

Consulting at d-fine – analytical. technological. quantitative.

Dr. Anne Kleppe

Heidelberg, October 8th, 2018

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Overview of d-fine

d-fine in a nutshell



d-fine DNA

- » d-fine is a consultancy that carries out demanding projects with **analytical**, **technological** and **quantitative focus** with scientifically-based experts



Organisation

- » d-fine is an **European consultancy** with offices in Berlin, Düsseldorf, Frankfurt, Munich, London, Vienna and Zürich
- » d-fine grows sustainably and organically by **hiring graduates who start their professional career** with d-fine



Colleagues

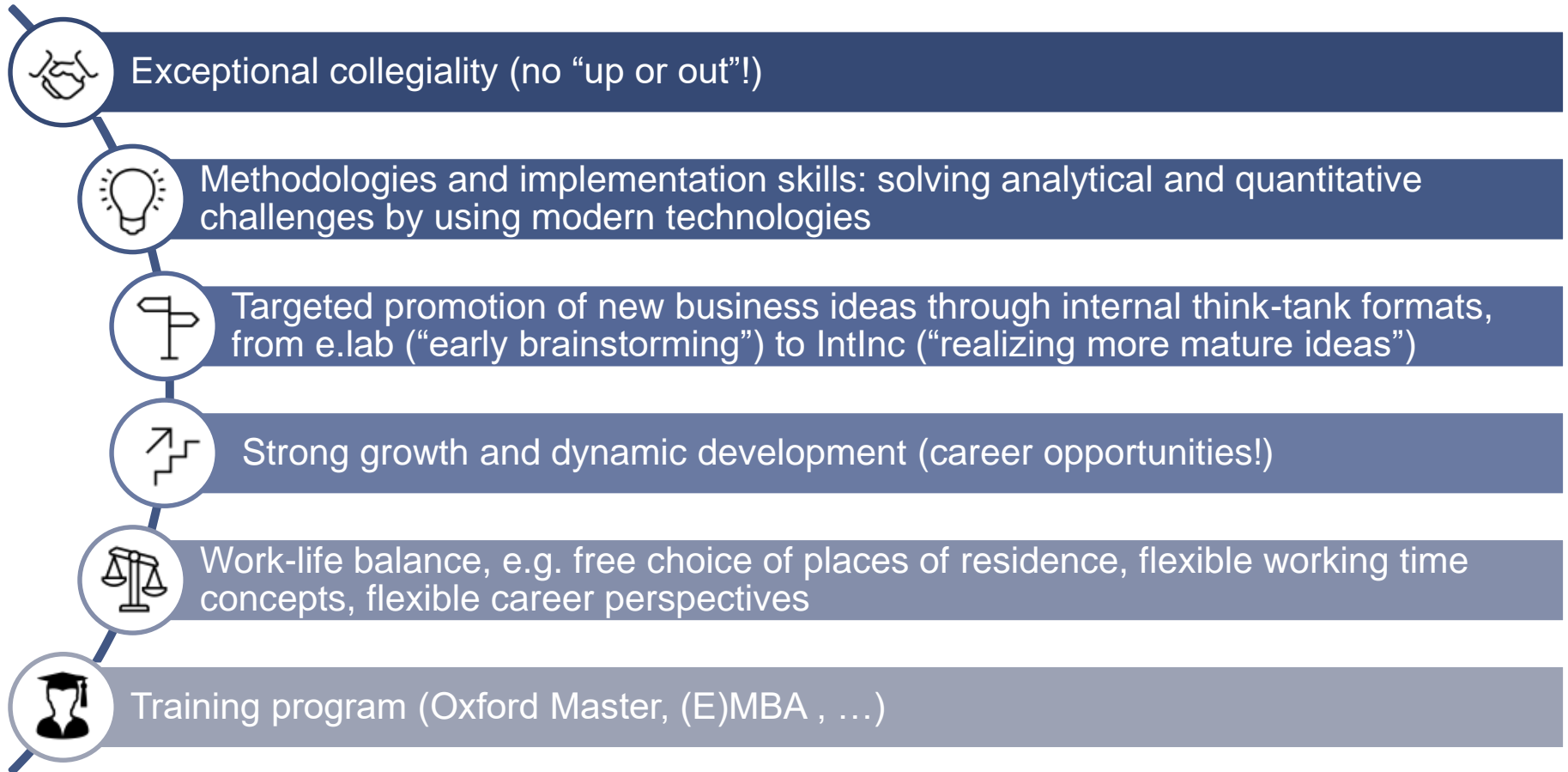
- » Until 2020, **1,000** consultants will work at d-fine, mostly graduates in the fields of physics, mathematics, computer science and economics
- » Due to the consistently high qualifications and the similar educational background, d-fine achieves close **cohesion** and a very high level of **satisfaction** with its employees*

