BIM – Status of Implementation in Germany

Professor Dr. Bastian Fuchs

2017 Annual Conference of the European Society of Construction Law
University of Fribourg Switzerland

Building Information Modelling
Status of Implementation in Germany
November, 3rd 2017

Prof. Dr. Bastian Fuchs, LL.M. (San Diego)
Attorney-at-Law (New York, USA)
Specialist Lawyer for Construction and Architect Law, Specialist Lawyer for International Economic Law,
Honorary Professor for German and International Construction Law at Bundeswehr University Munich

TOPJUS Rechtsanwälte
Kupferschmid & Partner

Contents

TOPJUS RECHTSANWÄLTE

A. Implementation in Germany

- → **Leading role** in the implementation of BIM: **Federal Ministry of Transport and Digital Infrastructure** in cooperation with the **“Deutsche Bahn”** and the **DEGES**
- → According to a decree of the **Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety** the suitability of the BIM-method is to be tested in building construction projects with construction costs of five million euros or more (1)
- → **Funding initiatives** like the “BIMiD – BIM-reference project in Germany“ (2)

A. Implementation in Germany

I. “**Step plan of digital planning and building**”

- On December 15, 2015 the Federal Ministry of Transport and Digital Infrastructure (FMTI) presented in cooperation with the “planen-bauen 4.0 GmbH” a three steps plan
- Aim: making digital planning and building a nationwide standard (3)
- First step plan includes the implementation of BIM for the **performance level 1**
- Minimum requirements of performance level 1 should be met in all new planned projects with BIM as of 2020
- Until then the public clients in the jurisdiction of the FMTI must be able to use these requirements in the (re-) tenders of planning services (4)

A. Implementation in Germany

The **performance level 1 requires**:

- Definition by the client in his “client-information-requirements” (AIA), which data he needs and when
- Delivery of all services to be provided in digital form
- Request of vendor-neutral data formats in the tendering to enable the data exchange
- Inclusion of BIM in the contract as planning instrument to be used
- Definition of processes, interfaces, interactions and used technologies in a “execution plan” (English: BEP, German: BAP)
- Creation of a “common data environment” for the organized keeping and exchange of the data created in the planning and building process (5)

A. Implementation in Germany

Steps:

1. Preparation phase

- started in the end of 2015 and takes until end of 2017
- the conditions for the use of BIM at infrastructural major projects will be determined
- the legal and technical framework, standards and recommendations for the working with BIM will be defined with the help of four already started pilot projects (6)

A. Implementation in Germany

2. Pilot phase

- Second step is to collect comprehensive experiences in the practical use of BIM during planning and construction phases between 2017 and 2020 by increasing the number of pilot projects (7)
- Pilot projects with the requirements of the future performance level 1
- Development of guidelines, checklists and samples for the use of BIM in future projects
- Clarification of legal questions
- Development of a concept for databases to facilitate working with BIM (8)

A. Implementation in Germany

3. Application phase

- From 2020 onwards, BIM is to be applied regularly in the form of performance level 1 in the (re-)planning and implementation of major projects in the transport and infrastructure sector (9)

A. Implementation in Germany

II. Testing of BIM in pilot projects as part of the preparation phase

- Since June 2015 the FMTI supports BIM in four pilot projects
- **Aim**: identify and optimize (unexpected) potentials for quality, time duration, costs and risk reduction as early as possible +
- to work out the advantages of working with BIM from the project idea to the utilization phase (10)

A. Implementation in Germany

1. Rail projects

a) Tunnel Rastatt

- Tunnel Rastatt is the biggest BIM-pilot project of the “Deutsche Bahn Netz AG”
- it is part of the route Karlsruhe - Basel, that is to be expanded and newly built

- Underneath the city of Rastatt, two tunnelling machines with an outside diameter of 10.97 m will dig out two tunnels with a length of 4.2 km each (11)
- BIM-method has been used in the performance levels 3 and 4 according to German Architects and Engineers Fee Regulations (HOAI) (preliminary design and planning for approvals)
- Planning phase with BIM has been completed since April 2016

