for mixing colors
- 50 LED panel lights

The 3D Director's Room

Production switcher Kahuna 360 by Snell with features to support image processing, live production, automation, workflow control and distribution within the 3D environment.

The 3D Cinema

Identifying and presenting 3D reference material, screening and discussing 3D movies – it is all possible in the 3D Cinema; the multi-functional space can also be used for workshops and training sessions, of course also for 2D.
- Projector Christie CP 2210 in combination with Doremi
- IMB (Integrated Media Block) server – playback of 3D High Frame Rate up to 60 fps possible
- Z-Screen by Real D + silver screen
- 5.1 Dolby Surround System
- 35 seats
- 2D projector by Projection Design for presentations such as .ppt etc.

The Lounge

The Lounge is a meeting spot for experts and users from different sectors such as industry, research and government. It is a place where Partner events get started and networking is brought to a successful end.

The Showroom

In the Showroom users can experience

- The whole world of immersive media and 3D technologies in different application areas. Ca. 300 m^2 exhibition area

- Exhibition corners dedicated to the specific themes (e.g. autostereocopic displays, live UHD transmission, medical 3D applications etc.)

6. The 3IT in the Hub of innovative Research

The 3IT is located at the Salzufer 6 directly opposite Fraunhofer HHI (see Fig. 3) in the heart of Berlin and in the hub of innovation. Salzufer 6 is part of the Charlottenburg Campus situated close to the Technical University of Berlin, the Berlin University of the Arts and Deutsche Telekom's T-Labs.

 Figure 3: Location of the 3IT

The Fraunhofer HHI building is also home to the TiME Lab which – with its stereo projection in 7K x 2K resolution and its IOSONO wave field synthesis audio system – represents a one-of-a-kind technical installation whose capabilities will be made available to the 3IT's Partners. What's more, the HHI auditorium (seating approx. 130) and its meeting rooms may also be used for Center events.
At Salzufer 6 itself, the 3IT is located directly opposite to the CINIQ Center and next to the Fraunhofer HHI's Image Processing department (see Fig. 4) which employs a staff of some 80 people.

The CINIQ – Center for Data and Information Intelligence – is a sister platform just next to the 3IT. Its focus lies on topics such as Big Data, Smart Data and Cloud Applications. Both Centers are operated by the same Management and can therefore be combined on request to host larger event with > 100 attendees.

Figure 4: Site Plan of the 4th floor of Salzufer 6 with the 3IT, the CINIQ and HHI-VIT