d-fine will continue to grow organically through hiring fresh talents.

In addition to the extremely interesting work, there are excellent career opportunities for new employees.

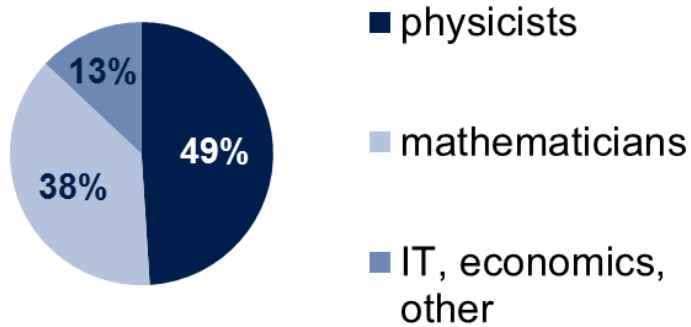
* According to kununu.com

Why d-fine is unique

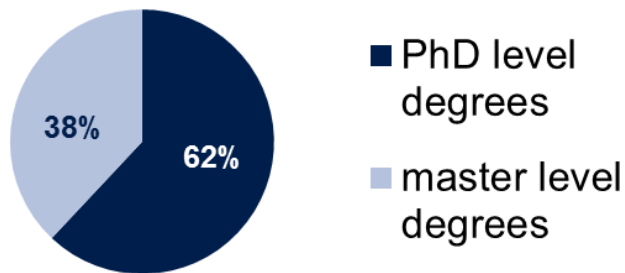


The d-fine people...

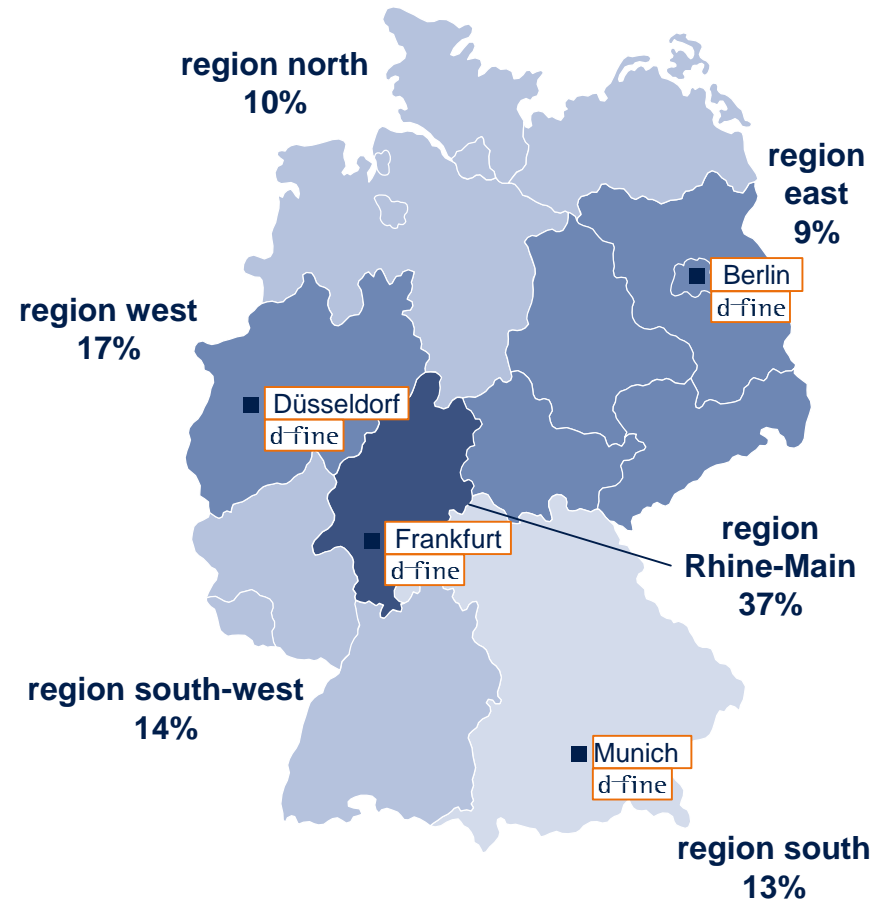
Background in **technology, mathematics** and **science**