A. Implementation in Germany

- “DB Netz AG” is now able to handle high-quality sub models with linked schedules and specifications for the shell of the tunnel project
- Models manage about 35.000 model elements, which are connected with about 3.000 activities of the schedule program and about 3.500 positions of the specifications (12)
- On 25.05.2016 start of drilling of the first tunnel machine
- Tunnel shell: a construction time of three year is planned, the route is to be put into operation by the end of 2022
- The route is designed for a travelling speed of 250 km/h (13)
- Recently, the tunnel construction at Rastatt was represented in the media: route was closed for about two months
- As part of the tunnel construction works several tunnel elements moved: that caused water and earth masses to break into the production area.
- The precise causes of the movement have not yet been explained (14)

A. Implementation in Germany

BIM aims for the tunnel of Rastatt:

- *“Better communication of all involved project parties*
- *Model-based collaboration between specialist planners*
- *Increased efficiency in planning and project management processes*
- *Improved performance report*
- *Simulation of planning variants and building conditions*
- *Increase of planning security and reduction of the supplement potential*
- *Comparison between classical and model-based invoices*
- *Plausibility checks of conventional quantity calculations*
- *Planning coordination and collision check”* (15)

A. Implementation in Germany

Use of BIM for:

- *“Information provision based on models*
- *Collision checks*
- *Plan derivation*
- *Model based quantity determination and construction process planning*
- *Performance description, calculation and controlling with the help of a 5D model*
- *Control of construction progress“* (16)

A. Implementation in Germany

b) Bridge Filstal

- Railway bridge Filstal is part of the newly built route between Wendlingen and Ulm
- Located between the construction sections of Boßler tunnel and tunnel Steinbühl

- Complex bridge construction with a height of 85 meters
- Composition of two single-track bridges with 485 meters and 472 meters (17)

- During the planning phase, a 3D model was developed with regard to the bridge geometry
- After that: BIM was used in the performance levels 5 and 6 according to HOAI (Execution planning, execution 4D/5D) (18)

A. Implementation in Germany

Determined BIM goals:

- Reduction of project risks, especially time and cost risks
- Analysis of the processes in the areas of construction supervision, building billing, time and cost control, reporting and discussion as well as in the documentation and increase of the efficiency
- Analysis of the development and change of role models, organization and compilation of project teams, the cooperation between clients and contractors and the use of hardware and software and the collection of experience
- Improvement of communication and networking of the project parties (19)

A. Implementation in Germany

Use of BIM for:

- *“Construction process planning and status report*
- *Status detection using mobile solutions*
- *BIM based billing, for quality management, defects management and cost controlling”* (20)

→ the models and the visualised building condition support the communication with third parties +
→ helps project participants to compile contexts regarding the construction process more quickly
→ cloud-based applications are used and tested on the construction site via tablet and web portals (21)

A. Implementation in Germany

2. **Road construction projects**

a) **Bridge Petersdorfer See**

- Replacement of the bridge over the Petersdorfer See in the course of the expansion of the A19
- Implementation by DEGES on behalf of the Federal Government and the state Mecklenburg Vorpommern (22)
- Implementation of BIM when the bridge Petersdorfer See was in the construction phase
- By the subsequent creation of a 5D model: main figures of the tendering, schedule sequences and costs were made comprehensible (23)

- Construction works began in June 2015
- Overall completion is planed in the summer of 2019 (24)

A. Implementation in Germany

Determined BIM goals:

- *“Plausibility check of the quantity calculation and by that improved risk management through higher transparency in the planning process*
- *Simulation of the construction process and plausibility check of the selected traffic management*
- *Higher quality of the project information through flexible visualizations from the 3D models*
- *Improved access to inventory data by linking the models to the inventory database*
- *Extending the experience with the use of BIM”* (25)

A. Implementation in Germany

Use of BIM for:

- *"Creation of a 5D-BIM model from existing 2D plans for existing and new buildings including linking to meta data and attributes with regard to costs and dates*
- *Visualization of the actual and nominate state of buildings, traffic facilities and the surrounding area*
- *Construction-time visualization of the building conditions with the depiction of the appointment dependence and simulation of traffic management*
- *Quantity and cost determination*
- *Integration of a plan management system*" (26)

A. Implementation in Germany

b) **Viaduct Auenbachtal** (realization by DEGES)

→ After completion: bridge will cross the B107n over the Auenbach valley near Chemnitz, an economic route and tracks of the railroad track Dresden – Werdau (27)

BIM goals:

- *"Improvement of organization, communication and interface coordination through uniform, interdisciplinary, model-oriented processing*
- *Improvement of the planning quality by integrated work on a common model*
- *Improvement of risk management by providing detailed planning information in the form of linked models*
- *Higher date and cost security by a improved change management*
- *Higher quality of the planning information* (28)

A. Implementation in Germany

Use of BIM:

- in the course of the preliminary planning (performance level 2 HOAI, preliminary planning)
- for the integration of specialist planning
- Modelling the structure and the traffic facilities
- Quantity and cost calculation (29)

→ On the basis of the complete model:

- changes were made quickly
- access in the effects on costs and scheduling
- by the resulting 3D model, the public was involved early on and the construction project could be made comprehensible (30)

A. Implementation in Germany

→ in the named pilot projects BIM was only used in extracts (31)
→ mainly in the performance levels 2 to 5 and 8 according to HOAI
→ especially in the areas:
- *“Visualization for public relations and coordination meetings*
- *automatic plan derivation*
- *construction sequence simulations*
- *quantity determination*
- *initial collision checks*
- *construction of 5D models for BIM-based billing and test calculation methods”* (32)

A. Implementation in Germany

c) **B31 Immenstaad – Friedrichshafen/Waggershausen** (realization by DEGES)

→ project: new construction of the approximately 7 km long section of the B 31 west of Friedrichshafen through the area of shore of Lake Constance to Immenstaad (33, 34)

A. Implementation in Germany

Use of BIM:

- *“in the course of the preliminary planning (performance level 2 HOAI) and design planning (performance level 3 HOAI)*
- *for the integration of specialist planning*
- *Modelling the structure and the traffic facilities*
- *Quantity and cost calculation*
- *Visualization*
- *Creation of a virtual reality environment of the BIM model* (virtual "walking" with VR glasses)
- *potential use in the implementation planning (performance level 5)*
- *Creation of a BIM inventory model for operation”* (35)

A. Implementation in Germany

d) **B87n Eilenburg – Mockrehna** (realization by DEGES)

→ project: preliminary planning and variants investigations on the new construction and expansion of the B87 between Eilenburg and Mockrehna (Saxony) on a length of approx. 13.5 km (36)

A. Implementation in Germany

Use of BIM:

- *“Setting up a BIM processing plan*
- *3D-model-based collaboration of the specialist planners route, construction engineering, environment, equipment, etc.*
- *Planning coordination, collision testing and generation of 2D plans using the model*
- *4D model creation for quantity calculation*
- *5D model creation for cost calculation*
- *6D estimation of life cycle costs* (37)

A. Implementation in Germany

III. **Development of BIM standards**

- Set up of the "Building Information Modeling (BIM)" working committee with subordinate working groups by The German Institute for Standardization (DIN) (38)
- Close cooperation between the DIN Working Committee and the VDI (Verein Deutscher Ingenieure, Association of German Engineers)
- the VDI is currently developing the BIM guideline VDI 2552 (39)
- publication of (as drafts):
  - VDI 2552 Page 3 "Building Information Modeling - Quantities and Controlling" in January 2017
  - VDI 2552 Page 5 "Building Information Modeling - Data Management" in October 2017 (40)