Highly qualified, usually in the **top percentile** during the university career



Places of residence of our employees in Germany



... and where they are working (selection of our customers)

 **Banks / financial sector, e.g.**  **DZ BANK** Die Initiativbank  **fidor BANK**  **Helaba**  **HSBC**  **UBS**

 **Insurance companies, e.g.**  **ARAG**  **AXA**  **ERGO**  **GENERALI**  **R+V**  **talanx.**

 **Asset Manager, e.g.**  **BlueCrest**  **CQS**  **DWS INVESTMENTS**  **MEAG**  **Union Investment**

 **Energy industry, e.g.**  **eex**  **e-on**  **RWE**  **Tennet**  **VATTENFALL**

 **Other industries, e.g.**  **adidas GROUP**  **AIRBUS**  **BMW**  **DAIMLER**  **Henkel**  **LANXESS** Energizing Chemistry

Our employees usually work full-time at the customer's site – more than 150 companies of all sizes, from major enterprises to very specialized companies to start-ups.



d-fine projects

The typical d-fine project...

- » ...does not exist!
- » Instead, there are a great diversity and variety – especially from an employee perspective!



Duration

- » Ranging from a few **days**, e.g. a proof of concept to the extend of 10-20 days,
- » to several **weeks**, e.g. writing a business concept,
- » up to several **months**, e.g. the realization of a new analysis platform.



Size

- » Ranging from **1-2 employees**, e.g. for very special topics or pre studies,
- » to **5-10 employees**, e.g. for model development or business analysis,
- » up to **40++ employees**, e.g. for projects with business + technical components.



Content

- » Ranging from **business analysis**, e.g. specification of a rating methodology,
- » to **technology**, e.g. application of Artificial Intelligence or Big Data Analysis,
- » to **project management**, e.g. quality, test and release management.

Due to the wide range of d-fine projects and the diverse roles within the projects, the learning curves of our employees do not flatten even after many years.

Example 1 Teaching from the financial crisis – risk-based system for a financial services regulator



Starting position

Due to growing stability concerns on the financial markets, the Irish financial services regulator (Central Bank of Ireland) decided in 2010 to establish a more risk-based supervisory process with a focus on system-relevant institutions.

Project objective

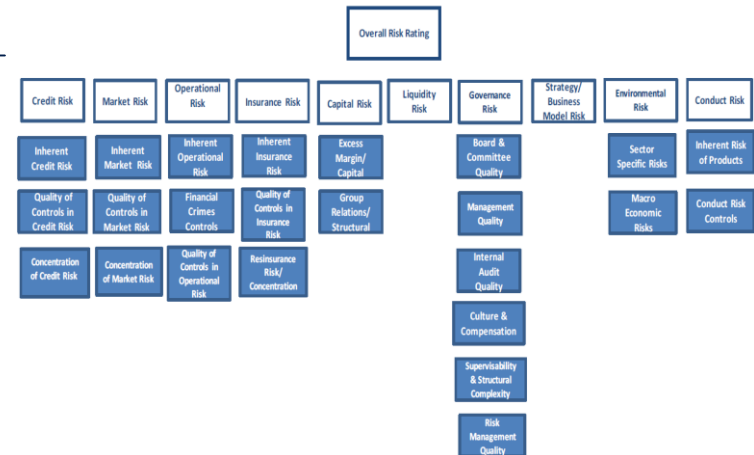
Implementation of a new software solution for more than 400 supervisors for the daily monitoring of more than 10,000 financial service providers. Ensuring the highest standards in terms of stability, extensibility and information security.