A. Implementation in Germany

III. **Use of the BIM-method in 13 rail, 10 road and one water project**

- Nov. 2016: the working committee “BIM4INFRA 2020” received an order of the FMTI to continue the implementation of the step plan (41)
- Next steps include:
  - advising the participants of the new pilot projects in the areas of roads and waterways
  - researching and documenting the effects of BIM on the pilot projects (42)
- The working group "BIM4INFRA 2020" can be asked to meet with experts in order to find an entry into BIM or to define initial targets for the application of BIM
- This offer is not only addressed to the supporter of the pilot projects, but also covers broader range of public entities to install such starting process. (43)

A. Implementation in Germany

1. **Railway**

- Oct. 5, 2016: Financing agreement between Alexander Dobrindt (Federal Minister of Transport) and Rüdiger Grube (CEO of the “Deutsche Bahn”) for 13 rail pilot BIM-projects
- The federal government invests around 20 million Euros in the pilot projects
- The “Deutsche Bahn” invests 9 million Euros from own capital (44)

A. Implementation in Germany

Chosen projects:

1. ABS/NBS Karlsruhe-Basel
2. ABS/NBS Karlsruhe-Basel Abs. 1
3. ABS/NBS Karlsruhe-Basel Abs. 7
4. ABS/NBS Karlsruhe-Basel Abs. 8
5. PSU Bridge Filstal
6. RRX Rhein-Ruhr-Express
7. ABS 46/2 Emmerich-Oberhausen
8. 2. GL Expansion Homburger Damm
9. ABS Stendal-Uelzen 2. Construction Stage
10. Rail Connection FBQ
11. ABS Berlin-Dresden 2. Construction Stage
12. HHBH StA Rotenburg-Verden
13. VDE 8 hub Bamberg-Breitengüßbach

→ Furthermore in the following projects:

- Cologne-Nippes ICE Factory
- Hannover Central Station
- **2. Main Line in Munich** (45)

A. Implementation in Germany

2. **Road and Motorway Projects** (for the further exploration of BIM)

- New construction of the bridge buildings in the course of the 8-lane development of the A 99 section motorway junction Munich Nord, Connection Point Haar
- Repair of the road bridge of the B5, Bergedorfer Street over the A1 in the area of the connection point Hamburg Billstedt (46)

- Additional pilot projects of DEGES:
  - Viaduct Schelmetal (A1)
  - Public private partnership-project A10/A24

A. Implementation in Germany

3. **Water project**

→ New construction of the western chamber of the lock Wedtlenstedt (Lower Saxony) at the channel to Salzgitter (48)

A. Implementation in Germany

V. "**Master plan construction 4.0"**

- Submission by Federal Minister of Transport Alexander Dobrindt in January 2017
- Content (49):

1. BIM is to be **tested on all modes of transport**: The FMTI invests 30 million euros in the aforementioned pilot projects.
2. Creation of pilot projects for the **use of drones** in order to measure construction fields much more precisely, faster and more favourable than conventional methods.
3. Launch of a **BIM cloud** to provide data on properties of materials to the BIM users as Open Data which accelerate digital building.
4. Foundation of a **national BIM Competence Center**: Findings and experiences on the use of the digital planning method are to be bundled in a new, central point of contact.
5. Formation of a **Construction Cluster**: BIM Cluster of Excellence to ensure a working knowledge transfer between universities and industry:
   → In some cities such as Berlin, Hamburg, Munich, Kiel and Stuttgart, regional BIM clusters have already been formed (50)

A. Implementation in Germany

VI. **BIM professionals**

→ due to the advancing importance of the BIM method, TU Munich offers continuing education as a BIM professional since October 2017 (51)

B. Legal Aspects (52)

I. **Fee regulations for architects and engineers** (HOAI)

- For the implementation of basic services with BIM, HOAI fee system applies (standardized table of fees, calculated on the base of costs estimated)
- Additional requirements are considered as "special services" under the HOAI (leading to additional fees for the planning process and engineering works)
- Under HOAI: BIM management (= strategic consulting services for the project start, controlling tasks in the project processing) is not yet covered. Needs to be agreed. (53)