Role of d-fine

Initial analysis of requirements and implementation of the system.

Provision of sound knowledge of

- » regulatory processes,
- » risk methodology and
- » excellent IT architecture design.



*Risk-based supervision powered by PRISM (Probability Risk and Impact System)**

* <https://www.centralbank.ie/docs/default-source/Regulation/supervision/prism/gns-4-1-2-2-5-prism-explained-feb-2016.pdf?sfvrsn=2>

Example 2 Own estimate of capital requirements – estimation of credit risk loss distribution



Starting position

Bank's have to have their own internal view on how much capital is required to compensate losses from risk they are exposed to by means of their business model. The bank under consideration used a highly simplified model which was questioned to be fit-for-purpose.

Project objective

Implementation of a new so-called credit portfolio model to challenge the bank's current capital quantification methodology and development of a roadmap how to address identified shortcomings.

Role of d-fine

Analysis of the existing methodology and implementation of a benchmark model.

Required background

- » State-of-the art credit portfolio models,
- » Regulatory requirements and market best practice
- » excellent programming skills.

Sector	Sector correlations (%)				
Russia (Russia CDS 5Y)	100	14.43	18.22	56.43	7.09
Germany (Germany CDS 5Y)		100	66.35	58.75	10.98
European Subinvestment Grade (iTraxx Xover)			100	52.14	8.54
Eastern Europe, Middle East, Africa (iTraxx CEEMEA)				100	-6.40
World (MSCI World index)					100

Example 3 Machine Learning & Natural Language Processing – prevention of insider trading



Starting position

Our customer, an internationally active large bank, wants to automate and systematically monitor the communication of its global traders. The motivation to do this was to relieve its compliance unit and to avoid market manipulation.

Project objective

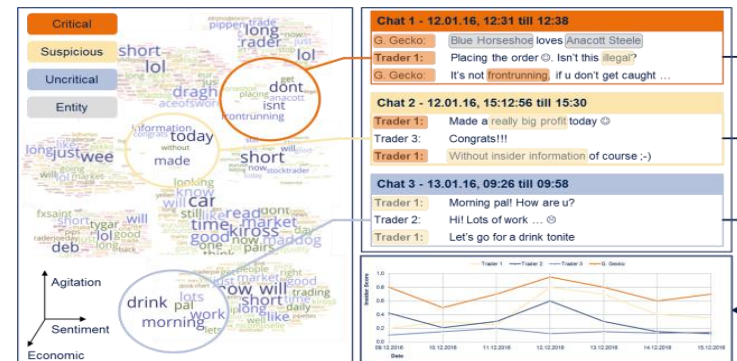
Development of an innovative methodology, based on a combination of expert feedback and mathematical and statistical models, with the aim of recognizing suspected events in the noise of all conversations.

Role of d-fine

Design and implementation of a fraud detection model.

Among others, introducing a sound knowledge of

- » Natural Language Processing,
- » Machine Learning techniques and
- » Supervised Learning (to allow interventions in model decisions).



Model calibration and compliance scoring

What we offer to (new) employees

Flexible career perspectives – one starting point...two paths

d-fine offers exciting perspectives to career starters



**d-fine
BLUE**

Classical career path of a consultant

- » Flexible projects for many different customers
- » International projects with a focus on Germany, Austria, Switzerland and UK
- » Possibility of a typical career history with a consultancy, but without up or out mechanism

Career as a local expert, focused on business work

- » Implementation of complex and possibly longer ongoing projects
- » Work in the vicinity of an office location, currently available for
 - › Rhine Main area and
 - › Rhineland
- » Waiver of a rigid career ladder approach. Instead, taking different project roles in a flexible manner
- » Professional high quality work without any career pressure, but with many development opportunities



**d-fine
ORANGE**

Blue or Orange: To all employees, we apply the same, very high quality standard. All employees work in the d-fine typical topics in joint teams.

d-fine offers attractive compensation and work-life balance



Compensation

- » Competitive fixed **salary** plus **bonus**
- » **Accident insurance** and pension fund
- » **Company car program**



Work-Life-Balance

- » **Free choice of place of residence** all over Germany (d-fine BLUE)
 - › You may live wherever you like, we take care of your business travel and accommodation.
- » Possibility of projects **close to home**
 - › d-fine BLUE: Temporary “Local Contract”, i.e. working in Rhine-Main area or in Munich area, possible from level “Senior Consultant” onward
 - › d-fine ORANGE: Working in Rhine-Main area or Rhineland area, possible from the first day at d-fine
- » Extra program “**Childcare**”
 - › Support when looking for suitable child care or emergency care in almost all big German cities

It's the whole package that counts – work content, work-life balance, compensation!

For newly hired employees: Intensive training and supervision



Training on d-fine entry

- » Approx. **4 weeks of internal initial skill adaption training** in the beginning
- » My role as a professional (soft skill training)
- » Advanced IT curriculum
- » Basics of banking
- » Practical trainings on typical trading or risk management systems, e.g. Front Arena
- » Business trainings, covering various topics, e.g. credit risk, market risk, basics of valuation, capital markets business, accounting, regulation, ...
- » Further trainings: essential SQL, essential PowerPoint
- » Internal processes (travelling expenses, time reports, HR tool, ...)
- » Other stuff (notebook, iPhone, internal Wiki, data protection, ...)



Mentoring

- » **Mentoring program** during the first two to three years
- » Supervision by a manager or senior manager
- » Contact person for personal development and potential problems

The career entry is also facilitated by an extremely collegial corporate culture: open handling of hierarchies, from intern to partner

d-fine offers “high end training” while working full-time*



University of Oxford

- » M.Sc. or Diploma in Mathematical Finance
- » Duration approx. 2.5 years
- » Modules take place in Oxford



Mannheim Business School

- » Part time MBA
- » Duration approx. 2 years
- » Modules take place in Mannheim and abroad (e.g. USA)



European Business School

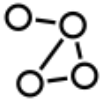
- » Executive MBA
- » Duration approx. 2 years
- » Modules take place near Wiesbaden and in Durham (UK)



HHL Leipzig Graduate School of Management

- » Part-Time MBA
- » Duration approx. 2 years
- » Modules take place in Leipzig or Cologne and abroad (Boston)

* These trainings will be offered for the d-fine BLUE career track only. The d-fine ORANGE career track contains different training offerings.



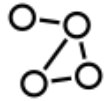
Networking @ d-fine (1 / 2)

- » Working together with **excellent people**,
 - › having the same academic background (physics, mathematics, etc.),
 - › having the same level of qualification (at least an MSc degree, plenty of PhD's) and
 - › having reached the same high level in their university degreesis a **great experience!**

- » Soon 1,000 d-fine colleagues – distributed over more than 200 projects...
 - 🗨️ How to get in contact with colleagues you typically don't see?
 - 🗨️ Regular **d-fine conventions**, 3 times a year!

- » Content of the conventions:
 - › **Plenary talks** for all consultants, e.g. Management Information
 - › **Parallel talks** on **each level** – beginners, more experienced colleagues, experts
 - › **Time for networking**, e.g. meetings between mentor & mentee

Networking @ d-fine (2 / 2)



» Summer convention, every 2nd year **together with spouses**

- › Destination: Somewhere in Europa
- › Content: No business, **fun and recreation** only
- › Duration: Full weekend (Friday – Sunday)
- › Previous events: ...