II. **Procurement law**

- In general there are no major concerns due to German procurement law.
- §§ 12 II VgV, 12 II SektVO (procurement regulations): Procurement Law relating to BIM as an “electronic instrument for building data modelling” (54)
- Maybe: Problem of restrictions of competition (public client requires BIM and a BIM expert for the implementation of his project) (55)
- But: also medium-sized companies are required to develop according to the time progress

B. Legal aspects

III. **Contract law**

- BIM tasks and aspects such as liability and risks can be determined by:
  - unit priced contracts
  - multi-party contracts or
  - BIM-specialized contract supplements to the standard contracts, e.g. VOB/B (56)
- Requirement of a BIM-manager to coordinate the involved parties
- His tasks are to be defined contractually in a performance description (57)

IV. **Liability**

- As long as it is demonstrable, each participant is liable for his performance (58): BIM software documents individual planning and construction stages of the participants
- In the case of multi-party contracts, joint liability is possible, when contributions of any party are taken over by others without or with insufficient verification and there is an obligation to review those. (59)

B. Legal aspects

V. **Copyright law**

- Because of the close cooperation and interdependence of the planning and construction parties and the easier possibility of digital transmission and evaluation of project information: it is necessary to ensure the proportions of the authorship of the building and the intellectual property related to those portions. (60)
- Confidentiality agreements must also be included for purposes of data protection and protection of intellectual property.

VI. Model Declarations of Industry Branches (German Association of Construction Industry, Civil Engineering Branch)

Thanks for the attention!

TOPJUS
RECHTSANWÄLTE

Bibliography

(1) https://www.buildingsmart.de/kos/WNetz?art=News.show&id=600
(2) http://www.bimid.de
(3) Stufenplan Digitales Planen und Bauen, Einführung moderner, IT-gestützter Prozesse und Technologien bei Planung, Bau und Betrieb von Bauwerken, 15.12.2015, S. 1; https://www.bmvi.de/SharedDocs/DE/Publikationen/DG/stufenplan-digitales-bauen.pdf?__blob=publicationFile; Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 5; http://www.bmvi.de/SharedDocs/DE/Publikationen/DG/bim-umsetzung-stufenplan-erster-fortschrittsbe.pdf?__blob=publicationFile
(4) Stufenplan Digitales Planen und Bauen, Einführung moderner, IT-gestützter Prozesse und Technologien bei Planung, Bau und Betrieb von Bauwerken, 15.12.2015, S. 9; Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 5.
(5) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 5
(6) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 6; http://bim-2020.de/stufe-1/
(7) http://bim-2020.de/stufe-2/
(8) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 6.
(9) http://bim-2020.de/stufe-3/
(10) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 7.

TOPJUS RECHTSANWÄLTE

Bibliography

(11) ebd.
(12) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 7.
(13) ebd.; http://bim-2020.de/stufe-2/
(14) http://www.tagesspiegel.de/weltspiegel/verbogene-gleise-der-rheintalbahn-pilotprojekt-digitales-bauen-ist-schiefgegangen/20187880.html
(15) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 7.
(16) ebd.
(17) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 8.
(18) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 8.
(19) ebd.
(20) ebd.
(21) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 9.
(22) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 9.
(23) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 10.
(24) http://www.deges.de/Projekte/Bundesfern-und-Landesstrassenprojekte/in-Mecklenburg-Vorpommern/A-19-Ersatzneubau-Petersdorfer-Bruecke-inklusive-AS-Waren/A-19-Ersatzneubau-Petersdorfer-Bruecke-inklusive-AS-Waren-K236.htm