Barcelona 2010:
convention hotel



Rom 2012: gala dinner
at Villa Miani



Strasbourg / Rust 2014:
one of the convention hotels



Wien 2008: gala dinner at
Kunsthistorisches Museum



Amsterdam 2016:
trip to Noordwijk beach



Prague 2018: gala dinner
at Industrial Palace



d-fine is a “Fair Company” – our employees have this opinion, too



- » d-fine has committed itself to the Fair Company rules* on a voluntary basis. Fair Companies...
 - › ...they offer internships for **professional orientation** during the time of education,
 - › ...they give **well defined tasks and goals** and name a **dedicated contact person** within the company,
 - › ...they hire interns for a **meaningful duration** only,
 - › ...they **do not put off** a university graduate who applied for permanent position **with an internship**,
 - › ...they pay **adequate expense refunds** to interns,
 - › they **inform** interns **about the tasks, contact persons**, and **objective** of the internship and do inform on the **Fair Company regulations**.



- » On kununu.com, d-fine is awarded by active and former **employees** and **interns** as well as by accepted and rejected **applicants**...
 - › ... as a Top Company and
 - › ...as an Open Company.

d-fine employees work with each other, not against each other. There is no up or out, no “elbows”.

* <http://www.faircompany.de>

Who we are looking for

Requirements for Consultant/Analyst: Key qualifications and skills...



**Excellent analytical /
methodical skills**



**Strong
IT know-how**



**Good communi-
cation skills, high
social competence**



**Good understanding
of economics and
business processes**

... and why physicists, mathematicians, computer scientists and economists fulfil most of them



Excellent analytical / methodical skills

- » Stochastic methods
- » Monte Carlo methods
- » Differential equations



Strong IT know-how

- » Programming
- » Numerical methods
- » Data bases



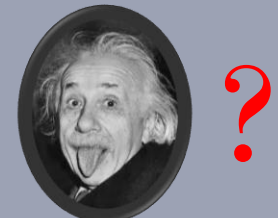
Good communication skills, high social competence

- » Presentation skills
- » (Simple) representation of complex topics
- » Very good English skills



Good understanding of economics and business processes

- » Interest in financial markets and economy
- » Mechanics of financial markets
- » Regulatory requirements



Additional ways to learn more about d-fine



Workshops

- » Several times a year, 3 days, cool locations
- » Exciting topics, joint group work
- » For advanced students / PhD candidates / post-docs
- » Requires a full application
- » d-fine bears all costs



d-fine Days

- » 4 times a year in different places, each in the hotel, each ½ day
- » Lots of interesting lectures and time for questions
- » For students / PhD candidates / post-docs
- » Requires a registration
- » Arrival will be refunded after consultation



d-fine Dinner

- » Several times a year in the evening
- » With delicious food and plenty of time for questions
- » For students / PhD candidates / post-docs
- » Requires a registration
- » Arrival will be refunded after consultation



EINLADUNG ZUM WORKSHOP!



Erleben Sie die Industrie im Umbruch, in der die Verzahnung von innovativen mathematisch-naturwissenschaftlichen Methoden mit ökonomischer Expertise immer wichtiger wird. Konzipieren, entwickeln und implementieren Sie Algorithmen basierend auf klassischen numerischen Verfahren, etablierten Simulationstechniken oder Machine Learning Prinzipien und kombinieren sie diese mit modernen Technologien. Machen Sie Innovationen nützlich und gestalten Sie die Zukunft unserer Kunden mit.

Wenn Sie gerade dabei sind, Ihre akademische Karriere mit einem exzellenten Abschluss (MSc, Diplom oder Promotion) zu krönen und bereit sind, die Grenze zwischen akademischer Theorie und Unternehmenspraxis zu überschreiten, dann sind wir gespannt auf Sie.

d-fine ist mit über 700 Beratern und Büros in Berlin, Frankfurt, London, München, Wien und Zürich eines der größten spezialisierten Beratungsunternehmen in Europa. Wir fokussieren höchste naturwissenschaftlich-technische Kompetenz auf die anspruchsvollen Herausforderungen unserer Kunden.

Strategieberatung, Fachberatung, Technologieberatung: d-fine!

Unsere Kunden schätzen unseren kompromisslos hohen Qualitätsanspruch und vor allem, dass wir diesen Anspruch auch realisieren. Das begründet schon bei der Auswahl unserer Mitarbeiter (m/w).

d-fine. Die Spezialisten für Risk&Finance.

2-tägiger Workshop mit Vorträgen zu aktuellen Beratungsthemen wie Data Science, Predictive Analytics und Artificial Intelligence mit Fallstudien und Erfahrungsbildern. Bewerbungsschluss ist der 22. Januar 2018.

**21. und 22. März 2018
Schlosshotel Kronberg
im Taunus**

d-fine GmbH, Jassas-Platz 1, 63013 Frankfurt am Main, T +49 (0) 69 337 35 00, careers@d-fine.de

www.d-fine.com/karriere Frankfurt, München, London, Zürich, Wien

d-fine

There are many ways to learn even more about d-fine. Use them!

Current dates can be found at http://www.d-fine.com/en_DE/career/events-for-university-graduates/

When will you apply at d-fine?

» Waiting to meet you!



The banner features a dark blue header with the text 'EIN EINSTIEG ZWEI WEGE' in white and orange, followed by the 'd-fine' logo. Below this, it states 'WIR SUCHEN PHYSIKER, MATHEMATIKER & INFORMATIKER (M/W) MIT INTERESSE AN QUANTITATIVER UND TECHNISCHER BERATUNG'. At the bottom of the header, it lists 'www.d-fine.com/karriere' and office locations: 'Frankfurt, München, London, Zürich, Wien'. The main body of the banner shows two men in suits standing on either side of a 3D cube logo. The cube is white on top with 'd-fine CONSULTING' written on it, and has blue and orange sides labeled 'BLUE' and 'ORANGE' respectively.

EIN EINSTIEG ZWEI WEGE **d-fine**

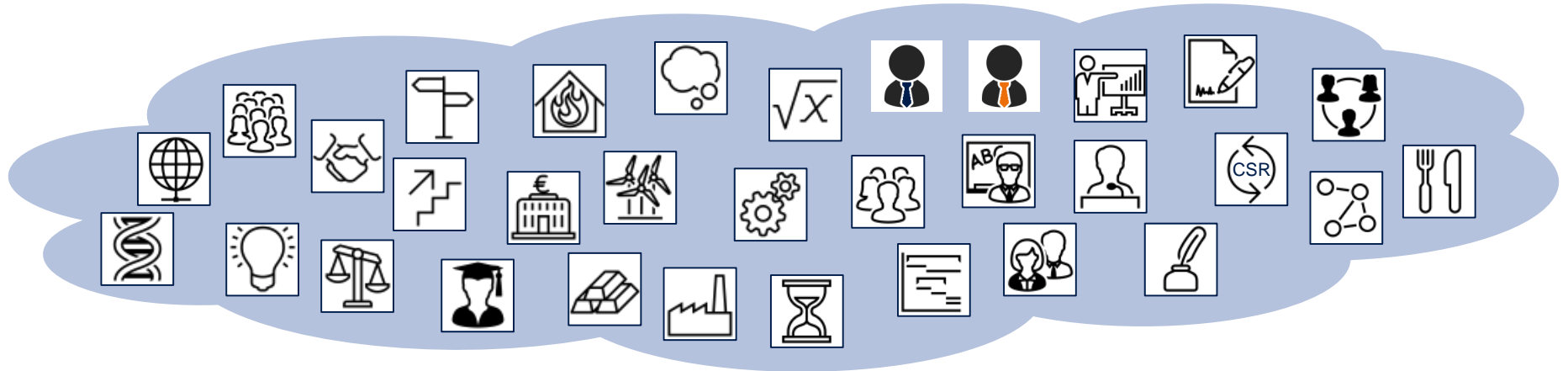
WIR SUCHEN PHYSIKER, MATHEMATIKER & INFORMATIKER (M/W)
MIT INTERESSE AN QUANTITATIVER UND TECHNISCHER BERATUNG

www.d-fine.com/karriere Frankfurt, München, London, Zürich, Wien **d-fine. Die Spezialisten für Risk&Finance.**

Visit <https://jobs.d-fine.com/en/jobs> or contact careers@d-fine.com

What would you like to know more about?

Summary



- » The professional opportunities available to physicists, mathematicians, computer scientists and economists are

> huge

and

> diverse.

- » At d-fine you can discover them.

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