Bibliography

(25) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 9.
(26) ebd.
(27) http://www.deges.de/Projekte/BIM-bei-DEGES/Pilotprojekt-Talbruecke-Auenbach/Pilotprojekt-Talbruecke-Auenbach-E1449.htm?RID=351
(28) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 10.
(29) http://www.deges.de/Projekte/BIM-bei-DEGES/Pilotprojekt-Talbruecke-Auenbach/Pilotprojekt-Talbruecke-Auenbach-E1449.htm?RID=351
(30) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017 S. 11.
(31) ebd., S. 13.
(32) ebd., S. 12.
(33) http://www.deges.de/Projekte/BIM-bei-DEGES/Pilotprojekt-B-31-Immenstaad-Friedrichshafen/Waggershausen/Pilotprojekt-B-31-Immenstaad-Friedrichshafen/Waggershausen-E1452.htm?RID=353
(34) ebd.
(35) ebd.
(36) http://www.deges.de/Projekte/BIM-bei-DEGES/Pilotprojekt-B-87n-EilenburgMockrehna/Pilotprojekt-B-87n-Eilenburg-Mockrehna-E1453.htm?RID=354
(37) ebd.

TOPJUS RECHTSANWÄLTE

Bibliography

(38) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 13.
(39) ebd., S 14.
(40) https://www.vdi.de/technik/fachthemen/bauen-und-gebaeudetechnik/fachbereiche/bautechnik/richtlinien/richtlinienreihe-vdi-2552-building-information-modeling/
(41) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 15.
(42) ebd., S. 17
(43) ebd., S. 22.
(44) https://www.bmvi.de/SharedDocs/DE/Pressemitteilungen/2016/159-dobrindt-grube-bim.html
(45) https://www.oegg.at/upload/Download/GMK2016/Praesentationen/MI/MI_1140_Ehrbar.pdf
(46) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 18.
(47) http://www.deges.de/Projekte/BIM-bei-DEGES/Ausblick/Ausblick-E1454.htm?RID=355
(48) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 19.

Bibliography

(49) http://www.bmvi.de/SharedDocs/DE/Anlage/Digitales/strategiepapier-masterplan-bauen.pdf?__blob=publicationFile; https://www.bmvi.de/SharedDocs/DE/Pressemitteilungen/2017/009-dobrindt-bim-gipfel.html
(50) http://planen-bauen40.de/bim-aktivitaeten/web-category/bim-cluster/.
(51) http://www.iz-jobs.de/karriere/themen/tu-muenchen-bildet-bim-professionals-aus,1000045443.html
(52) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 20.
(53) ebd.
(54) ebd.
(55) Die Kunst beim Bau, JUVE Rechtsmarkt 01/16, S. 72.
(56) BTGA-Almanach 2015, S. 105; Die Kunst beim Bau, JUVE Rechtsmarkt 01/16, S. 72.
(57) BTGA-Almanach 2015, S. 105.
(58) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 20.
(59) BTGA-Almanach 2015, S. 106.
(60) Die Kunst beim Bau, JUVE Rechtsmarkt 01/16, S. 72; Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 20.
(61) Umsetzung des Stufenplans Digitales Planen und Bauen, Erster Fortschrittsbericht, Stand Januar 2017, S. 20.

TOPJUS
RECHTSANWÄLTE

TOPJUS Rechtsanwälte
Kupferschmid & Partner

TOPJUS München
Wehrlestraße 13
81679 München
Telefon: 0 89 210 959 - 60
Fax: 0 89 210 959 - 65
Email: muc@topjus.de

TOPJUS Ingolstadt
Neuburger Straße 57
85057 Ingolstadt
Telefon: 08 41 / 37 90 67-0
Telefax: 08 41 / 37 90 67-20
Email: in@topjus.de

TOPJUS Pfaffenhofen Ilm
Türltorstraße 4
85276 Pfaffenhofen
Telefon: 0 84 41 / 40 25-0
Telefax: 0 84 41 / 80 53 80
Email: paf@topjus.de

TOPJUS Schrobenhausen
Lenbachstraße 19-21
86529 Schrobenhausen
Telefon: 0 82 52 / 89 46-0
Telefax: 0 82 52 / 89 46 40
Email: sob@topjus.de

TOPJUS Nordhausen
Geseniusstr. 18 b
99734 Nordhausen
Telefon: 0 36 31 / 46 25 6-0
Telefax: 0 36 31 / 46 25 6-26
Email: ndh@topjus.de